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A consumer *value* theory of innovation in 3G mobile phones: a grounded theory approach

Richard Anthony Ferrers

B.Com, LLB, MTM

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Abstract

In this thesis, I examine how mobile phone consumers understand and experience value in 3G mobile phones, from the perspective of innovation theory. Innovation theory aims to tell businesses how to bring innovative products successfully into the marketplace (Burgelman, Christensen and Wheelwright 2004). Yet innovations often fail (Chesbrough 2006, Christensen and Raynor 2003, Ulwick 2005), leading to delays in new technology reaching consumers, and losses for shareholders. I argue that innovation theory has focussed too heavily on novelty (Schumpeter 1934) and differentiation (Porter 1980) to understand innovation. Innovation theory has not focussed enough on how consumers understand or experience new technology. Recent research suggests innovation needs to create a leap in value to be successful (Kim and Mauborgne 2005). Yet value is an important (Drucker 1999, Vargo and Lusch 2004, Porter and Kramer 2011), but under-analysed (Woodruff and Flint 2006, Grönroos 2011, Arvidsson 2011) and incompletely understood concept. In this thesis, I open the black box of value, and develop a value theory of innovation in 3G mobile phones.

The research findings presented in this thesis examine one fast-moving new technology to build a dynamic, consumer-centric value theory of innovation in 3G mobile phones. I use grounded theory as a methodology for theory building around complex dynamic social processes, consistent with my interpretive approach. I interviewed consumers and used grounded theory analysis to build concepts, relations and a model that explains consumers' actions and experiences with 3G technology. I further tested the results with three triangulating consumer datasets, and by searching for disconfirming evidence in relevant innovation and consumer value literature.

Value emerged from the data as a consumer meaning construction process, guided by social and individual practices of discovery and filtering. Central to this process is the emotional aggregation of multiple meanings to a single overall attitude, facilitating consumer action. Three other value concepts also emerged; value meanings, value practices and attitude. Value was described in many ways by consumers; the value meanings. Importantly, new value meanings arose after purchase different from those consumers constructed before purchase. Value appears highly dynamic and shifts with new information. Value practices add to the dynamics of value by attracting, rejecting, or sharing new value information. The most important value practices I found were *filtering / closing*, *exploring*, *comparing*, *recommending*, *observing* and *inquiring*. A third concept, *attitude*, expressed value emotionally, either positively or negatively and with varying strength. Attitude importantly arises as a single overall attitude which aggregates multiple competing attitudes to value meanings and I propose emotion as a mechanism enabling such aggregation. I found emotional reactions to value information to be important markers of value construction.

Drawing on these value concepts, I developed a dynamic model of value from three interlocking value conversations (social, physical/individual and with the telco), based on three phases (pre-purchase, post-purchase and action phase). Attitude and emotion I placed as a central hub in the model. Action, such as adoption of a new technology, follows indirectly from assessing value and positive attitude (due to value momentum) but more directly following loss of value. Value as an empirical explanation of consumer actions is however inconsistent with the view in the consumer value literature that consumers are goal oriented (Zeithaml 1988, Holbrook 1996, Woodruff 1997).

Two value concepts emerged for innovators and two others for policy-makers. Value Management suggests innovators could continuously monitor what is of value to consumers and to adjust to shifts in their value. Value Leadership suggests innovators sometimes go further to tell consumers what they need. For policy-makers wanting to measure innovation or encourage new technology, it is important to (1) measure consumer attitude alongside tangible innovation indicators and (2) to encourage innovators to focus on value creation. A value perspective opens the black box of value to explore what value is and how the process of value works. However, emotion emerged as a black box at the core of value, requiring further investigation.

A value theory of innovation in 3G mobile phones expands Rogers's (2003) diffusion theory of adopter categories, suggesting consumers can move freely between early and late adopter categories, and casts doubt on income, education and connectedness as important indicators of new technology adoption behaviour rather than perceived consumer value. A focus on value expands the way innovation is defined. This thesis moves away from traditional definitions of innovation that see it simply as bringing something new to market (Kotler 1991, Rogers 2003, Porter 1990). Instead, I argue innovation is better understood as something new that creates value for consumers. This definition emphasises the consumer value creation aspect of innovation found in other innovation authors (Schumpeter 1934, Drucker 1999, Porter 1990, Kim and Mauborgne 2005).

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Publications during candidature

Ferrers, R. (2008). *Towards a value theory of innovation: a grounded theory approach*. DRUID Industrial Innovation conference, Copenhagen. Viewed 20.11.2010 at: http://www2.druid.dk/conferences/viewabstract.php?id=3396&cf=29.

Ferrers, R. (2008A). *Beyond a carbon price: a Low Carbon Incentive Scheme, to accelerate next generation power and transport development*. Submission to Garnaut Climate Change Review. Viewed 20.12.2010 at: http://www.garnautreview.org.au/CA25734E0016A131/WebObj/D0848710ResponsetoIssuePaper4-RichardFerrers/$File/D08%2048710%20Response%20to%20Issue%20Paper%204%20-%20Richard%20Ferrers.pdf .

Ferrers, R. (2007). *Ways to Measure Innovation in the Economy*. Submission to ACIMO for US Department of Commerce, *Measuring Innovation in the 21st Century*. Viewed 19.01.2011 at: http://www.innovationmetrics.gov/comments/050807FerrersRichard.pdf.

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Remembering:

Everett Rogers	born 06.03.1931	died 2004	Diffusion of innovation
Jean Baudrillard	born 27.07.1929	died 2007	Postmodern consuming, signs, symbols
CK Prahalad	born 08.08.1941	died 2010	Core competencies, co-construction
Chris Freeman	born 09.11.1921	died 2010	National systems of innovation, SPRU
Steve Jobs	born 24.02.1955	died 2011	Apple Mac, iPod, iPhone, iPad; Pixar
Clayton Christensen	born 06.03.1952		Disruptive innovation
Li Ka-Shing	born 29.07.1928		Hutchison Whampoa 3G investor

For Steve, who lived it… while I just tried to understand it…

Steve Jobs succumbed to cancer last month. His biography by Walter Isaacson (2011) is a manifesto on value creation: from da Vinci's "simplicity is the ultimate sophistication", empathy for the consumer, to consumers notice everything so the details better be right. Steve Jobs built a business that not only contests with Exxon Mobil as the largest by market capitalisation in the world, but through the course of this thesis rose from #300 in Fortune 500's 2003 list, to the Top 20 in 2012, and #5 in 2013. He built a business that "delights customers" and "inspires employees". I can think of no better definition of value.

This thesis would not be what it is without significant ongoing events. Major events during this thesis include: publishing of Kim and Mauborgne (2005), Prahalad and Ramaswamy (2004), Prahalad and Krishnan (2008), and Vargo and Lusch (2004); iPhone launch 2007 and iPhone 3G 2008, the climate change debate (thanks to Al Gore's *An Inconvenient Truth* and Nobel Peace Prize; reflecting shifting value), the NBN announced 2007, revised 2009, and lastly, Porter and Kramer (2011).

Keywords

innovation, diffusion, consumer, value, value creation, grounded theory, 3G, mobile phones.

Australian and New Zealand Standard Research Classifications (ANZSRC)

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FoR code: 1503 Business and Management, 100%

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List of Tables and Figures

List of Abbreviations

2G	Second generation mobile phone, voice, text only device.
3G	Third generation mobile phone, voice, text and data device.
ABS	Australian Bureau of Statistics
ACIMO	Advisory Committee on Measuring Innovation in the 21st Century Economy, 2008 innovation report author.
ACMA	Australian Communications and Media Authority
ADSL, ADSL2+, DSL	Broadband service, using copper phone lines
ASTEC	Australian Science and Technology Council, 1994 broadband report author.
ASX	Australian Stock Exchange
CEO	Chief Executive Officer
FCC	Federal Communications Commission
GB	Gigabyte (10^9 Bytes)
GDP	Gross Domestic Product
N	Number, count of data source instances
HTA	Hutchison Telecommunications Australia Pty Ltd, Australian 3G first mover.
OECD	Organisation of Economic Cooperation and Development
S curve	Rogers (2003) S shaped technology adoption curve
HW	Hutchison Whampoa, Hong Kong parent of HTA.
IM	ACIMO 2008 innovation measurement report.
NGO	Non-Governmental Organisation
IBM	International Business Machines
Mbps	Megabits per second
NBN	Australian National Broadband Network
NBI	National Bandwidth Inquiry 1999 broadband report.
MB	Megabyte (10^6 bytes)
MIC010	Consumer recording reference; see Table 2.
PDA	Personal digital assistant
Six C	Strauss's (1987) theoretical coding structure
SDL	Service Dominant Logic marketing literature
Telco	Mobile telecommunications company
TIM	Technology and Innovation Management literature
V	Value
V002	Consumer recording reference; see Table 2.
yo	Years old

Glossary of Grounded Theory Terms

Coding – data points are conceptualised by tagging data with a conceptual code, which summarises and emphasises the main action and interaction in the data point. Includes **open coding**, which breaks the data apart conceptually into constitutive theoretical components, **axial coding** which relates concepts back together, and **selective coding** which emphasises some codes as more important that others in the consideration of the interviewees. Glaser (1992) rejects the Strauss (Strauss and Corbin 1990) need for axial coding, saying only open and selective coding are needed. Glaser (1978) suggests good codes have "**grab**" which makes them memorable.

Concepts – "interpretations" of the meanings found in data, which are grouped into **categories** (Corbin and Strauss 2008, p.159). Concepts are sensitising and analytic (Glaser and Strauss 1967). **Core concept** is the central concern of participants, driving their action (Glaser 1978).

Constant comparison – grounded theory specific technique in which all data and codes are compared to all other codes by the analyst, to find new and interesting points of similarity or difference (Glaser and Strauss 1967, Glaser 1998). In practice, the analyst interprets (selects) the data to find important, relevant and theoretically interesting comparisons within the data, which build up to hypotheses about future data connections.

Fit, understanding, generality, control – properties of a grounded theory from original Glaser and Strauss 1967 definition. Glaser later adds **modifiability** (2001), and uses the phrase "fit, relevant, work and modifiability" (2001, p.41). Work means: explain, predict or interpret (Glaser 1978, p.4). He means "it is what the research finds, not tests, that works and is relevant" (Glaser 1998, p.32). Relevant in this case means to the interviewees, since the purpose of grounded theory is to understand their world.

Memos – self-reflective document to solve inconsistencies, pose questions or reflect on the data. For Strauss (1987), memos are conceptual and literary problem-solving tools. For Glaser (1978), memos are the key documentation from which grounded theory is written. Glaser holds that a key part of writing grounded theory is **theoretical sorting** which orders memos into a logical order to tell the story of the theory and the data.

Properties – descriptive or analytical elements of concepts (Corbin and Strauss 2008, p.159). Properties may have dimensions, or ranges, such as strong/weak, positive/negative. Sensitising and analytic are properties of the grounded theory term **concept**.

Substantive coding – analytical codes which are close to the data (in vivo), and may contain context specific description.

Theoretical coding – coding which is closer to theory and often brought from previous literature. Glaser describes theoretical coding as code connectors, or "ways of relating concepts" (Glaser 1996, p.99). Strauss's coding paradigm is a theoretical code – conditions, consequences, action, interaction strategies. Glaser (1978) provides 18 examples, and emphasises the emergence of appropriate theoretical codes driven from relevance to the data, not forced by outside literature or analyst favourites.

Theoretical sampling – non-representative sampling, to seek and compare further variation in understandings. Also the interactive and iterating process of sampling, coding and analysing. Analysing results leads to the next source of possible variation which is sampled, coded and analysed. This process repeats until there is no more significant variation. Glaser says theoretical sampling is "the process of data collection for generating theory whereby the analyst jointly collects, codes and analyses his data and decides what data to collect next and where to find them in order to develop his theory as it emerges" (Glaser 1996, p.19). Glaser (1998, p.59) notes importantly that:

> *A concrete number [for sample size] cannot be offered in advance of the study, for one never knows beforehand the size and shape of a theoretical sample, how long an interview will last, or when the analysis will be complete.*

He goes on to say "there is no 'N', just sampling for saturation and completeness, which yields a well-integrated [connected] grounded substantive theory with parsimony and scope" (p.59).

Theoretical saturation – sample size which sampling can end because no more significant variation is found in the understandings of the sample. Glaser says "at some point in the collection and analysis of data, it is apparent that the emerging theory explains most of the action" (Glaser 1996, p.100).

Theory – a connected set of hypotheses, built from linked concepts, which aim to be useful to understand, predict and control future behaviour (Strauss and Corbin 1998).

Glossary of Value Terms (Grounded concepts in Italics)

Value – Value is a dynamic and ongoing practice, worked out socially and individually, that is especially sensitive to new information (Chapter 3). Value arises from value assessments, and is expressed as an overall attitude (Chapter 4). Value is an *emotional* feedback process, sensing and iterating, rather than a goal-directed progression (Chapter 6).

Value Assessment – production of an attitude, or a consumer action by considering value information through value practices. **Overall (Value) Assessment**: a value assessment or an overall attitude to a value target.

Value Construction – a value meaning, practice, or assessment that a consumer socially constructs. Using senses (touch, smell, taste, vision, hearing) is an individual value construction in the sense of a conversation between a consumer's mind and their senses.

Value Conversation – a social construction of value, either social, individual or telco (in the context of 3G, or more generally with an innovator). In the most simplified model (Figure 2) of value the telco conversation is a social conversation.

Value Element – something a consumer finds meaningful in a value target: aggregated, clustered or analysed to form value meanings. See Appendices 2, 7.

Value Experience – a consumer's interaction with value information interpreted through value meanings. Includes value perception, understanding, interpretation, or perspective.

Value Information – information relevant to value assessments. Some value information may be ignored through *closing* or *filtering.*

Value Management – ongoing value conversations to sense changes in value. See Chapter 8.

Value Meanings – cluster of value elements; archetypes of value; analysed as universal (*time*, *price*, *service*/*reliability*, *function*), social (*need*, *connection*/*community*, *power*, *duty*) or individual (*emotion*, *simplicity*, *beauty*, *new*); drivers of value assessment. More details in Chapters 3,4, and 5, and Appendices 2 and 7.

Value Momentum – Inaction or delay caused by insufficient value information, until a value threshold is reached. **Value threshold** – Point at which Value momentum is overcome.

Value Phases – analysis of value dynamics into pre and post-purchase. An action-oriented phase is included as a third phase to emphasise the timing of consumer adoption, and to distinguish consumer talk from action.

Value Practices – includes social (*recommending*, *inquiring*, *observing*) and individual (*exploring*, *comparing*, *closing*/*filtering*) practices.

Value Shift – a shift in value meaning, either individual or social, such as demand for clean energy.

Value Target – object of a value assessment.

Value theory of innovation in 3G mobile phones – a grounded theory explanation for how consumers adopt new technology, such as 3G; a consumer-centric dynamic theory of innovation in 3G mobile phones. A system of self-constituting socially constructed practices and meanings, summarised emotionally, which drive consumer attitude and consumer action. See Chapter 6.

Values – an historical record of value assessments. Though values are not specifically considered in this thesis, this definition captures my understanding of the relation between value and values.

(Value) **Action –** *buying*, *using*, *waiting*. Consumer adoption of new technology. See Chapter 5, 6.

Attitude – outcome of value assessment; positive or negative, strong or weak; enduring. See Appendix 8 for full list of grounded attitude codes (properties). Attitudes occur at two levels; overall and by value meaning. For example, "I love my phone" (overall attitude), "the price is ok" (attitude by value meaning).

Context – external circumstances which can affect value.

Consumer strategy – strategies consumers' used as a result of learning from ongoing value assessments, such as *trust*/*distrust*, *minimise*. Not included in final value model due to lesser significance. See Appendix 1 (non-core value concept).

Innovator strategy – strategies innovators used to entice consumers to buy 3G mobile phones. Includes pricing, bundling, marketing and other strategies. Not included in final model due to lesser significance in value conversations of consumer-centric model, except for mention of lock-in. See Appendix 1 (non-core value concept).

New – an individual value meaning. **Novelty –** something new to the world, or new to a consumer's world.

Price – a universal value meaning of payment made for a value target. **Cost –** the price an innovator spends to produce an innovation, the tangible price a consumer pays for something; also includes time and effort a consumer foregoes (social cost) to make a value assessment. A Porter (1990) strategy is to be the "lowest cost" provider.

Social Network – members of a social group, who participate in value-related discussion, and social value practices including *recommending*, *inquiring* and *observing*.

Chapter 1: Opening the Black Box of Value

1.1 Introduction

Value is an important concept in innovation literature (Drucker 1999, Prahalad and Ramaswamy 2004, Kim and Mauborgne 2005), but it is only partly analysed and defined (Woodruff and Flint 2006, Arvidsson 2011, Grönroos 2011). I endeavour in this thesis to open and explore the *black box of value*: to analyse and define value as fully as possible, to better understand innovation, particularly how and why consumers adopt innovation in the form of a new technology. Whereas historically innovation theory has focussed on innovation as developing and delivering new products to market (Rogers 2003, Burgelman, Christensen and Wheelwright 2004, Tidd, Bessant and Pavitt 2005), I have developed a theory which emphasises consumer experiences of value. Using a grounded theory approach, I analysed data gathered from consumers after they bought a 3G mobile phone. Value emerged as the core concept in the data. This thesis therefore analyses what consumer value is and how consumers construct it, thereby addressing the research question: *how do consumers understand value in a new technology*? In answering this question, I also compared my findings on value with understandings of value from the innovation and consumer value literature. The theory I have developed in this thesis thus contributes new perspectives and understandings of value and innovation to both literatures.

Understanding consumer value is important, I argue, because many consumers buy new technology as they see value, while some others buy merely because it is new or different. Innovators who focus on novelty and differentiation alone risk failure if they do not also create value for consumers, or take account of what consumers value. If public funders of innovation do not understand consumer value, governments and their innovation policy-makers risk wasteful spending to encourage new technologies that do not benefit consumers. Understanding what value is and how value works promises to allow consumers, innovators and policy-makers to better respond to each other's needs.

I argue that innovation theory can be broadened with a new approach: one that is dynamic, consumer-centric and experiential. I build from and review the innovation literature, particularly the technology and innovation management (TIM) and the diffusion of innovation literatures, and connect my argument to marketing's Service Dominant Logic (SDL) literature. My argument for a new approach makes three observations about the TIM literature; (1) TIM literature is mainly firm- and industry-centric, (2) that TIM literature I rely on examines innovation in a dynamic way (Bijker 1995, Geels 2004, Christensen 1995), (3) that while diffusion of innovation literature is both consumer-centric and examines technology adoption over time, it fails to account for consumers and their valuing of products as highly dynamic, and sensitive to new information.

TIM literature contains many important dynamic explanations and models of innovation. Within this literature, the TIM scholar's goal is to "develop tools, concepts and processes to facilitate successful technological innovation" (Burgelman, Christensen and Wheelwright 2004, p.3). For example, TIM contains many useful tools and theories ranging from Schumpeter's (1934) early explanation of entrepreneurship and innovation growing the economy, and creative destruction (1940), to later work such as Abernathy and Utterback's (1978) industry life cycle theory, dominant design theory (Anderson and Tushman 1990, Tushman and Anderson 1986), to Dosi's (1982) technological trajectories. Von Hippel's sources of innovation (1988) and Rothwell's five generations of innovation process (1992) show variation in innovation's process, drive and impetus. However what stands out in the model of innovation according to Tidd, Bessant and Pavitt (2005) is the centrality of producing innovation, rather than the presence of a consumer. Innovation is portrayed as an arrow heading out into the marketplace, but the model's analysis of innovation stops before reaching the consumer. Similarly, Foster's (1986) S-curve of market penetration shows dynamics of adoption over time for a product, but does not analyse the consumers' experience during that adoption.

Consumers are not excluded from analysis in the TIM literature, but firms are the typical focus of analysis. Rogers's (2003) work on adopter categories, extended by Moore (1991) to include a chasm between early and mainstream users, is important because it is the accepted innovation theory of consumer technology adoption. Over time, scholars have identified opportunities for improvement in Rogers's model. In particular, Hall (2005) notes that Rogers treats the diffusing innovation as unchanging, which Rosenberg (1982, 1994) and Geels (2002) find unrealistic. Similarly, Rogers's adopter categories model consumers as unchanging. In the same way, the Bass (1969) diffusion model differentiates between imitators and innovators, yet provides no theoretical mechanism for a consumer to shift categories. Rogers's and Bass's work builds from observations of consumer adoption, such as time of adoption, and time of awareness of the innovation. Yet, using surveys like Rogers (2003) and Ryan and Gross (1943) or retrospective

industry statistical analysis like Bass (1969) does not pursue deeply the dynamics of consumer technology adoption experience.

Dynamic consumer-centric approaches to understanding innovation are relatively rare in the TIM literature. Bijker (1995, Pinch and Bijker 1987) offers perhaps the most comprehensive approach, but focuses on consumer groups not individual consumers. While Bijker's approach was a significant step forward towards a dynamic understanding of consumer technology adoption, it could be extended to examine individual consumer's experiences. Historical cases have added significantly to innovation knowledge but they have focussed mostly on business experience not consumer experience. Work such as Hughes (1983) case study on the introduction of electric power systems in Europe and US, and particularly Hughes' concept of 'reverse salient', are important steps forward in innovation knowledge. Utterback's historical review of innovation in several industries (1994; Abernathy and Utterback 1978) to develop an industry dynamics of innovation model is similarly important. Burns and Stalker's (1965) analysis of firms in dynamic and static environments also advance innovation knowledge. Together these works make important contributions to understanding innovation. But these historical or corporate analyses do not fully address consumer dynamics in innovation success. In contrast, some scholars seek to understand how consumers respond to new technology. Zuboff's (1988) work on how consumers respond to computerisation of the workplace, and subsequent work on how firms deal with dynamic consumer needs (Zuboff and Maxmin 2002) provide a consumer perspective. These studies encouraged me to pursue a qualitative, experiential analysis of consumers to reach a dynamic understanding of consumer technology adoption processes.

Beyond the innovation literature, marketing and other scholars pursue a better understanding of value and consumer behaviour in a dynamic environment. The internet and electronic commerce is one factor driving such a dynamic environment. Easily accessible information online places consumers in a position to better compare purchasing options than ever before (Seybold and Marshak 1998, Seybold, Marshak and Lewis 2001). At the same time, qualitative methods applied to online discussion groups allow researchers opportunities to also observe and analyse consumers technology interactions (Zaltman 2003, Zaltman and Zaltman 2008). Marketing scholars also are thinking about rapidly responding to consumers' changing needs with services rather than products (see Service-Dominant Logic, Vargo and Lusch 2004 in Section 7.5). Earlier work from innovation scholars defined this dynamic relationship as the co-construction of innovation and talked about innovation as a discussion. In extending these perspectives I argue for innovation as a value conversation, being dynamic, ongoing, collaborative and responsive. This conversation or co-construction approach is similar to Rothwell's (1992) integrated fifth generation innovation process, rather than a push or a pull approach (Prahalad and Ramaswamy 2004, Prahalad and Krishnan

2008). The growth of consumer choice has firms competing for the best new product ideas, leading to greater emphasis on outside sources and consumers for ideas (Chesbrough's 2006 open innovation, and von Hippel's 2005 user-driven innovation). Value explains consumers' experience in a dynamic environment.

Defining value has proved challenging in the literature, yet scholars (Drucker 1999) suggest value is important to explain the actions of firms. Marketing scholars, like philosophers, economists and anthropologists continue to grapple with comprehensive explanations of value (Gallarza, Gil-Saura and Holbrook 2011). In an analysis, Slater (1997) proposes a consumer value-based theory of the firm, building from neoclassical, behavioural (March and Simon 1958), transaction cost (Coase 1937), and resource-oriented (Penrose 1959) views of firms. Slater advocates for a consumer value-centric view, where consumers have imperfect information, markets are heterogeneous, and gathering information has costs. Where the environment is fragmented, hypercompetitive and consumers are highly demanding, Slater argues value explains (1) why firms exist: to satisfy consumers, (2) why firms are different: as a result of different value propositions, and (3) why firms perform differently: as a result of their varying levels of skill in understanding what consumers value and their ability to organise and deliver value to their consumers. On this basis, Slater concludes understanding value is a high priority.

Why has value been so difficult for scholars to understand? Value is a mix of three challenges. Firstly, value is expressed as individual action enacted as social practices. So while reflected in firm performance in aggregate, value can be usefully examined at an individual level of analysis. Much innovation analysis occurs at firm level (Kim and Mauborgne 1997, 1999, 2005, Prahalad and Ramaswamy 2004, Prahalad and Krishnan 2008), industry level (for instance, Burns and Stalker 1965, Utterback 1994, Christensen 1997, Bijker 1995), and in Schumpeter's (1934, 1942) or Nelson and Winter's (1982) case at a macroeconomic level, thereby obscuring value dynamics at a consumer level. Secondly, value is highly dynamic, so static statistical analysis of value can be misleading in a dynamic environment. Similarly, a Bass (1969) analysis does not emphasise the subtleties of shifting consumer value. Thirdly, value is social, constructed and experiential. In particular, Bijker's social construction of technology perspective, and Maguire's (2003) discourse analysis approach (see also Hardy and Maguire 2008 on DDT meanings, Hardy and Maguire 2010 on shifting meanings, Munir and Phillips 2005 on Kodak meanings) have great potential in the longer term to reveal the dynamic meanings and practices of value. While value is difficult to exhaustively define, I argue that better understanding value will help solve important and difficult innovation challenges.

Several challenges arise from current approaches to innovation. Firstly, many innovations fail to reach expectations, either before they reach market because projects are cancelled, or after

release by not recovering costs (Chesbrough 2006, Christensen and Raynor 2003, Ulwick 2005, Wind and Mahajan 1997). Secondly, a profit-maximising approach to innovation can result in slowly declining prices, and slow adoption of new technology (see Fletcher 2009 for a broadband telecoms example). Thirdly, when governments wish to stimulate adoption of new technology, they are faced with choosing between multiple competing technology solutions, and so face uncertainties and complexities with picking winners (see for instance Garnaut 2008, Foxon 2003 on encouraging clean energy technology). Fourthly, current innovation models are stretched and strained by new multi-national problems such as climate change (Mowery, Nelson and Martin 2010, Hargadon 2010). Fifthly, established models of innovation, though widely criticised (Fagerberg 2005, Rosenberg 1994) are still used to justify innovation policy interventions (Nelson and Winter 1982, Geels 2002, Geels and Schot 2007, Godin 2005, Balconi, Brusoni and Orsenigo 2010). Sixthly, innovation is understood much better as a macro than micro phenomenon. Fagerberg summarises the difference in knowledge between the macro effects and micro process of innovation, saying "in spite of the large amount of research in this area [innovation], we know much less about why and how innovation occurs than what it leads to" (2005, p.20). I respond to these challenges by presenting a qualitative, grounded and consumer-centric approach to innovation research.

In this thesis, I propose a consumer value-creation approach to focus on the micro-experience of innovation. Hall (2005) argues there is a need for a grounded understanding of how consumers make technology choices, so I have focussed on analysing innovation literature, and especially diffusion of innovation literature (Bass 1969, Christensen 1997, Bijker 1995, Kim and Mauborgne 2005). While consumers have been the centre of some analysis, consumers' experiences of innovation have been less of a research focus, with some notable exceptions (Mick and Fournier 1998, Bijker 1995). In this thesis, I attempt to model how and why consumers adopt new technology to better understand what innovation is, and ultimately to advise governments, and businesses how to encourage innovation.

A recent strand of innovation literature sees innovation not as produced and consumed, but as co-constructed. In this view, innovations are co-constructed or co-produced as a cooperative arrangement between a producer and consumers (Prahalad and Ramaswamy 2004, Prahalad and Krishnan 2008). Some good examples of co-construction are digital products and services, which are heavily computer-mediated, such as consumer participation in eBay, YouTube, and Google search (Cova, Dalli and Zwick 2011, Arvidsson 2011). All three examples rely on the falling cost of digital infrastructure: home computers, bandwidth, and computer storage. Innovations based on software products and services are highly dynamic, and driven by consumers' experience.

Influenced by a co-construction approach, I analyse innovation in this thesis as a consumer experience. This understanding of innovation moves beyond Schumpeter's (1934) 'new combination' (Fagerberg 2005) definition of innovation, a definition that focuses on new products, services, sources of supply, business models and new markets. Such a production-oriented view ignores Schumpeter's own dictum that "the aim of production can only be the creation of useful things, of objects of consumption *to satisfy needs*" (1934, p.12). My focus on innovation as experience is thus compatible with Schumpeter's view about needs and usefulness for consumers being paramount (I discuss definitions of innovation and how they relate to value further in Chapter 7).

Examining consumer experience allows me to emphasise new and different aspects of innovation. My understanding of consumer's experience is informed by grounded theory (Glaser and Strauss 1967), and value literature, especially Holbrook's (1996, p.138) view of value as an "interactive relativistic preference experience" (see further comparison of value and innovation in Section 7.7) Firstly, a consumer's experience is very dynamic: changing quickly, for example with new information and through interaction with another consumer or a new technology. Secondly, a consumer's experience is subjective. One consumer's experience can be very different from another's. Thirdly, a consumer's experience is contextual. As context changes, so does the information a consumer acquires in relation to a new technology. Lastly, a consumer's experience is coloured by the meanings they connect to that experience. Meanings, like information, are dynamic, subjective and contextual. Multiple value meanings and creating new value meanings are important aspects of innovation discussed in disruptive innovation research (Christensen 1997; Bower and Christensen 1995), design-driven innovation literature (see Verganti 2009) and Kim and Mauborgne's (2005) *Blue Ocean Strategy*. Influenced by this literature, I focus on innovation as a consumer experience: subjective, dynamic, meaning-oriented and contextual. These properties are the basis of a micro-experiential account of innovation.

My choice to focus on a micro-experiential account of innovation ultimately led me to pursue a grounded theory methodology. This qualitative approach is consistent with a meaning-oriented, subjective and contextual focus on consumer experience. Quantitative measures are possible with grounded theory (Glaser and Strauss 1967), but a subjective, interpretive research design naturally excludes consideration of positivist approaches to understanding innovation. My subjective consumer approach is consistent with the recent focus on practices in strategy and more recently marketing research (Whittington 2006, Echeverri and Skålén 2011), and an emic (internal actor) rather than etic (observed behaviour) view (see Harris 1976, Morris, Leung, Ames and Lickel 1999). The focus on value as a black box owes a debt to Actor-Network Theory (Callon & Latour 1980) where black box is described as containing "that which no longer needs to be reconsidered,

those things whose contents have become a matter of indifference" (1980, p.285). My interpretive approach and interest in innovation dynamics led me to adopt a grounded theory approach.

Since this thesis adopts a grounded theory approach, I discuss briefly now what the approach is, what arose from this approach, and why the main literature review comes after the results. A grounded theory approach is designed to capture consumer meanings of innovation, shifting contexts, and the dynamics of experience. Grounded theory builds from the a symbolic interactionist approach of Blumer (Flick 2002), which suggests that consumers act on the basis of what things mean to them. A symbolic interactionist approach assumes consumer meanings are shaped through social processes, and that consumers derive meaning in interactions with and interpretation of their context. Grounded theory in this thesis is interested in what drives consumers into action, and their core concerns (The grounded theory methodology is explained in Chapter 2).

What arose from my grounded theory analysis of consumers' experience with new technology was a focus on value. Value emerged as a core concept to explain consumers' actions. Value arose from the meanings consumers gave to their experience with a new technology. Two central dynamics emerged from my analysis: value meanings and value practices. Value meanings are what a consumer finds valuable in a value target. Value practices gather or reject information for a value assessment. Further value definitions are found in the Glossary and in the results chapters. Value is an aggregate of consumer meanings, consumer practices, and the properties of and relations between those meanings and practices. These results are presented in Chapters 3, 4 and 5. Chapter 3 deals with pre-purchase meanings and practices, whereas Chapter 4 deals with post-purchase meaning shifts and practices. Chapter 5 specifically addresses the actions arising from consumers' experiences with new technology. In Chapter 6, I present an integrated model of the concepts and relations as a value theory of innovation in 3G mobile phones. The value theory is an empirically derived account of the process of consumer value construction.

An important part of grounded theory is to compare emergent concepts and relations with previous literature explanations. While I set the scene with the innovation literature in Chapter 1, I compare value meanings and value practices with the innovation and consumer value literature in more detail in Chapter 7. In doing this, I examine similarities and differences between the literature and the value theory of innovation in 3G mobile phones to test its credibility and plausibility. While some of the value meanings were 'obvious' (such as *price*, *function*, *reliability*) in the literature, others like *simplicity* and *closing*, were much more subtle concepts. The innovation literature contained several value-related concepts, particularly in the design-driven innovation literature. The consumer value literature contained many value typologies, which were consistent with the value meanings that emerged in this thesis, but few value practices. Chapter 8 concludes with a discussion of the significance of my value theory of innovation in 3G mobile phones. The outcome of this

thesis is that I open *the black box of value*, and explore an important but imperfectly understood aspect of innovation in 3G mobile phones. To demonstrate this assertion, in the next section I will examine four recent threads in the innovation literature.

This thesis provides two contributions. Firstly, I present a theory of value in 3G mobile phones, including unpacking value into value meanings, value practices and supporting concepts, such as attitude. Secondly, I show the usefulness of a value theory of innovation in 3G mobile phones in the context of innovation policy challenges. I do this by applying the value theory to two innovation policy documents; a US Department of Commerce report (ACIMO 2008) on measuring US innovation, and a McKinsey (2010) report on encouraging broadband adoption in Australia. These two documents were selected because of their difficult innovation problems, their likely wide interest to innovation scholars, and because they are quite recent. These documents provide practical problems against which I can compare and assess the value theory, seeking to produce new and useful insights into those problems.

1.2 Background and Research rationale

In this section, I justify my research question relative to understandings of value in the innovation literature. My approach emphasises value as a central empirical construct for a dynamic understanding of innovation from a consumer's perspective. Value is only partly understood from a management perspective. The January 2007 special issue of the *Academy of Management Review* contains four articles on value creation. In introducing the special issue, Lepak, Smith and Taylor (2007) note that value creation is a "central concept in management and organisation literature" (p.180), but that it is "not well understood" (p.180), and that there is "little consensus on what [it] is or how it can be achieved" (p.180). The editors note that value is subjective and that all the papers in the special issue except Priem (2007) indicate that value is created in organisations. Priem (2007) however argues for the importance of consumers in understanding value, suggesting consumers are "arbiters of value" (p.219), and suggests that "scholarly attention to firm-consumer value linkages will likely enhance our understanding of factors leading to sustained high performance" (p.233). More recently, Porter and Kramer (2011) emphasise value's importance, critiquing the profit motive, and arguing instead for an increased management focus on creating shared value. Value is thus still a black box in management research, even it if is now recognised as important.

Service Dominant Logic (SDL) and co-creation scholars are influencing marketing researchers to regard innovation as a dynamic phenomenon, which they see as a process of co-production or co-construction of value (Vargo and Lusch 2004, 2006, 2008, 2011A; Prahalad and Ramaswamy 2004, Prahalad and Krishnan 2008), though not without dissenters (O'Shaughnessy and O'Shaughnessy 2009). Marketing scholars also point to the lack of theory explaining the

process of value (Woodruff and Flint 2006, Vargo, Maglio and Akaka 2008, Arvidsson 2011, Grönroos 2011).

Marketing scholars in 2011 continue to enthusiastically pursue a greater understanding of value, focussing on consumption as a dynamic service-oriented value creation process. As recently as September 2011, a *Marketing Theory* Special Issue on value co-construction reports investigations of value (see also 2011 special issues on SDL in the *European Journal of Marketing* and *Industrial Marketing Management*, and September 2010 special issue on value in *Organization).* Closest to the work in this thesis are early empirical investigations of value, loss of value and value practices (Echeverri and Skålén 2011), linking value to web 2.0, user and open innovation (Arvidsson 2011), and authors urging interpretive approaches to understanding value (Fisher and Smith 2011). SDL scholars seek to understand the "collaborative process of value co-creation" (Vargo and Lusch 2011, p.186) while seeking better theory to cope with the "dynamics of 'real-world' events and processes" (p.186). Other scholars see customer value quantitatively, particularly as discounted future cashflows (Schmitt, Skiera and Van den Bulte 2011). In contrast, strategy scholars link value and dynamic capabilities (Landroguez, Barroso Castro and Cepeda-Carrion 2011) and see value embedded in a system (Pynnönen, Ritala and Hallikas. 2011). Information Management scholars show value in digital goods is mostly social and emotional rather than functional or price-oriented (Kim, Gupta and Koh 2011). The diversity of approaches to value signal the importance of developing a solid theoretical foundation for value.

Marketing scholars are very active theorising about SDL and co-creation. For instance, Vargo and Lusch (2011) suggest superseding a business to consumer focus, with networks of interconnections in the market they call A2A, where A is a network actor. This approach treats all market participants, whether businesses, consumers or households, as interwoven in value-creating processes, recalling Norman and Ramirez's (1993) value constellation (Spohrer (2011). Sheth (2011) suggests thinking of households like small owner-operated businesses, whereas Kohli (2011) prefers to view households in a joint-venture with firms aimed at value creation and posits networks of entities combining spontaneously to create value. Marketing scholars continue to theorise value as social, dynamic, interactive (Kowalkowski 2011), complex, unique, contextual (Vargo and Lusch 2011), and experiential (Ramaswamy 2011). Gummesson (2011) sees the need to build value and service theory from observing real-world practice. Current marketing theorising supports my approach to value as dynamic and social, yet still seeks empirical evidence of the building blocks and processes of value I seek to provide in this thesis.

Empirically and theoretically, SDL and co-creation scholars pursue a number of ways to move their understanding of value forward. Kowalkowski (2011) pursues contextual differences between firm exchange and use-value orientations, while Grönroos (2011, 2011A; Grönroos and

Ravald 2011) emphasises firms as value facilitators making value propositions (Frow and Payne 2011) who engage consumers and support consumer value creation (Ballantyne, Williams and Aitken 2011, Cova, Dalli and Zwick 2011). Cova, Dalli and Zwick (2011) take a Marxist view of co-creation, and see a need to "disentangle conceptual complexities" (p.233) in understanding value, while Fisher and Smith (2011) seek to answer why consumers are "taking more control" of their own value creation. Some scholars prefer a quantitative approach to measuring the strength of value-related variables (Flint, Blocker and Boutin 2011, Nasution, Marondo, Matanda and Ndubisi 2011, Blocker, Flint, Myers and Slater 2011, Kim, Gupta and Koh 2011, Munnukka and Järvi 2011). Others begin to pursue the experience of consumers through qualitative approaches (Baron and Warnaby 2011). Fisher and Smith (2011), for example, used ethnography to find what value means to consumers, but they concluded value is chaotic. Perhaps the author who resonates the most with my work in this thesis is Ramaswamy (2011), who emphasises the consumer's human experience in a dynamic environment and the need for firms to develop tools for engaging and supporting consumers in their value meaning-making. Recent empirical value work supports my view that a theory of value is needed to simplify and empower value theorising through conceptual and linguistic tools to explain what value is and how value works.

Value is central to innovation in both classic and recent analyses. Porter (1985, 1996), Drucker (1999), and Kim and Mauborgne (2005) all invoke value as a central focus of innovation. Drucker says "the test of an innovation is that it creates value" (1999, p.85). Porter says "competitive advantage grows fundamentally out of value a firm is able to create for its buyers" (1999, p.85). Kim and Mauborgne go furthest, advocating value innovation, where innovators "focus on making the competition irrelevant by creating a leap in value for buyers" (2005, p.12). Innovation policy documents follow a similar value emphasis saying innovation is "creating value by doing things differently" (Cutler 2008, p.4) or aimed at "creating new value for customers and financial returns for the firm" (ACIMO 2008, p. i; see Chapter 7). Yet value still needs a flexible detailed definition rather than simply consisting of costs, benefits, utility and price (Kim and Mauborgne 2005, p.17). Christensen uses performance and solving consumers problems as a close analogy to value (1997; Bower and Christensen 1995; Christensen and Raynor 2003). Schumpeter, in contrast, recognises the social aspect of valuing, saying a consumer "compares [valuations] consciously or unconsciously with his neighbours" (1909, p.220, 1934, p.56). Yet Schumpeter brings a subjective view of consumer value into his analysis. Schumpeter emphasises the impact of innovation and value on consumers as securing an advantage (1934, p.129), and by saying innovation is about "creation of useful things… to satisfy [consumer] needs" (1934, p.12). Other extensive investigations of value occur in economics (drawing on Aristotle's use value, exchange value and conspicuous consumption; Gordon 1964).

Current innovation theory invokes value in its analysis in four key areas: design-driven innovation, open innovation, disruptive innovation and user-driven innovation. I examined these four innovation literatures plus the Technology Acceptance Model (TAM; Davis, Bagozzi and Warshaw 1989, Venkatesh, Morris, Davis and Davis 2003) to determine their connection to value. Three points emerged about how value relates to these literatures. Firstly, value potentially provides an overarching conceptual framework that innovation authors seek in design-driven innovation and open innovation (Swan and Luchs 2011, Dahlander and Gann 2010). Secondly, value creation underlies innovation analysis through all these literatures. Thirdly, I found value, design and innovation are conceptually closely related.

Some scholars see innovation as a mature field while others see opportunity for conceptual deepening. In 2006, Hauser, Tellis and Griffin (2006) assessed the agenda for innovation research and argued that research needs to provide a better understanding of how consumers are impacted by innovation, and there is a need for a "deeper underlying theory" (p.690) in this area. In contrast, the TAM literature (Davis et al. 1989, Venkatesh et al. 2003) sees "research in individual-level technology adoption [as] undoubtedly mature" (Venkatesh 2006, p.510). Venkatesh's view emphasises the lesser potential for novel conceptual leaps in the TAM view of innovation. One reason for TAM's mature view of innovation may be its high r-squared, which leaves little room for improvements. Another reason may be TAM's approach to ignore the social process of learning, though later TAM models take account of social interaction nor accounts for evolutionary changes in new technology (Bagozzi 2007, Benbasat and Barki 2007).

The emerging innovation literatures take a more dynamic perspective of innovation but each has its own theory-related challenges. Swan and Luchs (2011) suggest a design view of innovation has an "absence of conceptual framework". Dahlander and Gann (2010) in reviewing open innovation literature note a "need for a conceptual frame for open innovation" (p.323). Similarly Swan and Luchs (2011) recognise the "diverse underpinnings" of a design-driven approach to innovation, but this background has "impeded the movement towards consolidated theoretical foundations that help to advance knowledge" (p.323). In the area of user-driven innovation, Bogers, Afuah and Bastian (2010) suggest the quest to understand why users innovate still needs a "coherent theory". This literature suggests a need for an overarching innovation framework. Such a framework I argue will be improved by taking account of value.

Value has the potential to explain how and why consumers act, including why consumers innovate. Why consumers innovate is a key problem for user-driven innovation scholars (Bogers, Afuah and Bastian 2010). A value perspective suggests consumers innovate to solve local problems, sometimes alone, and sometimes in groups co-constructing. Therefore, better understanding value has the potential to lead to a theoretical framework, linking individual technology adoption, to open,

user and design-driven innovation. In Chapter 7, I compare the many empirically derived aspects of value I found in my data to theoretical elements of design-driven innovation.

Value is talked about in open, user and design-driven innovation literature in several ways. Scholars use a variety of value-related language. The variety indicates the grasping for the best terminology, when they are circling the essence and process of value. For instance, value is discussed as value creation (Jeppesen and Laursen 2009, Hopkins et al. 2011, Gassman et al. 2010, Chesbrough 2006, Almiral and Casadesus-Masanell 2010), value capture (Hopkins et al. 2011), adding value (Bloch 1995, Dell'era and Verganti 2009, Bloch 2011), value proposition (Martin 2010), and sources of value (Bogers et al. 2010) linking to co-creation and co-production of value (and hence SDL Vargo and Lusch 2004). Similar terms to creating value include the value in use or utility of getting a job done (Christensen and Raynor 2003), keeping customers happy (Martin 2010), buyer utility (Kim and Mauborgne 2000, 2005), utility maximising (Bogers et al. 2010), and solving customer problems (Christensen and Raynor 2003, Bogers, Afuah and Bastian 2010, Martin 2009). In the TAM model, value is invoked as ease or difficulty of use and usefulness. The later TAM model (see Schepers and Wetzels 2007) also includes social interaction as an important impact on technology purchase, recognising a social construction aspect of technology adoption. In these several aspects and descriptions of value, value is considered more as an output than a process. In this thesis, I address not only the complexity and dynamic nature of the value process to better understand value in an innovation context, but attempt to provide a sensitising and analytical language to capture the same complexity and dynamic nature in a simple and compelling way.

My analysis of recent innovation literature suggests value, design and innovation are closely connected (see also Section 7.5). For instance design and value both relate to concepts including complexity, usefulness, aesthetics, hedonics (Dell'era and Verganti 2009), semiotics (Bloch 2011, Verganti 2008) and even ethics (Swan and Luchs 2011). Design and value both are meaning-oriented, socially constructed and dynamic. In Chapter 7, I draw out four further distinctions between design and value theory of innovation. The closeness of design and value perspectives indicates scholars reaching beyond tangible explanations for consumer behaviour and towards integrating consumers' softer, aesthetic, emotional qualities. Value takes account of both hard, logical and softer, emotional consumer behaviour.

Innovation research recognises value as an important concept: a complex, dynamic interactive, contextual and social aspect of technology adoption. I draw inspiration from how value is used in recent innovation literatures to connect to and interpret the empirical aspects of value I found in my data. I analyse value dynamically in this thesis, to construct value's interacting components and to explain how consumers behave in adopting technology. Value and a value theory of innovation in 3G mobile phones hold substantial potential as a coherent unifying

framework for innovation theory. A value theory of innovation in 3G mobile phones can link together user, design-driven, open and disruptive explanations of what innovation is and how consumers respond to innovation. A value theory opens *the black box of value* to explore as fully as possible the components and interactions that make up consumer value in a 3G mobile phone innovation context.

1.3 My approach

I aim to better understand diffusion of innovation through a deep exploration of how consumers value new technology offerings. My approach examines innovation from a dynamic, consumer-centric perspective with the aim to better understand innovation, such as the adoption of new technology like 3G mobile phones. As such the research question addressed in this thesis is:

How do consumers understand value in a new technology?

I focus on one high profile, rapidly evolving contemporary technology: 3G, a consumer mobile phone technology that allows fast data delivery to mobile phones, as well as phone calls and messaging. Fast data delivery allows internet access, video-conferencing, and music and video downloads. 3G is a recent technology, launched in Australia in 2003, but until recently used by a small proportion of Australian mobile phone users. Since I began this thesis, Australian 3G usage grew from 3 per cent (ACMA 2006) to 50 per cent (ACMA 2009) of mobile phone users.

A number of sub-questions concerning consumer value emerged from the grounded analyses and are dealt with, including:

- What is value? What are the meanings of value?
- What is the process of value? How does the process of value work?
- What does value of new technology mean to consumers?
- What practices do consumers use to construct an understanding of value?

1.4 Bounding the research

Four choices defined the boundaries in this research. Firstly, I chose to focus on consumers, rather than businesses. Secondly, I chose to focus on 3G, a mobile phone technology. Note that I assess the plausibility of my interpretations of 3G consumer value meanings against three additional consumer datasets: consumer discussion arising from (1) a new website design, (2) the 3G Kindle ebook reader, and (3) a debate on transition to clean energy. This process searches for disconfirming evidence of the core concept value, and further variation in consumer value meanings. Thirdly, I chose interviews as my primary data source, and observation, and documents as secondary sources of triangulating data. The interviews and observation data collection was limited to Australia. Fourthly, I chose to assume a socially constructed and dynamic world, and

place myself within the interpretive research paradigm (discussed further in Chapter 2, Methodology).

1.5 Purpose of this research: Research Objective

The objective of this thesis, following from my approach and boundary choices, is:

to develop a dynamic, consumer-centric grounded theory of innovation in 3G mobile phones.

I look at 3G mobile phone technology from the consumer's perspective. I interpret consumer practices assuming a dynamic and socially constructed world. Based on this approach I develop a grounded theory to explain consumer practices in assessing and valuing 3G technology to better understand the broader processes of innovation and diffusion of innovation. A grounded theory involves two components (Glaser and Straus 1967; Strauss and Corbin 1998): identifying (i) the concepts (see Appendix 1, Chapters 3, 4), including their properties (see Appendix 12) and (ii) the relations between the concepts (see Hypotheses in Chapter 6) which explain the research participants' experiences and actions. The major concepts that emerged were value meanings, value practices, attitude, and social network. I therefore report results of the grounded theory that links the multiple meanings of the core concept 'value' into consumer valuing practices as the processes of 'value'. The relations that emerged are discussed as hypotheses in Chapter 6.

Chapter 2: Research Design – Theory Building Methodology

This chapter describes and justifies my research design for answering the research question; *how do consumers understand value in a new technology*? This thesis is informed by a grounded, interpretive approach to researching value. In this chapter, I proceed with six sections: I will (1) justify my selection of research site; (2) discuss my grounded theory methodology; (3) contrast grounded theory with the innovation literature to show the strengths of grounded theory; (4) describe the Glaser and Strauss variations of grounded theory and how my approach fits within those variations; (5) describe and justify my grounded theory processes, including constant comparison, theoretical sampling, theoretical saturation, coding, and the methods I use to collect data. Lastly (6), I discuss trustworthiness tests of grounded theory: fit, understanding, generality and control.

Chapter 1 argues for opening the black box of value to better understand innovation and value, with the aim of answering the general question of how and why do consumers adopt innovation. Learning from consumers' experience of innovation is assisted by a subjective, interpretive research design. Grounded theory builds theory to explore and explain complex social dynamics and reassesses literature, transcending research boundaries. Theory building generates concepts and relations for further empirical testing. In grounded theory, concepts and relations are tested through the constant comparative method, but not statistically. Grounded theory is a useful approach to unpacking the black box of value, when the contents are social, dynamic and complex. I sought to understand a complex new technology, and the social dynamics of its adoption, therefore grounded theory was a logical approach. Therefore, I have taken a grounded interpretive approach, aimed at understanding consumers, in a contemporary setting and their experience of adopting a new technology.

2.1 Selecting a Phenomenon

In this thesis, I examine the consumer valuing process. Early data collection and analysis (Sample 1; see Table 2) suggested value as a core consumer problem. Returning to the literature, I

found valuing to be an under-researched driver of consumer technology adoption. My interpretive assumptions of a dynamic world guided me to an evolving research approach (Maxwell 1996). The research question emerged where the participant problem aligned with a theoretical need to better understand value. Thus I iterated between my research problem, literature, data, and analysis towards a final research question. My research question initially focussed on the impact of high initial technology prices on adoption timing and consumer attitudes (see Ethics Appendix 4). Later I focussed on consumers' understandings of value in a new technology. Thus, my context for understanding the problem of how consumers adopt innovation stabilised on the phenomenon of the consumer valuing process. An early working definition of value was: value is the personal, individual, unique assessment of costs, benefits and risks reflecting individual circumstances that leads to a purchase decision, choice or attitude. My final understanding of value is the grounded theory laid out in Chapter 6. At this point, it is appropriate to emphasise some assumptions about how consumers understand and construct value as a focus for my thesis.

In considering the consumer value phenomenon, I assume four important factors. Firstly, that valuing new technology happens over time, meaning there is a process to investigate. Secondly, this process is both individual and social, and therefore complex and dynamic. Thirdly, the valuing process relies on consumer perceptions, and the meaning they attach to their perceptions. Fourthly, that it is possible through interviews for me as a researcher to enter into the world of a consumer's internal dialogue, and action. The valuing process is therefore discursive and knowable.

2.1.1 Choosing a setting

Once the phenomenon of consumer valuing was selected, I chose a setting in which to examine this process. The setting would need to show variation in the consumer experience and actions of valuing. The setting would need to provide an opportunity for me to examine the complexity and nuance of technology valuing within the consumers' context. Three criteria were set for the initial investigation of this thesis. First, the setting needed to have sufficient complexity for consumers to make an assessment of the new technology. Complexity is evident when there is rapid change, many choices in technology types, features and models, and no dominant design which or market leader who simplifies complex choices. Second, the assessment needed to take place over an extended time period, so that this thesis might capture some of the interesting variation over the technology or innovation lifecycle - pre to post dominant design (Abernathy and Utterback 1978). Thirdly, data needed to be obtainable from appropriate consumers.

The 3G mobile phone industry was launched in Australia, in 2003, the year before the thesis commenced. 3G mobile is a combination phone and broadband wireless receiver/transmitter technology. Thus 3G mobile is a subset of the broadband industry. Broadband is a technology whose social evaluation and adoption processes have been underway since the mid-1990s (BTCE

1996). Consumer knowledge of 3G was therefore limited at the commencement of this thesis, yet was also likely to change rapidly over the period of my research. 3G was also sufficiently complex to provide some interesting challenges for consumers to deal with. Table 1 shows the comparison of 3G adoption and timing of research activities.

Table 1: Consumer Adoption of Broadband and 3G Technologies

	Broadband Australia %	**Broadband OECD %**	**3G Australia % mobile***	**Research Comment**
2010	23.4	24.1	n/a	Writing up
2009	23.2	23.2	50.8	Interviews 3 continued Documents 2 – 3G brochures and Annual Reports, 3G pricing analysis
2008	23.7	21.5	38.7	Interviews 3 Observation 2, Documents 1 – other technologies
2007	22.1	19.4	21.4	Interviews 2, Analysis 2
2006	17.4	16.8	8.0	Analysis 1
2005	13.2	12.6	4.6	Ethics, Interviews 1, Observation 1
2004	7.6	9.7	2.7	Thesis commences, Literature, Methodology chosen
2003	3.5	6.9	0.6	
2002	1.8	4.7	0.0	
2001	0.8	2.9	0.0	
2000	0.4	1.3	0.0	
1999	0.1	0.3	0.0	
1998	0.0	0.1	0.0	
1997	0.0	0.0	0.0	

Source: OECD (2009, 2010), ACMA (2009, 2008, 2007, 2006), HTA (2005, 2004).
Note 1: * Total Mobiles exceeded Australian population in 2007.
Note 2: These broadband percentages indicate fixed services divided by total population. Using households rather than population would increase these percentages to account for shared services.

Before turning to the explanation of why I chose grounded theory, it is important to stipulate my ontological approach, and how it has influenced my engagement with the research questions, the data collection, and analysis processes.

2.1.2 What is my ontology?

A researcher may adopt one of a number of philosophical assumptions about a research area. Communities of scholars make different assumptions about the nature of reality (ontology) and how valid knowledge in their area of interest can be collected and analysed (epistemology). These communities direct affiliated researchers to investigate different types of research questions with different types of methodologies. In this section I consider my assumptions and choice to adopt a grounded theory methodology and interpretive constructionist approach.

An important line of literature analyses research paradigms (Kuhn 1976) and research assumptions. Burrell and Morgan (1979) analyse the research landscape into two types of ontology and epistemology to produce four management research paradigms; functionalism, interpretative, radical humanism and radical structuralism. Researchers choose to either formulate general and causal laws of positivism (functionalism), assess unspoken assumptions in deconstruction (radical humanism) and postmodernist approaches, or discover types of social constructions in interpretive or critical realist approaches. In all approaches, a researcher chooses to align their research with a community of scholars. Burrell and Morgan analyse the competing assumptions scholars use when framing their research as subjective or objective. Johnson and Duberley (2000) similarly suggest subjective and objective options are alternate approaches to a researcher's ontology and epistemology. One middle ground between subjective and objective is the pragmatist approach (see James, Peirce and Dewey in Johnson and Duberley 2000). This approach while emphasising subjective experience, places parallel emphasis on analysis which enacts change in the world. Poor analysis is too weak or vague or empty to effect change. Good analysis is good because it is useful and works to effectively empower researchers with new tools to better understand and impact the world. I take a pragmatist approach with a subjectivist epistemology and objectivist ontology.

Burrell and Morgan (1979) have been criticised for undermining the idea of finding the truth through the scientific method, and suggesting knowledge is socially constructed, and historically and socially situated (Johnson and Duberley 2000). Johnson and Duberley call management research in the scientific mode 'conventionalism'. Yet social constructions, if they remove the solid ground of truth, would also apply to Burrell and Morgan's analysis. So Burrell and Morgan's analysis is a social construction, rather than truth. To resolve this tension between truth, social constructions and avoiding either eternal relativism or incoherence (Johnson and Duberley 2000), a new approach is needed. One approach to avoid the perils of relativism is through pragmatism. A pragmatic approach says social constructions of any community are bounded by and tested against the reality those constructions seek to interpret. Thus there are a limited number of possible interpretations which a group will agree to. Grounded theory falls within this pragmatic tradition.

Alternative philosophical approaches to mine include positivist, postmodern, critical and critical realist. A post-modern deconstruction approach (Stern 1996, Martin 1990, Kilduff and Oh 2002) to innovation literature could identify unspoken dichotomies which preference one position over another; for instance a firm focus over a consumer focus, and a technology focus over a consumer experience focus. A positivist approach (such as Rogers 2003, Bass 1969) to consumer value could derive value dimensions through a qualitative case study for use in a quantitative instrument to measure the dimensions, frequency and generalisability across various technologies and demographics. A critical realist approach to understanding consumer value could seek

underlying mechanisms and structures that drive value creation (Bhaskar 1989). A critical theory approach could use discourse analysis to examine the power structures inherent in the discourse around innovation and consumer value, including which positions were given preference and what processes maintained that preference (Van Dijk 1993, Jorgensen and Phillips 2002). While each of these approaches are valid approaches to research recognised by a body of scholars, nevertheless my commitment to a constructionist interpretive approach relies on the benefits a grounded pragmatic approach brings (see Section 2.2).

I use an interpretive, constructionist (Berger and Luckmann 1966, Sandberg 2000) foundation in this thesis. Ontologically, I do not treat value as separate and distinct from consumers, but see consumers who experience, discuss, learn, and assess value as constructing value. I see value and other concepts as socially constructed through action and discussion in a community (Berger and Luckmann 1966). This constructionist assumption allows me to assume value is dynamic, subjective, socially constructed, individual and social; and to investigate a process by which value is created and recreated over time. Interpretive work such as Sandberg's (2000) provides insights about, for example, how workers have different understandings of what competence means in an engine building factory. Understanding variation is important in interpreting a complex concept such as value, which is likely to mean many different things to different people. Reconciling the variety of these meanings, and how they come about and change over time is an important goal of this research.

Grounded theory relies on symbolic interactionism as a foundation. Symbolic interactionism derives from pragmatism, focussing on effective outcomes (Huber 1973). Symbolic interactionism focuses on meaning (Blumer 1969 in Locke 2001), flexible methods and searching for effective explanations (Huber 1973). This emphasis on meaning is consistent with my interpretive constructionist research foundation. Indeed, Van de Ven and Rogers, note the potential for interpretive research in innovation studies, when they say

> *The interpretive approach may hold considerable promise for providing useful understandings about the process of innovation… [because] the study of innovation fundamentally entails a symbolic interactionist process of sense making, enactment and learning by individuals… the interpretive perspective would emphasise that innovation is a highly uncertain and complex type of behaviour, which can be best understood from the point of view of the actors involved in the innovation process (1988, p.637-8).*

Van de Ven and Poole (1990) have used grounded theory to explore what innovation is in the Minnesota Innovation Research Program but, only from a firm-centred perspective. I intend to fill a need in the literature by using grounded theory to understand innovation and value from a consumer perspective.

This thesis takes an interpretive approach for three reasons. Firstly, I choose to understand the core concept 'value' as dynamic and socially constructed. Secondly, since my interest is in building theory, I chose grounded theory which is a theory building methodology. Thirdly, approaching innovation from a contemporary consumer perspective addresses an important need in the innovation literature.

The marketing literature also calls for consumer-centric, qualitative approaches to better understand consumer value processes and dynamics (Woodruff and Flint 2006, Vargo and Lusch 2004, 2006, Grönroos 2011, 2012 Arvidsson 2011). Flint (2002) argues for a deep understanding of consumer value dynamics through ethnography and extended consumer observation. Flint explains how "deep exploration of a few cases" over an "extended" time means "very deep insights have an opportunity to emerge" (2002, p.310). Jaworski and Kohli (2006) note that marketing researchers have had difficulty building dynamic process theory about value, as they have privileged the use of survey and experimental methods that typically rely on measuring past behaviours. Marketing researchers are seeking alternative approaches to understand consumers through ethnographic and anthropological approaches (Zaltman 1997, 2003, Zaltman and Zaltman 2008), while recent journal editorials lament marketing researchers "inward looking mindset" and heavily quantitative approaches (Reibstein, Day and Wind 2009, p.2). The time is opportune for an interpretive approach to better understand the meaning to consumers of innovation and value.

2.2 Why grounded theory?

In this section (and the next), I justify my choice of grounded theory as a research methodology. Grounded theory has several strengths. Grounded theory is a methodology that lends itself to the study of complex social phenomena for which there is little theoretical work (Flint, Woodruff and Gardial 2002). Also, Glaser (2002) points out that grounded theory can be used to synthesise and transcend existing literature. Grounded theory is oriented towards understanding social situations and empowering the actors therein, both practically and theoretically, by providing a framework for enhanced decision-making and future action. Grounded theory focuses on the meaning individuals construct in their lives (Flick 2002). Grounded theory processes capture social dynamics to better understand an interviewee as a complex, changeable, socially embedded actor, making decisions on less than perfect information, and in an uncertain and shifting environment. Grounded theory works with rich qualitative data but can also use quantitative data (Glaser and Strauss 1967, p.18). Through grounded theory's knowledge building focus, I aim to develop useful explanations of consumer technology adoption processes. In summary, grounded theory works from complexity in the data, to produce useful abstractions, called theory.

I now contrast the strengths of grounded theory with the methodologies used in the key innovation literature.

2.3 My reaction to the innovation literature

Whilst innovation theory has been discussed in Chapter 1, leading me to the research problem, I now analyse the methodologies typically used in the relevant innovation literature. I contrast major innovation studies which address how, why and when consumers adopt new technology with the benefits of a grounded theory approach. I will show how grounded theory overcomes the limitations of previous innovation approaches. In this way, I am building on current knowledge and understandings of innovation, and making alternative methodological choices to seek new and deeper knowledge of innovation and consumers. I contrast my methodological approach with innovation literature such as Rogers (2003), Ryan and Gross (1943), Bass (1962), Bijker (1995), Christensen (1997), and Kim and Mauborgne (1997, 1999, 2005). The comparison of the grounded theory results with the dominant epistemologies of innovation and consumer value literature is documented in detail in Chapter 7.

A number of methods and methodologies are used in innovation literature, including surveys (Ryan and Gross 1943, Rogers 2003), historical case studies (Bijker 1995), experiment (Nelson and Winter 1982), retrospective industry analysis (Bass 1962), industry case studies (Christensen 1997), and multi-industry cross case analysis (Kim and Mauborgne 1997, 1999, 2005). These research processes have been effective in generating new innovation knowledge, but have left an opportunity for further understanding innovation processes in a contemporary, consumer-oriented setting, through qualitative social scientific investigation. I now compare five methodological approaches to understanding diffusion of innovation with the benefits of grounded theory, commencing with the seminal work from Everett Rogers (2003).

Rogers laments the rigidity with which one-off surveys using "correlation analysis of cross-sectional data" (2003, p.127) have been used to study diffusion of innovation, while failing to explore new methodologies which can explore the socially constructed meaning of an innovation (2003, p.xx). Such static approaches are useful in measuring the strength of stable variables, such as the current characteristics of an early adopter. Yet such approaches lack sensitivity to the interactive and ongoing process that adopters engage in, both on their own, and in conjunction with their community. Taking a grounded theory approach addresses Roger's concerns and embraces a dynamic methodology with a process focus. Grounded theory is an approach that seeks explanatory concepts and relationships which explain variation in consumers' experiences.

Rogers (1962) popularised key diffusion and innovation concepts (such as early, late adopters; Ryan and Gross 1943), their predictors (income, connectedness), and adoption process descriptions (knowledge, persuasion and decision). Rogers's findings were confirmed over many technologies, and across many countries, using correlational, survey oriented approaches. However, in my grounded theory approach, I see consumers as undertaking a basic social process of 'valuing'

new technology. While grounded theory approaches cannot measure the strength of the valuing process or the strength of the relationships between the concepts within the valuing process, new process concepts are likely to emerge from taking this approach. Particularly, I found how value meanings, practices, and attitudes change over time. Grounded theory has the potential to overcome Roger's concerns about methodological rigidity, to look at core diffusion concepts afresh, with dynamic processes, and social constructions as fundamental research foundations.

The second comparison between the innovation literature and grounded theory is from Bass (1969). Bass, similar to Rogers, used robust but formulaic approaches to understanding diffusion. Bass looked at technology adoption over time and predicted takeup using three variables. While the Bass model of diffusion shows consumer level processes of adoption, the model emphasises macro processes. Taking this approach oversimplifies individual adoption behaviour into three outcomes – adopt, adopt to copy, and don't adopt. Grounded theory however allows a more nuanced account of adoption, taking into consideration the specific circumstances of an individual consumer, and the understandings consumers have of their own actions. Grounded theory compares a theoretical sample of consumers to find variations in adoption decisions. Thus a strength of grounded theory is that it is highly contextual.

A further feature of grounded theory is its understanding of greater social complexity, and its explanatory power, since a much wider variety of adoption context and circumstances are explained. Grounded theory is intended to be predictive, in line with the pragmatist roots of symbolic interactionism (Glaser and Strauss 1967). Grounded theory is not numerically predictive, but circumstantially predictive, and so interprets the behaviour rules or heuristics that a consumer follows. Grounded theory develops conceptual indicators rather than numeric indicators. Thus this thesis predicts that value (a conceptual qualitative indicator) links to consumer adoption, rather than higher income (a quantitative indicator).

The third literature I compare with grounded theory is Bijker (1995). Bijker progressed diffusion research by using a constructionist approach. Bijker produced a model of technology adoption using retrospective industry case studies, including the development of the bicycle in the late 19th century. Using an historical dataset consisting of documentary evidence, Bijker built his social construction of technology model. Similar retrospective industry level models have been built by Geels (2002, 2004), looking at the transition from sail to steam powered shipping. What documentary datasets fail to provide is the living consumer whom the researcher can interact with. Only in a contemporary setting can a consumer be interrogated about their experience. Grounded theory can also be done using documentary evidence. For instance, using constant comparison, multiple consumer perspectives can be constructed with historical datasets. But with the interactivity of interviewing, and the ability to ask questions of an interviewee, a powerful ability to

penetrate into the consumer's contemporary experience is gained. Using historical documents alone, important information may be missing. Using interview data missing information can be flexibly pursued using theoretical sampling (see Glossary). While useful models of past behaviour can and have emerged from Geels and Bijker's work, grounded theory in a contemporary setting allows additional insights to be gained from interview datasets.

The fourth innovation literature I compare with grounded theory is from Christensen (1997). Christensen brings a dynamic understanding to business related technology transitions. Christensen produced a technology transition model, from multiple industry-level technology transitions, looking first at the disk drive industry as a case study. Christensen used interview data to understand disk drive businesses and their consumers, as they moved through several generations. Christensen's model is both a marvel of simplicity and power, while capturing the technology transition process as it varies over time, and through shifts across several generations of disk drive technology. While Christensen's case examines a business to business technology, where the final consumers are firms, this thesis looks at retail consumers. What this means is that a different result is likely, since individual consumers and consumer firms are likely to have different adoption processes.

The last comparison is with Kim and Mauborgne (2005). Kim and Mauborgne built from multiple case studies the concept of "value innovation". Value innovation combines Porter's differentiation, and lowest cost strategies (1980). Their approach is practitioner oriented, strong on advice, but light on describing their methodology and theory. Their multiple case study approach is likely to have some similarities to grounded theory. However, since the authors do not make their methods and assumptions transparent, this is difficult to assess. This thesis takes a theory-building approach, rather than a consultant style recommendation approach, to understanding adoption of new technology. Yet this thesis builds from and is strongly influenced by Kim and Mauborgne's approach and their concept of value innovation.

The innovation literature discussed above, has created a space for alternate methodological choices. My grounded, interpretive approach aims to document new insights into better understanding innovation from a consumer perspective. Yet my thesis is only possible from building on the advances that these innovation authors have made**.** Grounded theory has the potential to create a new, dynamic, contemporary and empirically based understanding of the foundations of innovation. In summary, the strengths of grounded theory are that it is:

- theory building
- dynamic, contextual and process oriented
- individual and meaning oriented, focussing on participants' concerns
- responsive to literature (though not constrained by literature boundaries) and

- has a stable set of processes which scholars continue to develop (see Bryant and Charmaz 2007), though not without points of debate.

Grounded theory is not without its limitations (see Chapter 8), but for the purpose of this thesis it has the potential to guide me to see anew, what I cannot see with old approaches. The following section turns to consider the different ways to approach grounded theory.

2.4 Flavours of grounded theory: The Glaser and Strauss comparison

Glaser and Strauss (1967), the originators of grounded theory, eventually developed different views of the nature of grounded theory. While there are divergent views around the details of grounded theory, its foundations remain intact. Strauss and Corbin (1998) identified grounded theory's central features as

> *the grounding of theory upon data through data-theory interplay, the making of constant comparisons, … theoretical coding, and the development of theory (p.283).*

The other key uncontested features of grounded theory are theoretical saturation, and the validity criteria of fit, understanding, generality and control (Glaser and Strauss 1967, p.237). Glaser would later add modifiability and grab (2001, p.19) as he emphasised the power and simplicity of the resulting theory. Key grounded theory terms are found in the Glossary.

While the foundations of grounded theory remain uncontested, four important but less significant points of difference distinguish the Glaser and Strauss approaches. The key differences relate to (1) the source of research problems, (2) Glaser's view on emergence versus the Strauss coding paradigm, (3) the different approaches to using the literature, and lastly, (4) Glaser's view on context.

The first point of difference between Glaser and Strauss is in the source of research questions. Glaser argues that the research question can come from only one place, and that is the data. Glaser (1992) says grounded theory research moves into an area of interest with no problem (p.22) because the problem emerges easily (p.23); the problem is discovered (p.21). The purpose of grounded theory is to "render as faithfully as possible theory in data – to explain the subject's main concerns and how they are processed" (p.14). This means every grounded theory has one research question – what is the subject's main concern? Glaser says "everything emerges – research problem, sample, concepts, relevant literature, the theory" (2001, p.112). Corbin and Strauss in contrast say research questions can come from the literature, personal or professional experience, or assignment from a senior researcher (2008, p.21). For example, my original research question emerged from my anecdotal observations about high price causing delay in adoption of broadband technology. Later through analysis of the first sample of 3G consumer interviews what emerged were concerns about a complex, dynamic concept of value. Thus my research question evolved to connect to the core concerns of my research participants, and the theoretical concerns of the

innovation literature. In testing the emerging grounded theory, I reconnected with literature that was dealing with the nature of value – the consumer value and service literature from marketing research. In this way, I use grounded theory to build bridges (and overcome the artificial distinctions academics create) between, for example, marketing and innovation. Interviewees take no account of these academic distinctions in living their lives and dealing with their concerns.

The second point of difference is Glaser's "emergence" versus the Strauss coding paradigm. The Strauss coding paradigm (1987) encourages researchers to look for codes around causal conditions, consequences, intervening (structural) conditions, interactions, and actions. This became known as the Six C's theoretical model: conditions, contexts, consequences, covariances, contingencies, and causes (Glaser 1992). Indeed, Strauss and Corbin say "the purpose of a grounded theory is to specify the conditions that give rise to specific sets of action/interaction pertaining to a phenomenon and the resulting consequences" (Strauss and Corbin 1990, p.251). Glaser (1992) exhorts practitioners to be prepared to use a variety of theoretical codes. Glaser (1978) provides a list of theoretical coding families and urges practitioners to allow whichever theoretical structure that emerges to drive the coding. Some examples of the variety of theoretical codes include the Strauss Six C's, the process model, the means-goal model, the unit of analysis model, the interactive model, and the dimensions model (Glaser 1978). What Glaser objects to so strongly is limiting the coding to only one structure. However, since grounded theory is interested in process, then one dimension of interest to the researcher must be time, and hence what comes before (conditions), and what comes after are (consequences). During the phenomenon, various people might act and interact in the moment. Therefore Strauss might argue that his Six C's model is just a focus on process: before, during and after. Strauss is helping researchers to be mindful of process by breaking process into three workable pieces. Glaser objects strongly to the inflexibility of the Strauss model's application (1987). Glaser (1992) argues that if a process model comes out, then use that, but there could be other models that emerge, and limiting yourself to a process focus might blind the researcher to something more. Glaser rejects a single process orientation, saying

> *There is just not one theoretical code [6Cs] that is a must in all cases: such as Strauss' incessant and insistent focus on conditions. A pet theoretical code [like always examining conditions] violates relevance and forces data (1992, p.28).*

In commencing this research, I followed Strauss's model, and when I had difficulty saturating conditions and consequences of concepts, I turned to the grounded theory literature for solutions. Upon reconsidering the Strauss / Glaser debate, I adopted the Glaser approach to grounded theory, which led to a theory with a better fit to the data. Glaser advises researchers to "render faithfully as possible theory in data [to] explain subjects main concerns and how they are processed" (1992, p.14). In this thesis, the main concerns did not include specifying all the conditions and consequences for every concept. As a result, I undertook to identify a simpler, smaller theory that

could explain the majority of concerns. To achieve saturation did not mean ticking every (6C) box for every concept, but instead was about explaining the main problem of subjects.

The third point of difference between Glaser and Strauss is the use of literature. Locke (1996) argues that Strauss and Corbin (1990) allow prior theory and researcher experience to give perspective to interpreting the data. Glaser (1992) rejects bringing theoretical knowledge from the literature too early into the analysis, before concepts generated from the data are close to saturated and stabilised. Once concepts are stabilised, Glaser says it is appropriate to compare the concepts with the theoretical literature. Glaser says

> *It is hard enough to generate one's own concepts, without the added burden of contending with the 'rich' derailments provided by the related literature in the form of conscious or unrecognised assumptions of what ought to be found in the data… however this stance [no literature] is part of the methodology only in the beginning…. when the theory is sufficiently grounded in a core variable…. emerging integration of categories and properties, then the research[er] may begin to review the literature* (1992, p.31-2).

Glaser argues that until the concepts emerge from the data, a researcher will not know which literature to look at. In this thesis, I started from the innovation literature. After value emerged as a core concern of participants, I examined the consumer value literature. Lastly, I examined the 'value creation' literature in Economics and Marketing, seeking disconfirming evidence for the value theory. This thesis attempts to build a bridge between the innovation and consumer value literatures.

The fourth point of difference is about context versus theory. Strauss and Corbin take close account of context by examining conditions and consequences of action. Glaser, in contrast, sees grounded theory as beyond a particular context. Glaser (2001, p.11) states that "grounded theory is abstract of time, place and people". What Glaser means is that the concepts and processes identified in the grounded theory are not specific to the particular interviewees, at that particular time, in that particular setting. The concepts are higher level, and can be applied in other contexts. This is consistent with the idea that a grounded theory "must be sufficiently general to be applicable to a multitude of diverse situations as they change through time within the substantive area, not just a specific type of situation" (Glaser and Strauss 1967, p.237). Thus Glaser in his later interpretations of grounded theory is more consistent (on this point) with the original explication of grounded theory. In contrast, Strauss has evolved and developed more specific instructions on using the coding paradigm, but diluted the original generality message.

For instance, Strauss's attachment to conditions and consequences in the coding paradigm (1987) more closely attaches the grounded theory to a specific situation, which Glaser rejects with his call to abstraction. My approach is to emphasise the Glaser generality approach, rather than the Strauss contextual approach, since I am interested in raising my concepts from 3G mobile technology to more general technology adoption. Taking Glaser's approach meant testing the value

of core concepts with documentary evidence of three other technologies. Comparing other technologies helped me to focus on abstracting the value meanings beyond the 3G mobile technology. But this approach is also enacted in a more general attitude to keep the theory development usefully abstract. I manifested this attitude not only while coding with a high level of abstraction in mind, but also with greater emphasis on searching for disconfirming cases. I used triangulating datasets, including brochures, analyst interviews, and annual reports to compare with the main 3G consumer dataset. By using a wide range of dissimilar interview groups I also sought to enhance variation, and increase the generality I could achieve.

The strengths and weaknesses of these two approaches, and how they are handled in this thesis are addressed next in my discussion of grounded theory processes.

2.5 Processes of grounded theory

Grounded Theory is a methodological approach that puts researcher and phenomenon at the centre of activity. The grounded theory methodology includes procedures and processes to deal with and respond to the research environment as highly dynamic. As such, the research process I follow uses an iterative learning approach, in contrast to a "one shot data collection" (Rogers 2003, p.127) that assumes reality is stable and unchanging. To deal with the dynamic environment, I iteratively sample data, analyse, write and reflect several times (using memos), until stable results emerge.

To develop a theory about how consumers value new technology, I followed four grounded theory processes:

- constant comparison
- theoretical sampling
- coding and
- (repeating these processes until) theoretical saturation.

To ensure credibility and plausibility (Glaser 1996), I also undertook the following processes:

- judged the theory against the criteria of fit, understanding, generality and control (Glaser and Strauss 1967), impact, and relevance (Glaser 1998, p.42)
- compared the theory to the relevant literature (see Chapter 7), which in my case was the innovation, consumer value, and service dominant logic literature (Glaser 1992, Conrad 1978, Frontman and Kunkel 1994, Morrow and Smith 1995)
- discussed the theory with academics, interviewees, wrote conference papers, and draft chapters
- searched for disconfirming evidence for my theory (Morrow and Smith 1995).

Rather than discuss data collection and data analysis separately (since theoretical sampling emphasises the integration and iteration of data analysis and collection), I discuss the four grounded theory processes in turn, and within these topics discuss methods, sample, and analysis. The order reflects the iterative nature of the research processes. Constant comparison is considered first because it is the most fundamental building block of grounded theory.

2.5.1 Constant Comparison

The process of constant comparison involves four main activities – coding and comparing, integrating, delimiting and writing the theory (Glaser and Strauss 1967). I describe now how these four grounded theory processes were undertaken in this thesis.

2.5.1.1 Constant Comparison : Comparing and coding

Coding is the first step of constant comparison and involves comparing data incidents with each other to find similarities and differences. The main processes involved are naming, comparing and memoing (Locke 2001). Glaser says "categories emerge upon comparison and properties emerge upon more comparison. And that is all there is to it." (Glaser 1992, p.43). Glaser suggests holding aside concepts from the literature until the analyst feels the codes have stabilised and then returning to the literature for comparison. Glaser's approach emphasises following the participants' core concerns, which I do by focussing on the emotional content of their statements.

I treated each consumer transcript phrase as a data point to be compared widely within the current interview text, and with other data, such as other interviewees, observations and memos. A data point can contain several codes. I coded several times afresh through the entire dataset, and I found this approach helpful with consistent coding. Three coding passes were used to find concepts, and the relations between them. The last coding pass specifically focussed on relationships between concepts (Appendix 3). During the repeat coding, concept names evolved and stabilised, mostly to group like codes together (compare full codes Appendix 8, discussed codes Appendix 1, and sample coded transcript Appendix 9), and to fit subcategories within categories. Examples of the coding process are in Appendix 6, and explained further below.

Memos were used to aid me in reflecting (Locke 2001, p.51) on meaning in the data. They were also used to resolve conflicting interpretations between which possible concepts best fit with the data. For instance, I wrote a memo comparing the concept 'quality' with a concept (a value meaning) I coded called 'service/reliability'. From this memo, I concluded that one was a subset of the other. Locke (2001) says "writing is a way of knowing" (p.51) and I found that a memo allowed me to more effectively play with concepts, trying alternative meanings to see which ideas fit the data best.

After 18 consumer interviews were coded, and a model was constructed (see Appendix 1), I compared the theory as it was then to the literature. I examined five key innovation studies and five key consumer value studies. The similarities and difference between the theory and the literature were contrasted (see Chapter 7). This process allowed me to consider value within the Innovation literature, and to assess the strengths and weaknesses of my value theory. I published the results at an innovation conference (Ferrers 2008), where they were peer reviewed. The reviewers found my value model (see Figure 1) too complex. The value model in Ferrers (2008) was compared with the innovation and consumer value literature, and now forms Chapter 7 of this thesis.

Naming of codes is important. I followed naming approaches from the grounded theory literature. Locke (2001) emphasises that code names should have good fit, but also be vivid, and use imagery (citing Glaser 1978). Grab is a word that Glaser (1978, p.95) uses, as an important characteristic of the naming process. Glaser emphasises that the code names should be memorable, powerful, and have strong imagery. I used theoretical and in-vivo codes. In-vivo codes are "from the language of the research situation", meaning a concept name using a term used by research participants (Glaser and Strauss 1967, p.107). I found that I moved from in-vivo to more abstract codes in later data coding sessions. The core concept 'value' is theoretical (has explanatory power) and is in-vivo (used by consumers). Value meanings, a sub-category of value, were given theoretical names (such as *duty*, *power*, and *beauty*) as I clustered them around similar value instances, for example: *potential*, *pretty*, *cool* and *convenience*. A full list of codes is presented in Appendix 8, and a table of value meanings by consumer is found in Appendix 7.

Comparison is a core grounded theory process. I used five data sets to compare with my main consumer interview dataset (N=28). The included datasets use interviews, observation and documents to generate a grounded theory, and assess the fit of the theory. Through exploring variation in data types and sources, the usefulness, power and scope of the theory was assessed, reaching beyond the substantive area initially investigated.

The datasets included in this thesis, are:

- consumer (N=28), and telco analyst (N=10) interviews to give an innovator and consumer perspective, transcribed and containing 120,000 words.
- non-participant observation (14 hours) of consumers shopping in three cities, on weekdays and weekend, written up as field notes. This data was added to the dataset to compare whether differences in the theory would arise city by city, or whether unspoken actions would provide alternate perspectives to interview textual descriptions, and to provide me an opportunity to better appreciate the life world of the interviewees.

- web text documents (see Section 2.5.2 Theoretical sampling, Section 2.5.4 Theoretical saturation and Section 2.6.3 Generality for more detail) of three comparable but varying technologies. These documents relate to a 3G electronic book product review (Businessweek 2008), a free service product amendment (The Economist 2008), and a future of innovation debate (*Do we need breakthrough innovation to develop clean energy?* The Economist 2008A). Consumers provided feedback to the product review, about the product amendment, and to a request to participate in the debate. The total words examined were 28,000 from a total dialogue of 108,500 words. This data was included to compare different technologies, to see what impact varying the technology would have on the theory.
- telco brochures of first to market 3G telco ('3'). The brochures document offers of price and function combinations over four years from 2005 to 2008 (N = 336 A4 equivalent pages). This data was added to the dataset to compare the innovator's perspective to the consumer perspective, and to see if consumers were merely reciting marketing messages created by the innovator, rather than creating the meaning found in the core value concept.
- annual report documents of the first to market 3G telco ('3'). These documents include Annual Report pre-financial sections, CEO Review, Chairman's Review, Review of Operations, Financial and Operational Highlights and Corporate Social Responsibility, for the years 2002 to 2008 (N=140 pages). This data was added to the dataset to seek disconfirming evidence for consumer value meanings in a 3G related but non-consumer perspective.

All these datasets were coded and compared to the codes in the primary interview dataset. I undertook further comparison of the resulting value theory of innovation in 3G mobile phones to assess the usefulness of the theory. I also compared the value theory to:

- the innovation and consumer value literature (see Chapter 7).
- policy documents, on innovation measurement, and encouraging adoption of next generation broadband (see Section 7.4). I assessed the impact a value centric understanding of innovation would have on how a government understands innovation, and how a government seeks to promote particular innovations, such as high speed fibre to the home broadband (the NBN).
- pricing analysis derived from technology brochure documents. These documents show technology price movements over time (see Appendix 10). About 150 price movements were found, examined and compared from 2005 – 2009. Fifteen sub-dimensions of price were found and the most important seven modelled. However, the pricing analysis does not

add to the value model in Figures 1, 2 or 4 but the modelling is included in Appendix 10 for completeness.

In summary, the collection of data resulted in a rich variation of datasets and types of data.

2.5.1.2 Constant Comparison: Integrating

Integrating involves the researcher in theoretical coding in order to connect concepts. Theoretical coding identifies the types of connections between concepts (Glaser 1978). Glaser (1992) argues for a flexible approach, letting the structure emerge from the data, and encourages analysts to have a "broad repertoire" (Locke 2001, p.78) of theoretical codes to draw upon. Glaser (1978) lists eighteen examples including strategy/tactics, a phases model, a consensus model, and the Strauss Six C model. This thesis connects concepts mostly through a time phase and cyclical approach. I follow the Glaser (1992) approach of letting the data guide the level of integration. Thus the integration step joins many people's views together to form a community or social view. Similarly, by comparing concepts to the literature, a wider range of views outside the interview datasets are encompassed within the value model. Comparing the innovation and consumer value literature with the value concepts not only assesses their usefulness but also the connections between concepts.

Glaser and Strauss (1967, p.108-9) explain integration as comparing concepts to concepts. Incidents are compared to concepts, to develop properties and dimensions. Similar concepts are combined (called clustering) and properties are made out of the differences. For instance, while coding the core concept 'value', around one hundred types of 'value instances' (of things valued) emerged and named, such as "convenience" or "fast". Using clustering, similar value instances, which I call 'value elements' were identified. For example, "convenience" and "fast" were grouped under the "time" meaning. Soon I had twelve higher level 'value meanings', leaving a group of uncertain value elements. On reflection, all but two of these value elements ("sexy" and "cool"), I reinterpreted as a combination of value meanings. Therefore a property of value meaning is that they can be combined to form new value instances. See a list of all the value elements in Appendix 7 and 8.

2.5.1.3 Constant Comparison: Delimiting

Delimiting is a process of conceptual reduction (Corbin and Strauss 2008, p.52) to make a theory easier to understand, while still maintaining conceptual power (Glaser 1992, p.43). Delimiting is completed when the theory has both parsimony and conceptual power to explain the phenomenon. Delimiting occurs at conceptual and whole of theory levels. Delimiting a grounded theory proceeds through three conceptual level strategies (Locke 2001, p.79).

The first delimiting strategy is called subsuming. Subsuming is when one concept is found contained within another concept. For instance a concept 'social network observe' (soc.net.observe) – watching what people you know do – was found to be so similar to another concept 'value assessment compare' (va.compare) that observe was dropped as a standalone concept. I included 'observing' within 'compare', as an example or subcategory of comparison (va.compare.observe). I now call value assessments, value practices. I use the dots to indicate a subcategory or property (lesser to the right, and greater to the left). Other examples of subsuming are: *forecasting* subsumed to *comparing* (future needs compared to current needs), *inquiring* subsumed to *exploring*, *balancing* subsumed to *comparing*, *aggregating* subsumed to *comparing* (part to whole). *Inquiring* and *observing* were finally included as important parts of the social value conversations. See an example of codes used in Appendix 6 and 9.

The second delimiting strategy is called dropping. A concept is dropped when it is coded but found to be minor. See for instance, 'other' codes in Table 3, form 9 per cent of 3G consumer dataset codes. To begin with, I compared concepts by the number of consumer interviews they appeared in, and their relation to other concepts. If a concept appeared isolated, and did not add further explanatory power (or significance) to the theory I dropped it. Early concepts were dropped as they were superseded by more explanatory concepts, or if the concept was not supported by comparison with further data. For example, a 'decision' concept was coded in an early transcript, but did not appear later, so it was dropped. Some concepts are infrequent but seem important. The concept *waiting* was found infrequently, but seemed significant in some way. *Waiting* was kept as I assessed the significance of it as a concept against new data. *Waiting* was finally included as a consequence of value in Chapter 5. Ultimately, the decision to drop a concept is a question of judgment. But the question I asked myself was: does the theory still make good sense without this concept. If so, then the concept was dropped.

The third delimiting strategy is called merging. Merging brings together two concepts into one broader concept. For instance, I coded 'attractors' and 'limitations' in an early transcript, but later merged these two into one concept – the core concept 'value'. These two concepts formed a property of movement in value, either increasing or decreasing. So the two concepts were merged into a single concept property. Similarly the one hundred value elements were merged into twelve value meanings, and the concept 'value element' became a property of value. A value element is an instance of value, which combines value meanings and a consumer's individual context. When a consumer (MIC021) says "I have the [3G phone] so he [boyfriend] can call me for ten [minutes free]", I used the code *v.free* to emphasise the *free* 3G phone calls valued by the consumer. *Free* is a value element (one of many; see Appendix 2 for a list) of the higher level value meaning, *pricing*.

The context is free calls offered by the 3G telco to 3G consumers. In another example, duty and convenience became v.duty, and v.time.convenience.

The last delimiting strategy is commitment to a story (Locke 2001, p.53). In this thesis, the story is that value provides an excellent explanation for consumer adoption of new technology (see Hypothesis 1, Chapter 6). Such a commitment necessarily closes other potential stories (and data). Because of his or her theoretical sensitivity, an analyst finds and commits to their story, their explanation, for their particular research context (Strauss and Corbin 1990, Glaser 1992). The search for a story continues until the analysis reaches theoretical saturation (no further emerging concepts), the analysis integrates with the literature (Glaser 1992, p.53), and the story achieves credibility and plausibility for its audience. Glaser and Strauss (1967, p.111) concur with the idea of commitment saying "as the theory grows, becomes reduced and increasingly works better for ordering a mass of qualitative data, the analyst becomes committed to it". At this point, the theory reaches theoretical saturation. (Glaser 2001, p.199). In practice, the story is the whole of the theory with all the concepts, relations and examples woven together. I hypothesised the value story of innovation in 2006 after the first data collection. I assessed the story with ongoing constant comparison of various datasets, and the innovation and consumer value literature, until I became committed to the story, reaching theoretical saturation in 2009. During the multiple data collection phases, the complexity of the value concept evolved to include multiple value meanings and value practices (2007), stability of value meanings across multiple technologies (2008), importance of attitude to ongoing value (2009), and the structure of value phases and value conversations (2010).

2.5.1.4 Constant Comparison: Writing the theory

After ensuring credibility, writing a grounded theory involves a choice between two levels and two forms – substantive and formal levels, and discussional and propositional form (Glaser and Strauss 1967, p.115). This thesis delivers a combined approach, with a substantive discussional approach used in Chapters 3, 4, and 5, and a substantive propositional grounded theory developed in Chapter 6 (see Section 6.3 Hypotheses). Glaser (1978) emphasises a process of 'theoretical sorting' of memos on each concept to start the theory writing process. This process summarises the concepts, analyses the variation within each concept and illustrates the variation within the theory (Glaser and Strauss 1967, p.113). The goal of writing the theory is to satisfy the properties of grounded theory: namely, to produce a theory that is conceptual, abstract, inductive, complex, and based on diverse data (Glaser and Strauss 1967, p.113).

Glaser (1978) writes that in contrast to the usual scientific reporting format (literature, problem, hypothesis, results), grounded theory first outlines a problem, then outlines the discovered core concept, that is explained through its properties (Chapters 3,4,5), in connection with the

literature (Chapter 7) to "supplement" and "contrast" (p.130). One further emphasis in grounded theory is writing about concepts, not people (Glaser 1978), since Glaser (2001) asserts that a grounded theory is "abstract of time, people and place" (p.11). In this thesis, the problem is discussed as the property of value: that value may fall (devalue) through experiencing technology failure, high phone bills, unreliable network reception or poor telco service. The research problem rather than the participants' problem is presented in Chapter 1. The participants' problem emerges in Chapters 3, 4 and 5. Problems (or loss of value) become a focus in Chapter 4 (The Reality of Value) and in Section 3.3.4 (the value of suffering).

The end of a grounded theory is not a summary but recommendations for widening the scope of the theory from the grounded substantive area to more formal theoretical areas which are likely to contain the same basic problem. For instance, this thesis looks at consumers buying mobile phones (the substantive area), but with comparison to other new technologies expands the scope to new technologies generally. The consumer choice problem examined in this thesis could also be seen as a type of complex decision making that could be applied to many situations. For instance, value could explain how and why nations go to war, why consumers decide to smoke, why couples decide to marry, or how students decide which university to attend. Where the theory can extend is connected to the analyst's theoretical sensitivity and inclination. I push the usefulness of the concepts further in Chapter 7 to consider how the concepts in this thesis can relate to innovation policy challenges that currently face governments.

Grounded theory is never really finished, only finished enough. New data can give rise to new concepts, properties and relationships. Thus a grounded theory is fluid, dynamic and provisional (Strauss and Corbin 1998, p.278). A grounded theory "cannot be considered final" (Locke 2001, p.53), nor is a grounded theory exhaustive (Locke 2001, p.53). However, so long as the theory is systematic, useful, powerful and simple, a grounded theory has reached a sufficient standard for publication (Glaser and Strauss 1967, p.113). Sufficient in the context of grounded theory means a "reasonably accurate statement of the matters studied" (Glaser and Strauss 1967, p.113), which gets to the core pattern (Glaser 2001, p.118) or "underlying uniformity" (Glaser and Strauss 1967, p.110). A grounded theory story is finished enough when it explains and fits all the data that has been found, and is useful for its readers. For like Ptolemy, there may be a Copernicus around the corner with a different theoretical sensitivity, a different context, a different literature, a different paradigm (Kuhn 1970) who has another story to tell to explain the same data and to use for predictions.

2.5.1.5 Constant comparison : Final comments

Suddaby (2006) suggests that an analyst should have an "intimate and enduring relationship" with and commitment to the empirical site. This thesis I believe meets Suddaby's (2006) call for close and extended ties with the phenomenon. This thesis arose from my frustration in the 1990s with new broadband technology, priced so high that it was little used by consumers. For instance, the Bureau of Transport and Communication Economics (1996) found household income did not affect intention to purchase broadband (p.33), but prices did (p.67). At that time broadband installation prices were around $300 (p.64), and monthly fees of around $100 (p.63). This thesis looks at a subset of this technology, a 3G mobile broadband technology. A new market entrant ('3') was first to market with 3G in 2003 (the year before this thesis commenced) and two years before the incumbent telco started competing by buying a 50 per cent interest in 3's 3G network. As the incumbent telco was privatised over the last ten years, its market domination forced a new 2007 Labor Government to announce a $43 billion project to build a national broadband network to supersede the incumbent's copper broadband infrastructure. Australian broadband prices are 2nd highest in the OECD (2008), only ahead of Turkey, and more than ten times Australia's nearest neighbour (measured by excess price per MB). My ongoing interest in broadband in Australia, since the late 1990s demonstrate I have been concerned with the empirical site for over ten years.

2.5.2 Theoretical sampling

Theoretical sampling is the second integral part of grounded theory. It builds upon the concept of theoretical saturation, and with coding and comparing is the foundation of the constant comparative method. Theoretical sampling, unlike statistical sampling, does not aim to represent the entire population and produce a generalisable result, but seeks to saturate concepts to explain the main concerns of research participants. Therefore, the sample seeks theoretical variation to compare and develop the explanatory concepts and their connections. This section will (1) define theoretical sampling, (2) discuss my process of theoretical sampling, especially the selection of similar and different groups, and (3) consider the practical and theoretical approach to selection of the sample dataset, such as convenience sampling. Lastly, I will list and describe the selected interviewees, to answer the research question; *how do consumers understand value in a new technology?*

Data collection, coding and data analysis are combined in theoretical sampling to create a grounded theory. Glaser and Strauss (1967) define theoretical sampling as:

> *The process of data collection for generating theory whereby the analyst jointly collects, codes and analyses his [sic] data and decides what data to collect next, and where to find them, in order to develop his [sic]theory as it emerges* (p.45).

Three elements of theoretical sampling emerge from this definition. Firstly, the process of theoretical sampling means the merging of data collection and data analysis into a tightly iterative data processing cycle. Secondly, the process is aimed at developing a theoretical explanation for the phenomena, and thirdly, the results of the analysis guide the next cycle of data collection. The process is to collect, analyse, derive concepts (coding), ask questions (of the data), then collect data to answer questions, which repeats until theoretical saturation occurs. Locke (2001, p.55) sees this process as "theoretically driven", and focussed on increasing understanding of the emerging concepts. Corbin and Strauss (2008) describe this process as "purposely looking" (p.55), while Flick (2002) suggests the emphasis is searching for "material which promises the greatest insight" (p.64).

Theoretical sampling proceeds, next by comparing the experience of members in groups. Firstly, members of a similar group are compared, and then dissimilar groups are compared (Glaser and Strauss 1967, p.118). Similarity within a group allows the basic concepts to appear, with only a small number of possible causes of variation. The next group (dissimilar from the first) I chose assesses the boundary conditions of the value concepts more closely, by exposing the concept's properties and dimensions to greater variety of context. The more generality the researcher aims for in their theory, the more dissimilar groups (and hence varying input conditions) are examined (Glaser and Strauss 1967, p.52; Locke 2001, p.58). For instance, after receiving ethical clearance, I commenced sampling with a group of young international students, who I observed were common 3G mobile phone users. Since my intention was to understand the wider group 'consumers', I hypothesised which types of consumers would give interview answers different from the international students.

The first variation I considered was consumer age. I hypothesised that 'older' and 'younger' groups would give different responses compared to international students. The first group for comparison was the less homogenous group: employed researchers, teachers, or analysts. While international students (N=4) were similar in age, outlook and concerns, teacher/researchers (N=4) were more varied in age, status, income and life experience. By comparing responses from teachers to responses from students, I could test whether the emerging value concepts varied along several demographic dimensions, including age, income, gender, ethnicity, and social status. No such variation was found and the value concepts applied equally effectively to members of both groups. In this way, I could begin to eliminate demographic dimensions as impacting on the value concepts.

I continued to hypothesise possible reasons that could cause variation in the drivers and processes of value. These drivers became the theoretical reason for selecting the next groups to sample. After students and teachers/researchers, the analysis suggested a connection between relationship status (married, single, or with/without partner) and new technology adoption

behaviour. Seven interviewees in the first group of eight consumer interviews mentioned their partners and those partners were closely involved in the buying of a 3G mobile phone. For instance, consumer statements like "we went to the store together" (MIC010) were common. While ultimately this relationship status indicator did not prove significant, the data collected provided further variation in age, parenting status and life experience that challenged the emerging concepts. The last two groups were targeted as a result of asking who might provide a different answer to the research question.

Two groups I thought might answer differently from previous interviewees were the wealthy or famous and, secondly, rural people. The first group were important because income is thought to be the greatest predictor of early adopters, and level of social connection and social status is an indicator of opinion leaders, a key early adopting group (Rogers 2003). Secondly rural lifestyles are likely to vary along dimensions such as pace of life, level of community connection, level of education, so were likely to give a strong contrast. While a group of wealthy or famous 3G phone users was difficult to access, I interviewed one famous television personality, who was a 3G user (V022) and a wealthy retired businessman 2G user (informally for comparison). A further wealthy consumer data point, I documented in a fieldnote, showed a billionaire making a home appliance purchase with his family (Young and Simon 2005). At this point in theoretical sampling, the value concepts were identified and stabilised, so I searched for disconfirming evidence (Morrow and Smith 1995).

Using documents and further interviews, I searched for disconfirming evidence. I examined and coded consumer comments relating to three other technologies: a 3G ebook reader from Amazon called the Kindle (Businessweek 2008), a web design (aesthetic) change to a free online news service at *The Economist* (2008) online, and a future-oriented discussion (The Economist 2008A) of clean energy technology. Also contrasted were documents I examined and coded from the 3G telcos (3G brochures and Annual Reports of the first mover 3G provider company, called '3' which held 100 per cent of the Australian 3G market in the first two years of this research). Telecom analysts I interviewed (N=10) were also used for comparison to provide the innovator's perspective (see Table 2). All these sources were heavily laden with the core value concept and its various meanings, and provided no disconfirming evidence. The results discussed in Chapter 4 will provide examples from these datasets, alongside the discussion of concepts, properties, meanings and relationships in detail.

In practice, sampling is part theoretical, partly convenience, and partly seeking to maximise variation (Corbin and Strauss 2008, p.153-4). Corbin and Strauss also recognise the practicalities of taking advantage of the unexpected, contextual, and serendipitous collection of data. Corbin and Strauss (2008) suggest "to take advantage of the moment" (p.145), and to "make the most of what

[data] is available" (p.155). In this way, I sampled 3G phone users who came to my attention, who added variation to my sample. When I first collected data in 2005, only 3 per cent of mobile phone users had a 3G phone, so it was not often that I would observe 3G mobile users. Some 3G mobile phones are obvious by their design (large size, large screens) but it was not until the launch of the iPhone 3G in Australia in mid-2008 that I could look at a common phone and know that it was a 3G device, and not an older 2G device. Several interviewees commented that they did not know if they or their friends used a 3G phone, implying that 3G phones were not distinctive from 2G phones, at least until the Apple iPhone.

To expand the dataset, I interviewed more consumers in Sample 2 and 3. These samples were generally drawn from people I observed in my wider social circle who had purchased 3G mobile phones: friends, friends of friends, work colleagues, students, and extended family. At the same time I was trying to fill in my theoretical sampling criteria, by maximising variation in what I hypothesised were theoretically relevant variations: age, culture, income, marital/relationship status. Thus convenience and contextual issues worked in parallel with targeting theoretical issues to influence the makeup of the final dataset.

The sample used for the interviews is provided in Table 2 below. Besides technology and financial analysts specialising in telecommunications (N=10), several incidental consumer categories (groups) appear in the sample. I sampled international students (N=5), mobile workers with a home office (N=4), across cultures (N=9; Australian, Italian, Greek, Chinese, Indian, Finnish, Macedonian, Colombian, Russian, New Zealander), over 50s (N=4), researchers (N=5), and husband and wives together (N=4). Some consumers fell into more than one category.

2.5.3 Methods

The methods I used to gather evidence for my theoretical concepts came from three data sources: semi-structured interviews, observation and documents. Multiple data sources enable the researcher to understand the phenomenon from multiple perspectives (Glaser and Strauss 1967, p.65). This section describes the methods used, outlines the interview questions and discusses the rationale behind method selection. This section is influenced by my grounded theory perspective and interpretive research approach.

2.5.3.1 Semi-structured interviews

I used open questions early in the interviews, encouraging participants to tell their story (Glaser and Strauss 1967, p.75, Corbin and Strauss 2008, p.144). By using a semi-structured approach my guidelines were flexible enough to pursue any relevant topic that arose during conversation (Locke 2001, p.55; Isabella 1990, Sutton 1987). In the second data collection, the questions became more specific, rather than exploratory, as I understood the concepts that were

appearing in the discussion (Locke 2001). The open questions left participants to formulate their experience in ways that structured questions might have limited (Corbin and Strauss 2008, p.152).

Table 2: Description of interviewed consumers and analysts*.

Interview ID	Interviewee description
	Sample 1 – 2005, International students, teachers, analysts, other Brisbane consumers, Sydney/Melbourne Analysts
1. MIC001*	Head of Wireless Mobility Research – ICT market research; consulting firm
2. MIC002*	Financial Analyst, "wife works at '3' "
3. MIC003*	Telecoms Analyst
4. MIC004*	Telecoms Analyst "advises fund managers"
5. MIC005	Age 30s Early adopter telecoms analyst, Sydney
6. MIC009*	Financial Analyst "covering '3' since they listed"
7. MIC010	Age 30 Italian full time [PhD] student, part time teacher
8. MIC012*	IT Research Company Analyst – technology focus
9. MIC013*	Head of Telecoms Research
10.MIC014	Age 25 Chinese postgraduate student
11.MIC018	Age 20 Male part time job, Russian undergraduate student
12.MIC019	Age 37 Academic researcher, father of two, technophile
13.MIC020	Age 30 Female Colombian postgraduate student
14.MIC021	Age 20s Indian postgraduate student
15.V003*	General Manager Wireless and Mobility Products, Telco
16.V004Fin*	Financial Analyst
17.V005*	Analyst, IT&T Independent Analysis, International Consulting House
18.MIC022	Age 47 Female teacher, family business - hotel and brewery
	Sample 2 – 2007, Single, married, with and without children, younger, older, other Melbourne consumers
19. V002	Age 41 Female Melbourne freelance writer, mobile worker
20. V004	Age mid-40s Female Consultant, Finnish
21. V006	Age 46 Male Prahran, Greek, father
22. V010h	Age 30s Male, Inner Melbourne, father, teacher
23. V010w	Age 33 Female, Inner Melbourne, working mother, scientist
24. V012	Age 18 Female worker
25. V014	Age 50s Male "professional income" artist academic
26. V015	Age late 70s Male widower
27. V016	Age 39 Male Inner city St Kilda, self-employed
28. V017	Age 32 Female, full time working
	Sample 3 – 2008 - 2009, rural, famous, other Melbourne, Rural Victoria
29. V019 Husb	Age 50s Male "Income moderate to measly" Rural
30. V020 Wife	Age 50s Female "Live in country, grandmother" Rural
31. V022	Age 40s Male "Worker in entertainment, media, film, television" father
32. V050	Age 40s Male father "Middle aged, academic, early adopter"
33. V051	Age 40s Male Macedonian father "Administrative Professional staff at University"
34. V052	Age 20s Female "Architecture graduate, against multi-nationals"
35. V053	Age 20s Male Macedonian "Customs Broker"
36. V054	Age 40s Male teacher father "Minimalist [in technology]"
37. V088	Age 22 "Uni student, Camberwell"
38. V089	Age 50s Associate Professor, consultant, Macedonian

To elicit answers to the research question, the data gathering proceeded by exploring consumer's ideas around the construction of their understanding of value. To capture this constructed reality, I followed specific interview guidelines around the following questions (see also Ethics documents in Appendix 4):

- What is the story of your purchase of a 3G mobile?
- What is the story of your contact with 3G seller (the innovator)?
- What is your impression of the company, product, service?
- Does the company offer good value?
- What is the main/ other reasons to buy a 3G mobile?
- How do you characterise your relationship with the innovator?
- Are other 3G companies the same? Are other businesses the same?
- Do you trust the innovator?
- What do you spend on 3G? Now? Before?
- What do you think of 3G prices overall? For calls? For data services?
- Would you make any changes? To pricing? To product?

As the emerging concepts began to stabilise after the first round of data collection, so the interview questions became more concentrated and focussed. In the second, and third round of consumer interviews the questions were reduced to:

- Describe yourself in your own terms (but suggested age, sex, location and income) as a starting point
- How did you come to have this 3G mobile phone (technology)?
- What has been your experience now that you have had the 3G mobile phone (technology)?
- What changes, if any would you make to the 3G mobile phone (technology) (and/or related service)?
- What does the (3G) phone (technology) mean to you?
- Are there other people you know who have a 3G phone, but have a different experience from you?

Similar questions were put to the Telecom Analysts, but from the innovator's perspective. Thus the analysts were asked:

- Who would buy 3G mobile phones and why?
- How is an innovator to recover the investment in their innovation from the market?

These discussions revolved around strategy, competition and attracting consumers. The interview guidelines are attached with the ethical clearance documents in Appendix 4.

The research question itself was not finalised (stabilised) until after the first data collection and analysis cycle. The hypothesised core concept 'value' entered the research question at this

point. Previous iterations of the research question had isolated how 'delay', 'price' and consumer 'attitudes' influence consumer adoption of new technology. These previous research question keywords emerged in analysis as value-related concepts. Delay and price related to value meanings, while attitudes connect emotion and value experiences. Value became a higher level concept explaining and connecting the elements of the previous research questions. Value also emerged as a more nuanced concept, allowing scope for positive and negative experience as described in the interview data.

Concepts from the literature appeared in the early part of the coding phase, but few remained after they were tested against multiple instances in the data. Examples of innovation literature concepts include 'early/late adopters', and 'decision'. I tried to remain neutral towards literature concepts emerging from the coding, relying on the data to guide me towards their inclusion or exclusion. When the concepts stabilised, I compared the value concepts to the innovation and consumer value literature (as discussed above).

2.5.3.2 Observation

Observational data is important in this thesis. Innovation and marketing researchers confirm the need for observation since consumers are not always able to express themselves coherently when explaining why they buy. Tidd, Pavitt and Bessant (2005) and Underhill (2000) both note the need for an emphasis on observation to better understand why people buy and how consumers understand new technology. In reviewing IDEO, a design consultancy for new product development, Tidd et al. (2005) emphasise the need for going beyond the statements of interviewees to observe how they act when seeing prototypes of new products.

Observations took place in three cities, in conjunction with Sample 1 of consumer interviews. I selected centrally located shopping areas: in Brisbane (Queen Street Mall), Sydney (Pitt Street Mall) and Melbourne (Swanston Street) and used a non-participant observer strategy (Flick 2002, p.134). Observations were conducted in two hourly sittings, with the researcher occupying a seat in a public place, some 15 metres from the 3G store front. Observations took place on weekdays and weekends, for a total of twelve hours. Detailed field notes were taken and included in my analysis. Observational notes were recorded on a minute by minute basis, recording arrivals and departures, gender, age and any other useful characteristics. Details of whether purchases were made, or brochures collected were also noted. The median length consumer visit was between one and two minutes, with on average 70 people visiting the stores over a two hour period. This compares with 2,850 people passing per hour. A further two hours observation was undertaken in 2008, in conjunction with Sample 3 interviews, so that any shifts in activity could be detailed.

2.5.3.3 Documentary evidence

Documents provided useful contrasts to interview and observation data (Glaser and Strauss 1967, p.75). Three main documentary datasets I used were the 3G innovator's Annual Reports (2003 - 2008), 3G brochures (2005 – 2009), and consumer web text. The brochures and Annual Reports document value meanings (and value elements) enabling me to map similarities and differences between the way consumers talk about the technology and the way innovators talk about the technology. Eleven value meanings appeared in 3G brochures. The consumer web text is an online consumer discussion of new and proposed technology made in response to online articles and request for comments. Using this text, I compared 3G consumers with the consumers of other technology to assess the generality of the core value concept.

The annual report text examined includes the Chairman's message and the CEO's message which review past year's performance and explain goals, strategy, opportunities and current high level indicators, compared to previous years. The text describes significant events, activity and plans for the year. I examined and coded 137 pages of annual reports from 2002, when the 3G network was under construction, to 2008.

The brochure text I examined and coded comes from two sources; the 'first to market' 3G telco ('3' ; 32 brochures, 237 A4 pages) and later competitors (Telstra, Optus, and Vodafone; 99 A4 pages). The brochures are for the years from 2005 to 2009. These brochures encourage consumers to purchase 3G mobile phones and mobile broadband products and exhibit a range of value meanings. While variation of core concept meanings was examined, variation in new meanings significantly diminished over time. Some meanings of the core value concept showed great variation, while a small number of consumer meanings were infrequently mentioned. This suggests that some value meanings may not be significantly influenced by the innovator, but emerge from elsewhere, such as the consumer's social network. *Duty* is the particular (value) meaning almost completely absent from the brochure documents, but which is much more common in the consumer interview data.

The consumer web text comes from online consumer discussions of technology. This text includes consumers responding to articles from or engaging in debate with *The Economist* newspaper website and *Businessweek* magazine website. The discussion text totalled 108,000 words, of which I examined 28,000 words. I wanted to see if the core value concept could be found in relation to technologies, beyond 3G. I found value meanings in this text, indicating more widespread existence of the core concept. The documentary and observation data triangulates the concepts developed in the interview dataset and gives me confidence in the generality and usefulness of the core concept (see Section 4.5)..

2.5.4 Coding

Coding is the third of four integral parts of grounded theory. Coding is the analysis of interview transcripts or other data to discover abstract concepts which explain the activity and action described therein (Suddaby 2006). Coding is the conversion of phenomenological, real world sensory data, into conceptual data. The conceptual data summarises and interprets the real world data, while emphasising certain aspects and diminishing others. Glaser and Strauss (1967) say two essential properties of developed codes are that they are sensitising and analytic (p.38). Sensitising means that the codes promote the readers understanding of the data, while analytic means the codes let the reader see properties of the data at a higher conceptual level enabling comparison of events or action data. Through constant comparison and coding, data is compared for similarities and differences to define the properties and dimensions of the codes. Appendix 6 provides a detailed example of how a passage of 3G consumer interview data is coded.

Coding allowed a dynamic, complex explanation of the actions and behaviours of the participants to emerge from their interview transcripts. Through eight concepts (see Appendix 1), and their connected sub-concepts, a complex moving world of consumers interacting with innovators and their environment emerged. The next step was to weave the story back into the data, justifying the concepts and their relations with each other, while comparing the concepts with those that are used to explain similar issues in the innovation and consumer value literature. Through these comparisons, a powerful yet simple story emerged linking the phenomenological and conceptual world. This story is a grounded theory. The theory in Chapter 6, shows the simple story (see Figure 2), in the form of a simple model of value (emphasising value meanings and value practices), and a comprehensive value model (Figure 4), while the non-core concepts appear in Appendix 1, and further in Appendix 13, 14.

2.5.5 Theoretical saturation

Theoretical saturation is the fourth and final integral part of grounded theory. It builds upon the notion of core concept. With theoretical sampling, coding and comparing, theoretical saturation is the last foundation of the constant comparative method. This section will define theoretical saturation, discuss how theoretical saturation relates to the core value concept, and demonstrate how theoretical saturation was achieved in this thesis.

Theoretical saturation is the point at which data collection stops because new data adds no more categories or properties (Glaser and Strauss 1967, p.61, Eisenhardt 1989, Locke 1996, Charmaz 2000). Suddaby (2006) notes that grounded theory is often applied too mechanistically through statements such as “saturation is achieved when one has conducted between 25 and 30 interviews” (p.637). But there is greater subtlety in the relationship between theoretical saturation and categories. Glaser and Strauss (1967) say:

> *All categories are obviously not equally relevant and so the depth of enquiry into each one should not be the same. Core theoretical categories, those with the most explanatory power, should be saturated as completely as possible… [but] the sociologist should continue to saturate all categories until it is clear which are the core categories* (p.70-71).

Theoretical saturation is about saturating the core concept. Core concepts are "the most relevant for prediction and understanding" (Glaser and Strauss 1967, p.71). Strauss and Corbin (1998, p.105) define several key properties of a core concept. Glaser (1978) says a core concept must be central, so it relates conceptually to as many other categories as possible, must be frequent in the data, and must "relate meaningfully and easily to other categories" (p.95).

How was theoretical saturation dealt with in this thesis? Two methods were used to assess and ensure saturation. The first method involved a visual inspection of concepts in each interview to show how quickly and consistently the concepts appeared from early consumer interviews. The second method involved identifying the core concept, and examining further datasets to ensure comprehensive saturation of the core concept. This process is summarised in Table 3.

The first evidence for reaching theoretical saturation came from a visual inspection of how many interviews were required before all the concepts appeared (see Appendix 5). The value meanings fully emerged after <u>six</u> interviews, the key value practices after <u>three</u> interviews, and the non-core concepts after <u>two</u> interviews. However, these concepts were not recognised as saturated until after 18 consumer interviews were transcribed, coded and analysed. It was only then that the repetition was comparable. Comparison done after eight interviews failed to show the value meanings but showed elements of these meanings. Only through further comparison and gaining confidence by collecting the more typical 20 – 30 interviews (Sandberg 2000, Suddaby 2006) was I able to see the concepts that were evident in the first transcripts. Thus while I made an early identification of regularity and repetition in the core concepts, I was not able to be confident of saturation until I had tested the concepts with more data across a range of (1) technologies, (2) demographics, (3) sources, and further searched for disconfirming evidence (Locke 2001, Morrow and Smith 1995).

The second method of ensuring saturation is based on core concepts. I analysed the concepts emerging from coding by centrality and frequency to identify which ones were core concepts. Value meanings and value practices emerged as likely core concepts because they had the highest coding frequency, with over 50 per cent of the first 2,000 data points. In total, while the non-core concepts make up one third of the codings of the first 2,000 data points, the core concepts make up the remaining two thirds. In combination, the non-core concepts are not trivial, and together they add to the understanding of the core value concepts. Centrality of the core concepts was also asserted through a Straussian connections analysis (see Figure 3, Appendix 1, Figure A1-2; Appendix 3), and by recognising loss of value was central to the core concerns of participants.

Table 3: Theoretical saturation by concept - identifying core concepts.

Concept from data	Status	Central	Frequency in first 18 consumer interviews	No new data after interview: see Appendix 5	Dataset
Value (meanings)	Core – **exhaustive** saturation	Yes	49%; 18/18	6	N=38, observation, documents
Attitude	Non-core	No	6%; 15/18	2	N=18
Relationship between value and attitude considered the core relationship.					
	Total	Core	**55%**		
Value Practices	Close to core – **extensive** saturation	Yes	10%; 18/18	3	N=28, observation
Social network	Non-core	No	6%; 18/18	2	N=18
Innovator strategy	Non-core	No	5%; 18/18	2	N=18
Consumer strategy	Non-core	No	4%; 16/18	2	N=18
Action	Non-core	No	5%; 17/18	2	N=18
Context	Non-core	No	6%; 17/18	2	N=18
	Total	Non	**36%**		
	Total	Other	**9%**		

Note: Frequency in (1) first 2,000 data points, and (2) first eighteen interviews. See Appendix 1.

Given the strength of the core value concepts centrality and frequency, further testing for theoretical saturation was done in extended datasets. Value practices were examined in a further ten consumer interviews (N=28,000 words) and consumer observations (N=14 hours). Value meanings were tested even further than 3G consumers, with ten telecoms analysts (N=46,000 words), and with several documentary datasets (other technologies (N=28,000 words), annual reports (N=140 pages) and brochures (N=336 pages)). Value meanings were tested on the widest possible range of datasets for saturation and to search for disconfirming evidence, since their highest frequency in the consumer interview dataset suggest they are the more significant of the core value concepts. No new properties or dimensions, or other disconfirming evidence was found in these further datasets. On this basis, the core value concepts are fully saturated. I consider the value meanings are exhaustively saturated, while the value practices I consider extensively saturated.

Extensive or exhaustive saturation of the non-core concepts is not considered necessary. My Glaserian grounded theory approach focuses on the core concepts. These concepts account for the key concern of the participants "transcending the data to get at the core pattern" (Glaser 2001, p.18), showing as much variation as possible in the dataset, with "theoretical completeness and

parsimony" (2001, p.34). The non-core concepts are not required to be saturated and so are coded only in the first eighteen consumer interviews (N=2,000 data points). I made this assessment based on:

- the non-core concepts lesser degree of importance compared to the core value concepts in terms of centrality, frequency, and significance in supporting, understanding, and illuminating the core value concepts, and
- the non-core concepts were tested indirectly in the later documentary, observation, telco analyst and last ten consumer interviews. No significant instances or disconfirming evidence of the non-core concepts were identified in those datasets. No evidence of further properties of non-core concepts were found which could add to better understanding the core concerns of participants. No new evidence of non-core concepts was found to add significantly to understanding of variation in those datasets, without adding unnecessary complexity to the value concepts.

On the basis of relating theoretical saturation to core concepts, centrality, frequency and 'information redundancy' (Flint, Woodruff and Gardial 2002), I argue that I achieved theoretical saturation.

2.6 Trustworthiness of the research: Validity criteria in grounded theory research

Each research community sets standards by which the quality of research is assessed. Different communities create their own practices to satisfy the requirements, conditions and circumstances of their research approach (Corbin and Strauss 1990). These approaches are derived from their underlying assumptions about research and reality: their ontology and epistemology. Traditional science uses validity and reliability (Flick 2000) standards, to ensure the stability of results over time, and across different researchers. For grounded theory, quality standards focus on the strength of connection between the research findings and the dataset, and are outlined in the next section.

Grounded theory aims to not only document a complex reality, but to rise above, and conceptualise the practices at a higher level of abstraction to create a theory that can be useful in alternative but corresponding contexts. In this vein, Glaser and Strauss (1967) identified four criteria a grounded theory must establish to ensure "credibility, plausibility and trustworthiness" (p.223), namely (1) fit, (2) understanding, (3) generality, and (4) control.

2.6.1 Fit

Good grounded theory is faithful to its data, and explains the variation and complexity inherent in the dataset (Glaser and Strauss 1967). The opposite situation is where (1) the researcher's biases or pre-understandings have forced old concepts and constructs onto the data

(Glaser 1992), where (2) the conceptual fit is weak (Suddaby 2006), and (3) concepts are justified, regardless of poor fit with supporting data. In poor grounded theory, disconfirming data is ignored. Fit is a critical element of grounded theory that requires inducing the categories, and grounding the categories in the dataset.

An approach to ensure fit within this thesis was to compare the data points explained by the theory against those that were not. After 18 interviews, when the concepts stabilised, I found 91 per cent of the 2,000 data points were explained by the coded concepts, giving me confidence in the theory fit. The grounded theory described in Chapter 6, and reported in Chapters 3, 4 and 5 does not include all the concepts coded, but covers the core concepts *value* (and value meanings), and *value assessment* (the individual value practices). The theory described also includes the most important supporting concepts *social network* (the social value practices), *attitude* (and properties), resulting actions and one important innovator strategy, *lock-in*. These concepts account for about 80 per cent of the 2,000 data points, providing a high level of fit, and the basic social process of valuing (Glaser 1999) in the 3G consumer data. The list of major grounded concepts is found in Appendix 1, and a full list of coded grounded concepts in Appendix 8.

2.6.2 Understanding

Understanding means that a grounded theory builds and derives concepts which examines and explains a consumer's world and tells a story so consumers can better understand their own experiences. A grounded theory also engages scholars at the theoretical level connecting grounded concepts to research literature. Thus scholars and consumers gain a greater mutual understanding of each others' experiences (Glaser and Strauss 1967). Interviewees can understand better their own behaviour, their tacit choices, decisions and actions, while the scholar can see rich, thick description of the concepts in the real world. The best way of testing understanding is exposing the interviewees and the research community to the emerging theory. Strauss (1987) suggests that the theory should aim to be obvious but useful, showing "we want active thoughtful deeper responses" (p.263) rather than just recognition. The goal is for a reader to say "I never thought of it in that way before" (p.263) and for the explanation to ring true. This development of understanding is meant to empower people to use these concepts, ideas and building blocks to enact change, and respond to their complex, dynamic world with a newly acquired view of their reality. This view can lead them to greater control, and through use in other situations, generality.

Understanding is confirmed by creating concepts that are useful to scholars and research participants. So far, the value core concepts have been of interest in engaging participants and researchers' interests. Ultimately, the true test of the usefulness of a value theory is whether it becomes an accepted (published) interpretation of how innovation researchers understand consumer adoption of technology.

2.6.3 Generality

In seeking generality in the emerging value theory, I aim to abstract the analytical categories, concepts and relations into parallel and similar situations (Glaser and Strauss 1967). While this thesis looks at consumers dealing with mobile phone technology, a more general context includes service innovations and consumer behaviour more broadly. The value theory can be considered a toolkit to help analyse further and future situations, and as such remains flexible enough to be extended, amended, and varied according to circumstances, with further value meanings and value practices. The grounded theory seeks to be insightful, more than to simply be generalisable, bringing greater thoughtfulness to new situations, empowering the participants therein.

To assess the generality of the value concepts beyond 3G mobile phones, I examined consumer comments (28,000 words) relating to three further consumer technologies. Firstly, I analysed consumer comments on a 3G electronic book technology (Amazon Kindle; Businessweek 2008) because it was technically similar but functionally different to 3G phones. Next, I analysed consumer comments responding to an aesthetic change to a free online service (*The Economist* 2008 website redesign) because it was functionally similar (electronic news delivery) but priced differently (3G paid versus website free). Lastly, I examined a consumer debate (The Economist 2008A) on a proposed transition to alternate clean energy technology to see if future-oriented discussions followed similar conceptual patterns as past-oriented adoption discussion of 3G mobile phone technology. All three sets of consumer comments contained value-related instances. Further, I analysed 450 pages of 3G brochures and 3G innovator Annual Reports using the value core concepts, and found widespread value related instances. This identification of the value concepts outside the initial 3G research site gives strong early evidence of the value concepts more general applicability.

Another source of generality testing is the comparison of the value concepts to the innovation and consumer value literature. If the value concepts have a good explanatory connection to, and re-interpretation of existing theory, this gives me confidence that in those wider empirical and theoretical contexts the value concepts are useful and beneficial. In Chapter 7, I conclude that the value concepts provide useful and meaningful insights for the innovation and consumer value literature and innovation policy. Several value practices are found in the innovation literature (such as *exploring*, *recommending*, *observing*; see Table A2-3, Appendix 2), which gives me confidence in the generality of the value practices.

2.6.4 Control

The value concepts provide consumers with an explanatory framework or conceptual toolkit that enhances consumers' understanding of their environment. As such, consumers have new knowledge upon which they can base their actions and responses to their environment.

This thesis seeks to empower consumers to better understand their situation, their actions, and the way they respond, often unconsciously, to innovator strategies. The core value concept is a consumer-centred understanding of the innovation process, emphasising the active rather than passive nature of consumption, while contrasting the innovators' marketing strategies (see Section 4.1.1 Cheaper, Section 4.3.2 Simplicity, Section 4.3.3 Lock-in) that encourage consumers into action. While consumers do not control innovators, they do control their responses to the innovators' approaches. The theory summarised in Chapters 6 (and Appendix 1) outlines how consumers' respond to value-related information, to enable consumers to reflect on their past actions and consider their future choices.

This thesis also informs government policy makers (see Section 7.4) and (to a lesser extent) innovators. Governments are interested in innovation in their roles as regulators of the economy and competition, as political parties engaging with voters and as policy creators seeking to stimulate growth and jobs through innovation. Richer more complex theory of innovation should empower governments to better deal with consumers complex and shifting reality. Innovators are interested in better ways to engage consumers, and less risky ways to choose and manage innovative projects. When innovators focus on value creation, consumers are more likely to react favourably to their technology offerings.

2.6.5 Usefulness

In the pragmatic tradition (Huber 1973), usefulness (Dewey 1929, James 1909 in Johnson and Duberley 2000) is a theme that pervades the grounded theory approach (Glaser and Strauss 1967). Empowerment, and the ability to bring to consumers new options for concrete action and new understanding, is a hallmark and significant benefit of the grounded theory methodology. While the methodology is time consuming, subtle, and in some cases costly and difficult, these benefits are significant. Nevertheless, the reader and participating consumers must be the ultimate judge of the usefulness of this work.

The participating consumers were engaged with the results and value as a central outcome. A small group of participants were constantly updated with thesis results, and they helped prioritise the most impactful factors. In contrast with academic's theoretical and detailed interest, consumers were interested in practical knowledge and brief summaries. The key contributions of this thesis are presented in Chapter 6.

Conclusion

This chapter described and justified the research design used in this thesis. The choice of research site and focus on 3G mobile phone technology was explained. This chapter also outlines my grounded theory approach and explains this by comparing it to the alternate methodologies used by innovation researchers. I argued that a grounded theory approach provides a number of strengths compared to previous innovation literature approaches. I described the grounded theory processes in detail including (1) constant comparison, (2) theoretical sampling, (3) theoretical saturation and (4) coding, and the methods chosen to investigate the research site. I analysed the debate between the originators of grounded theory, and justified my approach. I outlined and described my approach to grounded theory research validity. In the next chapters, I present the findings and outcomes of the research methodology: the conceptual building blocks of a grounded, interpretive value theory of innovation in 3G mobile phones.

Chapter 3: The Promise of Value: Value construction before technology purchase

This chapter analyses consumer value, breaking value down into concepts to explain the dynamics of consumers' new technology experience. In Chapter 1, I argued innovation theory needs a greater value focus. In Chapter 2, I explained a grounded interpretive methodology. This approach can effectively capture the meanings of value that consumers experience. Such meanings can lead to better understanding innovation from a dynamic, consumer-centric perspective. The purpose of this chapter is to describe and analyse the value construction practices of consumers before they purchase a 3G mobile phone. These practices I characterise as occurring within value conversations. The purpose of the value conversation is for a consumer to construct an understanding of value in their personal context. Within these value conversations, consumers gather, reject and interpret value information. Also discussed are four consumer valuing practices: *exploring, comparing, filtering* and *closing* that were identified from the data. I use italics to indicate grounded concepts coded in the 3G consumer interview data. In contrast, I found three social value construction practices: *observing*, *recommending* and *inquiring*.

My analysis reveals than an important part of innovation is a value conversation between consumers and 3G telcos. Consumers construct value meanings such as *novelty, power*, a *bargain*, *beauty, duty, community* and *simplicity*. An important insight of this chapter is that value is multi-faceted due to consumers' interpreting and constructing multiple competing value meanings. The multiple meanings of value may align and lead consumers to a purchase action (discussed in this chapter), or may conflict (see Chapter 4) leading to confusion, tension and finally resolution (see Chapter 5). To support and explain my claim, I have structured this chapter to analyse the consumers' interactions in three value conversations. Firstly, I examine consumer interaction with the telco staff and other communications (website, brochures) controlled by the telco. Next I examine consumer interaction with social networks (friends, family, workmates, classmates) and lastly I examine the consumer's individual (inter)action with other value information, such as visiting 3G stores (separate from social interaction). This chapter is important because I present the early building blocks of value, the pre-purchase value meanings, and the concepts explaining the

source of value dynamics, and the value practices which influence consumers' adoption (or rejection) of new value information.

3.1 Consumer value conversation with the telco

In this section I examine and analyse consumers' value construction practices. I present evidence in my interview data for several types of value that attract consumers: *new* functions (such as videocalls), *affordable* prices, *unlimited* email, the *beauty* of handsets, and *free* calls. These attractors are examples of value meanings consumers construct before purchase. More value meanings appear after purchase (see Chapter 4: *service*, *simplicity*, and *reliability*) and in conjunction with the consumer's social network (see Section 3.2.1 on *duty*).

How do consumers describe their interaction with the telcos before they purchase 3G devices? What attracts consumers to 3G mobile phones from the telco? This thesis seeks to analyse and understand how consumers create an understanding of 3G mobile value, and what that value means, at a consumer level. The following interpretation of consumer data was revealed during grounded analysis of my interview data (MIC000 series from 2005, V000 series 2006 - 2009). I identified several constructions of value meaning which attract consumers to talk to telcos (separate from social network interaction), and which lead them to buy a 3G mobile phone.

3.1.1 The value of connection: Consumers as connectors

This section shows *connecting* is a type of value meaning, which varies with consumer and consumer context. Consumers buy telephones to connect to others. *Connecting* aligns consumers with their social network. *Disconnecting* is also valued as privacy, quiet time or relaxing. Consumers demonstrate their interest and value in both connecting and disconnecting. Connecting is discussed as the first value meaning because it is very basic, yet emotionally it is very significant in terms of strength. I interpret consumer emotional intensity as a proxy for the importance of value to the consumer. 3G phones allow connecting in new ways through data connections, such as email, video calling and more recently applications such as Twitter and Facebook. I demonstrate some variation in what *connecting* means to consumers.

Consumers see the value in *connecting* through their 3G phones in different ways. A young woman (V012) values connecting through her phone, while V054 (40s male, teacher, father) in comparison values *disconnecting*. A third consumer (V052) warns of the social costs of disconnecting locally to connect distantly. V012[1] says,

V012: *Because as I am 18, <u>I can't live without my phone</u>. <u>My phone is my life</u>. It's just if I go out of coverage I am just panicking because I can't get hold of anybody…um… I'm lonely. I've got no*

[1] Consumers, like V012, are not named to avoid readers forming an emotional connection with the name. Names like John, Bill, Dave, Lucy, Jill, and Kate still conjure images in our minds, I wish to avoid.

friends to contact… my phone is the world to me… I need it to go everywhere because if I don't have my phone with me what happens when you get lost… my phone is my life. It has got everything in it. My family. My friends. My photos, videos. It has got everything. Meaningful messages, numbers you need. Contact numbers. There would be a humungous problem if I lost my phone. V012, 18yo female, working.

In contrast, V054 's explanation of the meaning of his phone noted:

Interviewer: [what does your phone mean to you[2]?]

V054*: Nothing. It doesn't mean anything to me. I don't have any attachment to my phone in any sense…. Yes I have heard or people are always stuck on the phone or stuff like that. If anything I would like to go the opposite way sort of thing. I don't know if I have found a little bit more. I don't give a shit too much these days about stuff [possessions] sort of attitude*. V054, 40yo male, teacher, father.

Generally, phones are valued points of *connecting*. This value meaning ranged from extremely strong to very weak. In V054's case, his *connecting* value (with his 3G phone) is very weak, whereas for V012, the value of *connecting* through her 3G phone is very strong. V054 is more interested in shutting people out of his phone world, and cites interruptions from international salesmen as particularly negative. V012, in contrast, is a long way from her family (some 4,000 km away), and needs to be more connected to family and friends. These two consumers experience value differently in connection to their 3G phones. V012 experiences *connection* as value. V054 experiences *connection* through personal relating rather than through his 3G phone. V054 sees his phone as an "invasion of privacy… [with] endless phone calls that you get from idiots… to try and sell you something", preferring a "quieter and sort of more sedate society", and working in "the old fashioned way". Yet V054 see technology as an opportunity for excitement in others. Overall, V054's experience of value in his 3G phone focuses on *disconnecting* and privacy, aloneness or lack of interruption as value. Another strongly contrasting experience is provided by V052 who reflects on consumers *disconnecting* with their immediate surroundings versus connecting with someone remotely. She says:

Interviewer: [what does your phone mean to you?]

V052: *[3G phone] changes the scale of time as well, so things it makes time a lot faster because you can reach people in a second. You can change direction in a second… It increases the speed of time. But what it means to me I suppose is that it takes away from the soulful experience of my life. … I don't get [understand] a lot of people thoroughly engaged with their phone. But then they lose a lot of their surroundings. It is a compromise for me. It is a compromise but for them it is engaging in this new real world but for me it [distant communicating] is not very real. But for me it represents a lot of problems in society with how people interact and how people are considerate to one another and things like that because they are not interested in where they are at a certain time. Their minds are in their phone.. ha ha… in time and space*.
V052, 25yo female architect, $40,000 income.

[2] Square brackets indicate my researcher's question, an interpretation of a consumer's word, or replacement of a brand name.

V052 sees phones as points of *connecting*, but at a cost. The cost is the loss of local *connecting*, to be present in a distant conversation, or the internet. V052 is alarmed at the *disconnecting* from those physically nearby. V052 sees the disconnection manifesting as a lack of consideration and engagement in local interaction. She sees others *disconnecting* from the physical world, while their minds wander afar. A single value meaning (*connecting*) thus has multiple meanings to consumers. Some consumers value *connecting*, while some consumers value *disconnecting*.

Consumers have learned, as V054 has from international sales calls that interruptions are not always value creating. Interruptions steal time, and there is value in *time* (see Section 4.4). Consumers therefore have developed complex filters and blocking strategies to cope with these attempted interruptions, such as advertising (see Section 3.3.2 Filtering and Closing).

3.1.2 The value of a good deal: Consumers as bargain hunters

Consumers seek value in their environment, and in the 3G data are particularly sensitive to prices. In this section, I present evidence for *price* as a meaning of value. In relation to 3G mobile phones, *price* inducements such as free calls attract consumers to a new 3G network. The inducement exists to overcome consumer natural tendencies to *filter* or ignore the new, and remain with what they already know (see Section 3.3.2 Consumers as simplifiers below).

To overcome consumers "fixed habits of thinking" (p.86), their resistance to the new, or "deviation from social custom" (p.87), Schumpeter (1934) suggests leadership is needed. He describes leadership is a key element of the entrepreneur, beyond the creation of a new combination (p.87). Marketing inducements shift consumer value, lowering risk, and making the old less attractive. Rogers (2003) calls the relation of the old to the new benefit 'relative advantage', and sees relative advantage as a significant factor in rate of innovation adoption. Relative advantage is comprised of both technical difference and marketing inducements. For 3G mobile phones, several inducements are important. Consumers commonly cited attractive offers made by the 3G telcos, as important attractors for them acquiring 3G mobile phones. These offers included free phones, free calls between 3G phones, and 50 per cent discount on 3G phones (two phones for the price of one). Nearly every consumer commented on the price of 3G; only a few relied on recommendations alone. The following quotes from consumers note the *price* inducements discussed during interviews:

- MIC021:*They [3G store] give the <u>free handset</u> you just have to pay monthly like $33 when I went to the shop <u>3 [3G calls] to 3 [3G calls] is free</u> they said…* MIC021, 20yo female Indian postgrad student 2005.

- V012:*They [3G telco] <u>were cheap they were affordable</u> they [3G phones] are very very easy to use*.V012, female, 18yo, working.

The consumer quotes indicate the value benefits that attract consumers to 3G: free calls, free phones and cheap prices. The value conversation with the telco includes information about product offerings, such as new products and new prices, communicated through stores, brochures and other advertising.

3.1.3 The value of novelty: Consumers as novelty seekers (explorers)

In this section, I present evidence for *newness* as a value meaning. Consumers expressed a range of value instances, clustering around newness. Other instances I found included learning or novelty, as well as in some cases preferring the known, or the past. I use *novelty* and *newness* interchangeably in this thesis to mean something *new* to a consumer, rather than new to the world. Consumers mentioned things they valued, which I characterised as *new*, *past*, *relevant*, *interested* and *important*.

Novelty is necessary but not sufficient I argue for innovation (see discussion of innovation definitions in Section 7.2). Without novelty there is no innovation, but without value there is no adoption. Value combines with novelty to drive consumer adoption when consumers see good value (see Section 6.1, Hypothesis 1). Not all consumers are interested in 3G as a new thing. Novelty is valued when it relates to something of interest to a consumer and different consumers have different interests. For some consumers, new things are a passion. For others, *simplicity* (Section 4.3.2), *price* (Section 3.1.2), or recommendations (Section 3.2.1) are more important. Diffusion of innovation theory recognises two categories of novelty seeking consumers: innovators and early adopters (Rogers 2003). Innovators are attracted to new technical excellence, and early adopters to value breakthroughs (Moore 1991). A value theory suggests adoption timing is value-driven based on different meanings of value, including but not limited to *novelty*. For consumers, novelty must be relevant and of interest, otherwise it will be *filtered* and ignored (see Section 3.3.2 Filtering and Closing).

An example of a consumer valuing novelty, comes from MIC005, saying

MIC005: *The first [3G] phone I <u>bought was on the day of launch</u>… it's a business tool for me… also being in my industry all <u>my clients want to see what is the latest phone</u>… I was on the 'first on [3G]' plan so it was $0.30 per minute call costs capped at $99 for $500 worth of calling… [now] a little bit higher per minute … so [my deal] <u>is still a good deal</u>… I'm not going off [my deal] unless I have to… they'll probably work out a way to charge me more soon…* MIC005, male early adopter, telecoms analyst.

Consumers search for new opportunities to exploit in their environment (see Section 3.3.1 Exploring). Consumers seek to exchange something they value less for something they value more (see Section 5.1 Reconfiguring). Over time, the novel becomes the normal. This depreciation of novelty leads (some, not all) consumers to be restless explorers, seeking the new and potentially

valuable. Thus in MIC005's quote above, the latest 3G phone is sought out on the first day of launch to demonstrate the telco analyst's cutting edge credentials to his clients. MIC005 values the newness and novelty in the latest product to share with his social network of clients. A more personal perspective is provided by MIC014, who says

MIC014: *I would choose 3G because my classmate wanted me to buy that. Because at that time [2003] 3G was a new technology. <u>That was a fresh thing</u>. And <u>people attract by a fresh thing</u>. They want to try. They also want me to try.* MIC014, 25yo male, Chinese, postgrad student; see also Section 3.2.1 Recommending below.

MIC014 emphasises the value of something new, "a fresh thing". I argue newness is part of value, a meaning consumers construct within value, but *value* overall is required before a consumer buys an innovation (see Section 5.2). Value involves the balancing of all value meanings that form value (see Section 6.1, Hypothesis 2). In the MIC014 quote, newness and recommending are positively aligned, but competing value elements are not always so aligned. MIC019, for instance, reveals conflicting value meanings, saying

MIC019: *I'm a technophile… but I'm also a bit of an educated and careful shopper… so I didn't jump on first 3G technology I saw… I've always wanted a PDA [personal digital assistant]… I wanted a device to synchronise with my computer; calendar, contacts, email. I found Motorola A1000; had a good combination of <u>all those capabilities</u>. And it was the right size, not too big, not too heavy. It was a truly convergent device. I didn't have to have two devices, so I have my PDA. I looked at the price of the plan which enabled me not have to pay outright [pay monthly and]… enabled really cheap calls*. MIC019, 37yo male, researcher, father with children.

Newness is important for MIC019 but it is not all that he values. MIC019 loves ("technophile") new technology, but his value assessment contains several other value meanings. MIC019 values careful choosing. MIC019 describes the *functions* of his new 3G phone, the Motorola A1000 that were attractive to him. The *functions* are closely wrapped up with the *aesthetics* and the *price*, so MIC019 runs all three value meanings together seamlessly. He goes on, to talk about the particular day of purchase and changing jobs, giving back his work phone and visiting relatives overseas. His personal change in context triggered the next activity towards purchase.

MIC019: *I went down to the shop in the mall… I looked at alternate phones… I toyed with the idea of flip phones… [but] bonus bluetooth headset helped settle on [Motorola] A1000… I hardly use the headset now, but <u>good deal because headset was worth $100-200</u>… so I just went, signed up and bought it*. MIC019, 37yo male, father, researcher.

Again, for MIC019 *function* and *price* meanings of value are interwoven. His action as a bargain hunter ("headset worth $100 – 200") triggers the act of signing up to a two year contract with the 3G telco. The wireless headset is a marketing inducement to commit to the new technology

contract, and is not innovative in itself. Novelty is important, but it is one of several value meanings that make up value.

3.1.4 The value of power: Consumers as power seekers

In this section, I argue for acquiring *power* as a value meaning for consumers. Consumers expressed a range of value instances I clustered around *power*. Consumers mentioned 3G experiences I characterised (coded) as *potential*, *freedom*, *limits* or *limited*, *power* and *powerless*. A common power value example was an *unlimited* service (such as email) offered for a fixed price. In this section, I provide some examples from the consumer transcripts to characterise the value meaning of power. I emphasise those meanings which have the greatest emotional content as indicating greater than usual importance. Examples of valuing *power* are:

- V012: *they [data service packs] are all unlimited usage … for $3 a month ... what company like Optus [incumbent1] or Telstra [incumbent2] would give you unlimited usage of music and news and weather.* V012, 18yo, female, working.

- V004: *The kind of work I have been doing has always been pretty mobile and I have pretty often been waiting for the technology to catch up with the way in which I work… now I can also access my email from my mobile so it has kind of brought all my worlds together… I keep my world in my handbag…*

  Interviewer: [what does phone means to you?]

  V004: *I would say technological freedom.* V004, 30s, mobile worker, female.

Unlimited email access ($3 per month) is an example of consumers purchasing the power to act. Consumers seek not only the functions they wish to perform, but the power to perform those functions when and how they want, at a price they want. *Unlimited* provides a special form of power or *potential*, where for a service fee, there is no limit to the number of emails that can be sent. In previous times, 3G email was charged per email, like a phone call or stamp ($0.15 per email), but the flat monthly rate was much more popular with consumers. Consumers liked the certainty and *power* that comes from *unlimited* access, and *function* from a service.

Power is given and taken away by 3G telcos. The freedom of accessing the internet, in contrast to unlimited email is curtailed by the high data access prices in Australia. 3G mobile phones give consumers freedom to work the way they want, especially mobile workers but the early 3G telco limits fast-adopting 3G users from accessing the wider internet through high data prices (initially at $40,000 per Gb). After purchase, power shifts from consumer-centric (attracting the consumer) to telco-centric. Power becomes a focus in the next chapter, where I examine the after-effects of a new technology purchase.

3.1.5 The value of beauty: Consumers as beauty seekers

In this section, I argue for *beauty* as a value meaning for consumers. Consumers expressed a range of value instances clustered around the value meaning '*beauty'*. Value instances relating to beauty are: *aesthetic*, *style* and *size*. *Size* was the most common aesthetic element mentioned by consumers, and *style* the second most common. Consumer examples of beauty include:

V002: *well it's [3G mobile] a tool, a communication tool… hmmm… it is kinda cute and friendly ha ha ha ha hah aha hah… well it's a tool but it is [has a] certain stylishness to it but it's also quite pretty and then it does stuff, a lot of which I don't know how to use it but that somehow increases its mystique* ... V002, 40yo female, mobile worker.

V017: *I've had lots of comments like that is a really really slick sexy looking [3G] phone… a lot of people assume that it is quite expensive because it is kind of compact and it is white and yes there is a sort of kudos that goes with this [3G] phone that certainly I didn't have with my old brick [2G phone]… in fact one person called my old [2G] phone antiquated and you know it was sort of a brick, and so I used to feel a little embarrassed with my old phone.* V017, 32yo female, $40,000 income.

3G phones were described by consumers in *emotional* and *aesthetic* terms. I interpreted the consumer statements of the value meaning *beauty* relating to small, light handsets, from strong - "cute and friendly", "increases its mystique", "slick sexy looking", to weaker - "the phones are very nice", and "old fashioned telephone ring". Even PDAs described as "convergent" devices (email enabled PDA, calendar, contacts) show undercurrents of convenience and aesthetic appeal. An extreme value term is *cool* and *sexy*, which I could just translate as 'good' but seems to contain stronger emotional and aesthetic overtones. When V010 (30s, husband, father) talks of "fancy fancy phones" and "really cool phone", the aesthetic value is emphasised. Consumers talk about their 3G phone in many ways. I interpreted some of these statements as consumers valuing the *aesthetics* of their 3G phone, beyond the mere *function* (or *novelty*) the phone performs.

3G mobiles brought new data services to mobile phones, but the first 3G phones were much larger than 2G phones, due to their greater complexity and larger batteries to compensate for their higher power use. Over time, new smaller 3G phones emerged which were smaller and lighter. By 2008, five years after the launch of 3G in Australia, the iPhone 3G (slim, slick, shiny and large screened) was on sale. The iPhone arguably emerged as a dominant design (Utterback 1994), as shown by the quick copying of its design by other major manufacturers (LG, Samsung, Nokia). The Blackberry meanwhile emerged as dominant design for business email use (similarly copied by Samsung and Nokia).

Size connects 3G phones and disruptive innovation. 3G mobile phones can be analysed as a disruptive technology (Christensen 1997). Size had previously been a disruptive element in Christensen's disk drive study (1993), alongside lesser elements, quality and reliability. Christensen found smaller, cheaper, less reliable disk drives opened up a new market for disk drives (for

personal computers, laptops and iPods), which were rejected by high value corporate users, like banks and airlines, who had more quality focussed needs. 3G phones similarly were less aesthetically attractive initially, compared to previous generation 2G phones, due to greater size, and weight, along with poorer specifications like camera quality. 3G mobile phone data throughput was their disruptive quality, and like the Christensen's disk drives, their poor performance on *aesthetics* did improve over time, and they became lighter, thinner, and more acceptable to mainstream consumers. 3G phones technology disrupted 2G phone technology consistent with Christensen's (1997) disruptive technology model.

Further examples of *beauty* as important before *buying*, include:

- V010h: *So yes anyway the reason we bought our 3G phone was because there were a number of $30 plans going around which was about what we wanted to spend… You could choose any number of fancy fancy phones. I was like they [3G phones] look good. By this stage, I was like woooohhhh .... I want a really cool phone*…. V010, 30s male teacher, father, husband.

- V017: *Well I must admit I got sucked into my new one [3G mobile] because one [day] when I went to change my plan [shop staff] went you can upgrade your phone… the new [3G mobile] the extra feature I have to say I'm a real sucker for the rings for that nice ring. I've I've (sic)got sucked into the feature of the more music sounding [ring] tones. Like it just sounds beautiful. Like I really wanted that really old fashioned beautiful telephone ring. .. all those things so I got a bit suckered in by that [ringtone] and also by the fact that it has got a camera in it [3G mobile]… well my mobile was on a $20 [monthly plan] I think it was a special offer.* V017, 32yo female worker, $40,000 income.

These quotes demonstrate consumers appreciating and valuing, the aesthetic appeal of their 3G phones. *Beauty* is valued separate and distinct from the 3G phones *newness*, *price*, *function* and *power*. *Beauty* is another contributor to the value a consumer experiences in their 3G phone. Within the concept of *beauty* I include all sensual awareness including colour, texture, fashion in relation to the product and also advertising, store layout and marketing. Within the above quotes consumers weave together the positive value of *price* and the *exploring* practice of visiting a store. Beauty is one of several value meanings. Value meanings aggregate to form overall value, so individual value meanings may not be critical in themselves, but in combination with other value meanings can aggregate to a positive overall attitude.

In this section I have introduced five value meanings consumers construct in connection with 3G telcos; *connection*, *novelty*, *bargains* (good *price*), *beauty*, and *power*. In Section 3.2.1, and Section 4.1.2, I discuss aggregating multiple value meanings. In later sections I will introduce more meanings, such as consumer acting out of *duty*. These other meanings relate to further aspects of value I found and they demonstrate consumers' sensitivity to multiple meanings of value. More value meanings appear after purchase and are constructed in conjunction with the consumer's social

network. In the next section, I consider social value practices, which arise in a social value conversation.

3.2 Consumer value conversation with their social network

This section examines and analyses consumers' value construction practices that take place in conjunction with a consumer's social network. The main social value construction practices are *recommending, observing* and *inquiring*. I examine each of these practices in turn. From an innovation perspective, *recommending* is not new and captured in Bass's (1969) imitator, Rogers's (2003) later adopters, and Ryan and Gross (1943) neighbours as an important source of social innovation information.

3.2.1 Recommending

The main social value practice is *recommending*. Consumers listen to their friends and family, colleagues, classmates, co-workers and even strangers in the street to construct a better understanding of the value of a 3G phone. The contact is mostly face-to-face, but can also be done electronically on a blog, or via an internet discussion group. Examples of *recommending* show (1) the close integration of the three social value practices, (2) the variation in the source of social recommendation, and (3) the positive and negative types of feedback. At this pre-purchase stage, all these comments relate to recommendations received by a consumer before purchase. MIC014 describes a *recommending* experience, saying

MIC014: *I think I would use 3G because <u>my classmate wanted me to buy that</u>. Because at that time 3G was a new technology … They want to try. They also want me to try…. <u>this friend, this classmate they just recommend me to try this one</u> [3G].* MIC014, 25yo male Chinese, postgrad student.

Here a classmate provides a strong "wanted me to buy", social recommendation. A group risk-sharing strategy is evident where the group acting together provides to each other greater comfort than acting alone; "they want to try. They also want me to try". The connection to friends is highly significant to MIC014's value meaning construction.

Innovation diffusion models capture social purchasing practices. Bass (1969) captures social herding practices as the 'imitator' variable. Bass identifies two adopter types in his statistical model: innovators who buy new things (fairly stable at 3 per cent of a population), and imitators who copy the practices of innovators over time. *Recommending* provides the basis of a herd-type social practice, but a value approach makes this interpretation more complicated. A value approach suggests consumers adopt when they see value, so the consumer's personal context is important. Does the innovation create value for the imitator? The social group provides a *connection* value, and imitating practices connect (and hence adds value to) both the innovator (early adopter) and

imitator (later adopter). The joint consuming strengthens the bond, the *connecting*, between imitator and innovator.

Diffusion of innovation theory (Ryan and Gross 1943; Rogers 2003) show neighbours relying on and copying (by adoption) each other's practices. Opinion leaders show greater than normal influence on their peers to adopt something new. Extensive studies (Rogers 2003) identified the statistically significant characteristics of the opinion leaders, and early adopters. Early adopters are more wealthy, better educated, show higher social status, are more rational, show greater intelligence, are more cosmopolite, and have greater exposure to mass media to name but a few of the 26 early adopter generalisations that Rogers (2003) makes (p.287-291). From a value perspective, what is important is the better the early adoption experience, the more likely is a recommendation. The strength of the recommendation is important, and this can be cross-checked by *observing* the early adopter. I observed some very strong *recommending* that lead to immediate 3G buying.

3.2.1.1 The value of duty: Consumers as duty bearers

In this section, I present evidence for a value meaning I call *duty*. *Duty* is the social connection that binds individuals together in mutual responsibility. A *duty* is a social agreement to behave in certain ways with negatives consequences for failing to act. V014 says,

- V014: *The reason I switched to [3G] was <u>my wife she researched the conditions</u> and found it [3G] to be far superior to its rival in terms of special deals of you know selected contacts… meaning that she and I can speak for long periods.* V014, male 50s Professional, artist.

- V006: *The other half [wife] said <u>you need to have a [2G] phone</u>. I [wife<u>] need to be able to contact you</u> and vice versa.* V006, 46yo male Greek, inner city Melbourne, father

Duty strongly informs *recommending*, where the relationship involved is so important that failing to heed the recommendation risks the emotional stability of the relationship. *Duty* is another value meaning; a social and relationship value that relates to strong connections between consumers. Duty provides part of the social glue that holds relations together. Social relations are held together by value. *Duty* is a part of that value, but other benefits are also part of that value; *emotion*, *connection*, and *need*. Consumers value and act partly out of *duty*.

In the previous examples, duty arises from the relationship between the consumers. However, not every interaction between couples in a relationship gives rise to *duty*. Sometimes where there is readiness for negotiation and difference in assessment, for instance over the value of a 3G phone, duty does not play a part in the value assessment. In the next example the husband wants a cool new phone, and the wife is hesitant about the extra spending. Where the connection

bond is already strong, such as through marriage, the *connecting* value from sharing consumption is weaker and other types of value assume greater importance. In the example below, value meanings contest with each other. The husband emphasises *novelty*, *beauty* and *bargain seeking*, while the wife represents financial restraint or conservatism. The wife is also taking a protecting role: she is protecting the finances of the household and resists the husband's financial exuberance. The husband and wife negotiate their combined *need*, their financial imperatives, their *aesthetic* style and drives for *novelty*. All these value assessments are wrapped together across the value conversation as the husband and wife reconstruct the interplay of their social history.

Husband: you [wife] were anti anti getting a cool [3G] phone. V010h, husband 30s school teacher, father.

Wife: then my main concern was like we paid already like $60 $70 on our home phone… so if we then get a $50 odd [3G mobile] plan which is what we talked about… it was like man that is like $120 worth of phone calls a month. It's ridiculous. V010w, wife, 30s female scientist, mother.

Wife: we don't need a fancy new phone why… but [husb] was then… if you [don't] get a phone on a plan then you miss out on getting a free phone…

Husband: but once I had seen the phones I was like man…. We are going to get this plan.

Wife: [husband] was really really desperate… to get a brand new one [3G mobile]

Husband: And we are going to get a really cool phone as well… after that I was right we were going to get this [3G] plan and get this cool phone too.

Wife: I was like hmmmff we don't need one of those we can just… you know… but once we found a cheap one [3G mobile, plan combination] one that was like $35 a month …and a cool new phone then I was kind of like well that's ok… we didn't want to pay too much.

Husband: we paid less than we used to… ha ha ha we had a way cool phone and we could make heaps more calls. It was like a win win situation. Ha ha ha..

This couple socially construct the value of their 3G mobile phone. *Price*, *beauty*, and *need* contest as value meanings between the two consumers in the couple. V010w starts to change her mind when she sees a friend's 3G mobile, "green, shiny and metallic" which she likes (phone was "kind of stylish") at work (see 3.2.3 *Inquiring* below) though it is not clear in her story the timing of this observation. V010w's context and value changes when she learns ("found") a new and relevant piece of *pricing* value information; "we found a cheap one". V010w's value assessment and attitude changes from negative ("my main concern"; *price* is "ridiculous"; "we don't need" a new phone) to positive ("like well that's ok"). Value is thus a dynamic and ongoing practice, worked out socially and individually, that is especially sensitive to new information. Consumers socially construct value

from competing value meanings. Value shifts with new value information (see further in Section 6.2; value is dynamic).

Recommending is a significant social practice of constructing value in my data. Consumer's individual value assessments are influenced by those around them, sometimes very strongly by those closest to them: their families and partners. Sometimes the value assessment works its course over a long period of time, and sometimes very quickly. Value is the key. When there is a significant shift in value, consumers can move swiftly to take advantage of that shift. But consumers rarely move alone. Value can move almost in an instant - in the time that it takes to receive and process a new piece of value information. Many of the pieces of information are social: *recommending*, *comparing* (Section 4.2.2), *observing*. The second social value practice, *observing*, checks the first practice of *recommending*.

3.2.2 Observing

The second social value practice is *observing*. It involves consumers seeing, watching and noting what other consumers are doing. *Observing*, I argue is a cross check for *recommending*. *Observing* is almost so common that it goes unnoticed. However, *observing* is important because it complements and confirms consumer's social and individual value practices, such as *exploring*. Where *observing* contradicts other value information, consumers become more cautious. Some examples provide a flavour for *observing*.

- MIC018: *Most people had [2G telco]at that time.* MIC018, 20yo male student.
- MIC019: *Most people not on 3G, so videophone less attractive.* MIC019, 37yo male researcher.
- MIC021: *Like I assume because I also see my friends with the [3G] phone [that I am entitled to the same] 3 to 3 ten minutes free [calls].* MIC021, 20s female Indian postgrad student.

Besides the discussion of *recommending*, consumers observe and take in their surroundings, and make value assessments based on their social environment and context. Consumers commented to me on their perceptions and observations of people in their social network. These observations are contrasted with the recommendations they receive, and what information they get directly from the telcos. In some instances, consumers purchase based on a recommendation and *observing* others using their phones, with very little contact with the telco or other external information sources.

MIC020: *I know about this [3G] company because <u>one friend told me about</u>… <u>a friend of my boyfriend</u>, an Australian… he told me that [3G] was a <u>really good brand</u>… even the [3G] company was new. <u>He told me we be good</u>… he is the kind of person that likes… the being the latest having the latest technology all the time.* MIC020, 30yo female postgrad student, Colombian.

A friend is held out as an expert "having the latest technology all the time". A reliable friend (see Section 4.1.3 Reliability) bypasses a consumer's need to *explore*, *compare* and assess the value

of a 3G phone for some consumers. MIC020 says "I just trust my friend" rather than *exploring* or *comparing*. MIC020 did report *observing* the 3G phones: "he just show us the function of the phones, the ringtones". Thus MIC014 has an opportunity to verify two value meanings, the *function* and *aesthetics* of the 3G phone. *Observing* the 3G phone provides confirmation of social *recommending*. *Observing* is a practice of gathering visual and social confirmation of other value information.

3.2.3 Inquiring

Besides *recommending* and *observing*, the most important social value assessment practice in my dataset was *inquiring*. When consumers are *inquiring*, they are actively seeking information from their social network, to make better value assessments. The social network is generally receptive to these approaches for information. The inquiries can be either personal or virtual.

Where telcos do not provide sufficient information to consumers, consumers find ways to more easily promote the *inquiring* discussion themselves. Australian consumers took to the internet enthusiastically to discuss 3G on non-profit websites like www.aussie3G.com (20,000 members, 25 million page views in four years to 2007; see aussie3G.com 2007), and broadband discussion site www.whirlpool.net.au (400,000 members, 27.5 million comments in ten years; Whirlpool 2010). Similarly, Apple keenly facilitated consumer discussion of its products, including the iPhone 3G from 2008. The Apple iPhone discussion website attracted 830,000 comments (and 4.3 million views) between 2007 and mid 2010.

A consumer mentioned her experience in searching the internet for answers when the telco could not help, saying

V004: *The way that you do … homework is not just the internet. You do ask other operators [consumers] how it works…You ask people their experience… people in the street… if you see someone in a meeting in a business setting they are usually quite happy to talk… because… people understand that it is hard to get information so the best way… is word of mouth …I have been asked about this phone on the street you know someone sees it on the tram or something …There are often blogs… that you can find people's true comments about what their experiences are.*
V004, female 40s consultant, Finnish $200,000 income (interview data).

A more social inquiry comes from V010w, who says

V010w: *Someone I knew said [3G telco] to me. [A] had a [3G telco] phone. [A is] a girl I worked with at the time. I remember she [A] turned up to work with her green slimline metallic green ha ha kind of phone… that was kind of stylish and she [I] was kind of like oh where did you get the phone or whatever… she [A] was like [3G telco]… you should check them out. They were… they're [3G] phones look good. You can get cheap [3G] plans. Before that I had only thought really of [incumbent 1] and [incumbent 2] I think… really.* V010w, 30yo, female, wife, mother, part time scientist.

V010w provides an example of a workplace social value conversation. *Inquiring* of workmates and others in a consumer's social environment is important and contrasts with value

information from the telco, and mainstream advertising. Consumers' social network provide potentially less biased information about 3G mobiles than telcos, since they have nothing to gain.

In this example, *inquiring* can be seen to be tightly linked to *recommending*, and *observing*. Observing is also an important consideration for V010w. The comments "green slimline metallic", "kind of stylish" are strong indicators of her positive value assessment, which add to the consumer's *aesthetic* assessment of 3G phones. How this *observing* contributed to V010w's value is shown in Section 3.2.1 *Duty* above. V010w checks value information through social inquiring.

Social value assessment is an important if not critical aspect of consumers' value construction practice. Value assessment is ongoing, and more strongly linked to context than to a generalisable status as an early or later adopter. Value arises when a need arises. *Needs* are fluid and social, whereas past diffusion of innovation research examined static and unchanging products, such as agricultural (Ryan and Gross 1943), chemical (Rogers 2003, p.56) and pharmaceutical (Menzel and Katz 1955) products. The difference value (as a concept) makes in understanding innovation, is that value is a dynamic construct, allowing a fluid and dynamic appreciation of consumers' changing needs, and the social practices that explicate those needs. *Needs* can be traced, through an ongoing interaction between innovators and consumers. This is the value conversation 3G telcos need to seriously engage in. This section has focussed on consumers' social value practices, specifically, socially constructing the value of a 3G mobile phone. These practices (*recommending*, *observing* and *inquiring*) form an ongoing social value conversation. Next I consider the individual value conversation.

3.3 Consumer value conversation from individual action

This section examines and analyses consumer meaning construction practices beyond interaction with immediate social peers, and the telco retailer. Consumers undertake non-social practices to construct an understanding of value in new technology, using practices I call *exploring*, *comparing*, *filtering* and *closing*.

3.3.1 Exploring: Consumers as value explorers

In this section, I present evidence from the 3G consumer dataset, for the value practice I call *exploring*. *Exploring* is an individual value information gathering practice, in contrast to value information blocking practices like *filtering* and *closing*. *Exploring* expands value information, while *filtering* and *closing* restrict value information. Some examples of *exploring* identified from the 3G dataset are:

- MIC010: *Buy after long process of collecting information – 6 months… Went to the store several times*. MIC010, 30yo male Italian teacher, PhD student.
- MIC021: *I saw that the phones are very nice.* MIC021, 20s female Indian postgrad student.
- MIC019: *It was the right size, not too big, not too heavy.* MIC019, 37yo male researcher.

Exploring is a natural and common activity of consumers I spoke to. *Exploring* happens in several ways. The practice is sometimes social and interactive, and sometimes solitary. In my observations, sitting outside a 3G mobile store, both consumers on their own and in groups went in to look at 3G phones. For instance, in one observation session in Brisbane (19 July 2005, Thursday 3.00-5.00pm), 20 men visited the store on their own, and four women. I also observed 8 pairs of men, 14 pairs of women, and 8 male/female couples enter the store. It was common for consumers to stop, look in the store, then exit after a quick browse. The median visit time was only one minute for 70 consumer visits. Visits of less than one minute were common. Only five consumer visits out of the total 70 visits I recorded lasted longer than two minutes (for 3, 4, 18 plus, 22 plus and 52 minutes respectively). The 3G stores were two years old, but 3G phones were still quite new in 2005 (see Table 1). Brochures provide information for consumers to take away, though I saw only 6 people over those two hours take brochures away.

During a second observation session in Sydney a month later (24 August 2005, Thursday 3.30 – 5.30pm) I found similar results (as did four other similar observation sessions). What is important here is that consumers absorb product information in very small pieces. They walk past a shop, stop, look at the brochures at the entrance, wander in, and perhaps pick up a sample phone. They browse through the several phones displayed side by side. Consumers look at the posters and advertisements on the wall. Mostly they don't talk to the staff in the shop, and exit within a couple of minutes. These consumers are *exploring*. *Exploring* is taking in visual cues (such as colour, layout), textual cues (such as signs), and tactile cues (from holding a 3G phone) to gather information and form an impression. This impression builds into a value assessment, and forms the basis for future consumer actions. MIC018, a student, for instance says

MIC018: *when I got the phone I thought that it was like really good value at that time. When I bought that [3G] phones seem to be really good… to have free calls from 3 to 3. It was new. No one was telling around that services were bad. And they just was different because they [3G phones] had cameras. They [3G telco] had little white stores everywhere ... so <u>they had been flashing at the time</u>*

Interviewer: [was the flashing advertising?]

MIC018: *yes*. MIC018, 20yo male undergraduate student Russian.

MIC018 draws together information from his social network and information gathered about the telco strategies. The telco offered free calls between consumers on the 3G network, phones with cameras, and stores conveniently placed near major city pedestrian thoroughfares. The stores are predominantly white, but the front of the store contains a major logo installation, which cycles through several colours, and would account for MIC018's description as "flashing".

Consumers do *exploring* to seek value. The 3G stores seek to attract consumers through a distinctive appearance I will now describe, from a field note of 30 September 2009:

The stores are white background with colourful displays, including lights which change colour through a rainbow selection, fading every few seconds from one colour to another. The stores have displays on the wall, and in the centre, with walkways around giving consumers space to wander and look at different phones. The staff are young and wear a simple neutral coloured pants and bright polo shirt uniform with the [3G telco] logo.

The 3G stores are seeking to differentiate from other 2G stores with their physical white layout and flashing lights. All phones store have phones laid out for comparison. White glossy plastic shop fittings since 3G telco launch in 2003, takes up the glossy white motif of Apple laptops of the time. The white motif signals technological advancement and elegant simplicity, both reminiscent of Apple's white polycarbonate laptops and market positioning. In later years (around 2008), Apple updated their aesthetic to use aluminium in their computers, which made the 3G stores in comparison (which did not change) appear dated in their whiteness. The 3G stores combine functional, aesthetic and bold colours to suggest fun, vibrant vigour, and youth.

Further evidence in 3G telco shareholder reports confirms my interpretation. The 3G telco reports to shareholders their strategies to entice consumers with their retail stores. The company 3G telco 2003 Annual Report (HTA 2004, p.16) notes of their store's visual appeal "our video capabilities and multimedia, information and entertainment services provide a vibrant, visual market differentiator" and that 3G "brand reaches 92% [consumer] awareness through [early] marketing and sponsorship" (2004, p.5). Consistent with Porter (1985) and Kim and Mauborgne (2005), differentiation, or Schumpeter's (1934) "new combination", the 3G telco seeks to visually differentiate themselves from other telcos. The Annual Report [3G Telco] 2003 also reports "the 50th company owned [brand] shop opens with a flagship presence in George St., Sydney. The shop is one of over 250 retail points of presence, including dealerships in Australia" (p.5). George Street is one of the major inner city Sydney streets with major pedestrian traffic, close to the Centrepoint Tower tourist attraction in central Sydney. The 3G telco seeks to create a visual attraction for consumers, through colour, lights, and new technology phones. Such attraction only keeps a consumers attention for a very short few minutes.

In summary, *exploring* is a personal information gathering exercise that builds up to a value assessment. Exploring can be social or individual, and episodes of it can be very quick, such as a one minute exploration of a new store. Stores make it easy to process the sales information later with brochures, and access to the 3G telco website.

3.3.2 Filtering and Closing: Consumers as simplifiers

In this section I present evidence from the 3G consumer dataset for the value practices, I call *filtering* and *closing*. *Filtering* and *closing* are blocking value practices, which restrict value information available in the consumer's context from being evaluated (see work on intrusive advertising; Cho 2002, Edwards, Li and Lee 2002, Pollay and Mittal 1993, Rust and Oliver 1994). *Filtering* and *closing* are important selection tools of perception (and coping strategy) because they limit the amount of information consumers deal with. *Filtering* and *closing* are important because in conjunction with *exploring*, these individual value practices are key building blocks of value dynamics. Information drives shifts in value, attitude, emotion and action. What information gets evaluated is therefore a critical component of valuing. For marketers, gaining consumers' attention is a significant hurdle, even before the contents are evaluated. Some examples of *filtering* and *closing* from the 3G consumer dataset are:

- V010h: *And you could get on the internet but <u>we don't ever use that</u> service because again that was more money that you used as part of your plan that you know <u>you wouldn't need</u> it… <u>we just weren't interested in</u> but we could access all those things [data services.]*
  V010, husband, 30s male, father.
- V016: *It was probably an advertisement that made me aware of it [3G]*

  Interviewer: [media?]

  V016: *probably tv um or print at a guess. I am <u>very blind to internet advertising</u>. It is just visual noise to me, so you know no doubt there were pop ups in different places and so on.*
  V016, 39yo male, inner city Melbourne.

Filtering and *closing* contrast with the practice of exploring. While *exploring* gathers new information, *filtering* and *closing* block and prevent new information from coming into a value assessment. In the quote above, consumer V016 describes his reaction to internet advertising. V016 filters out internet advertising so he does not pay attention to it. To limit the information consumers process, they choose to emphasise some data and push other information into the background. V016 is describing that he ignores internet advertising. A stronger version of *filtering* is *closing*.

Closing is closely connected to *need* (an underlying value meaning; see Section 4.4). Consumers talk about need, want, or desire. The other side of *need* is a choice by a consumer to block or reject messages about an offer made by the telco. I was particularly interested in data services that were a new and distinguishing feature of 3G mobile technology. I thought that since this was an important differentiation between 2G and 3G phones, telcos would promote new data services and consumers would be attracted by such new services. In reality, many consumers rejected 3G data services with very little consideration.

Consumers value what they are interested in. If they are busy, they avoid what they are not interested in. Consumers *filter* or *close* access to their attention. If they are upset with a telco, they

may also intentionally ignore telco advertising messages. When asked about new 3G services, consumers replied:

- MIC022: *I am time poor ... I could explore [other 3G] services, but I don't. I really don't have time to [explore data services I can get].* MIC022, 47yo single mother, $60,000 income.

- MIC018: *I ignore internet emails [advertising data services]. You can download a whole lot of stuff but I don't. I don't actually need [3G data services]… it's not the price. I have no demand for that.* MIC018, 20yo undergraduate student, male, Russian.

I characterise these statements as *closing*. MIC022 personal context limits her time to explore. Her focus is on more pressing matters. MIC022 focuses on matters of more value to her: her work, her son, her house and paying her bills. MIC018, in contrast, has made a conscious decision to ignore advertising from his 3G telco that shows possible new services for him to consume. To simplify his life, MIC018 has chosen to ignore all offers in this form, regardless of the content of these offers. He has made a blanket decision that none of these marketing approaches can satisfy him. This *closing* practise poses a challenge for marketers. Marketers are continually trying to enter the consumer's world with new offers, and consumers, in response, filter those messages, letting some through, but *closing* other messages off completely. In this case, MIC018 closes a channel of messages (email advertising through his phone), but in other cases messages are closed by topic.

MIC019 shows an example of *closing* his attention to messages by topic. He pays $3 per month for an "Info Pack" which includes news, finance and weather. His other possible choices (noted in a 3G telco September 2006 brochure) include a "sports pack" with live scoreboard, and an "entertainment pack" with movie and tv guide, restaurant and bar guide. These are sold separately for $3 per month, or together for $7.50 per month. MIC019 says, when asked about the 3G data services, unlimited data packs that are offered for use at a fixed fee per month:

MIC019: *Well that info pack gives you some part of that. But they've got a lot of other stuff [3G paid content] which doesn't interest me. I'm interested in news, weather. I'm not a big sports fan. There's a lot of stuff [3G data options]… sports…. I'm not going to spend money to get up to date sport information.* MIC019, 37yo, father, academic researcher.

MIC019 has *closed* himself off to using 3G sports content. MIC019 would ignore marketing messages encouraging him to watch sport, or get sports results on his 3G phone. Several telcos have exclusive sports deals to differentiate their offering (Porter 1985) from the other 3G networks (Vodafone - Rugby Union, Optus – World Cup Soccer, Telstra – National swimming championships, Motor racing, Three – National cricket team, World Cup Cricket). In the same way that MIC018 is closed off to internet advertising, MIC019 is closed off to sports advertising. While telcos might seek competitive advantage through Porter's differentiation approach (rather than a

lowest cost strategy), where a consumer has closed himself off from sports, then the marketing messages are ignored on the closed topic. While MIC019's quote relates to activity after purchase, the *closing* practise relates to personal attributes of the consumer that exist before the purchase of the technology. This *closing* practise is a pre-purchase strategy. I will examine further *closing* practises in conjunction with *problem solving* strategies in Section 5.1.

In contrast, a young woman, V012 describes embracing content packs, for which she sees significant value.

V012: *Oh I think they [data packs] are very very good value. What company like Optus or Telstra [large incumbents] would give you unlimited usage of music and news and weather*. V012, 18yo female, working.

V012, in contrast to MIC019, buys several content packs. Her monthly 3G usage includes unlimited photo messages ($3 per month), web and email pack ($5 per month), music club ($3 per month plus $1.50 per song), tones and pic pack ($3 per month), games pack ($3 per month). A September 2006 3G telco brochure shows 10 value packs of which V012 has subscribed to five.

Consumers seek value, and where an offer is more expensive, or offers no better value than what they already have, it is easy for consumers to ignore such offers. Consumers *filter* poor value offers, when they are already satisfied with what they already have. *Filtering* and *closing* happens before purchase, and also continues after purchase, but I dealt with these practices here to contrast with *exploring*. Consumers limit value information assessed through *filtering* and *closing*.

3.3.3 Comparing: Consumers as value assessors

The last individual value practice is *comparing*. Value arises from and is evaluated by the individual value practice of *comparing*. *Comparing* in contrast to *exploring* gives value information meaning. When nothing is compared, and everything is seen as unique and isolated, then no value judgment can arise. When one thing is placed next to another and compared, then consumers start evaluating. *Comparing* binds consumers to their context, and the context gives meaning to consumers through evaluating and valuing in the form of *comparing*.

Consumers' value experiences arise through making a number of comparisons. In this section, I will outline those comparisons consumers make before talking to their social network, or talking to telcos (discussed above). Consumer comparisons of this type include comparing a consumer's experience over time (now versus the past), comparing price offerings of telcos, and comparing the aesthetics of phones. Some consumers compared the Australian experience with their international family or travel experiences (V004, V010h). I also observed consumers comparing phones in a 3G mobile store. Consumers read brochures to compare telcos and to compare the different 3G phones that a telco offers. Some examples of 3G consumers *comparing* are:

- V016: *At the time [3G] was by far the cheapest. The [3G] plans allowed several hours each month of free calls to other [3G users]… When [3G telco] advertised that they had ah ah generous plans it was something like ten hours a month of free calls to other [3G] users, other [3G] numbers…*

  Interviewer: [next step?]

  V016: *… look at the offerings and work out a calculation that was an approximation of savings would be which was really for my own decision making… comparative… so which meant going to a shopping mall and grabbing a bunch of brochures from a bunch of [telco] providers. Going away and looking at what they [brochures] all said.*V016, late 30s, male, inner city Melbourne.
- MIC019: *[3G] had best, one of the best pricing for normal calls… their prices were not that high comparing to other [2G telco] companies… [2G telco1] have free calls… after 8pm, and some other companies have certain times [but 3G telco] got anytime [free calls].* MIC019, 37yo male researcher, father.

Consumers compare telco offers to make a value assessment. One of the common value meanings compared is the *price* of a 3G mobile phone and related services. Price is not the only meaning of value, but other value meanings are less amenable to *comparing*. What was unexpected in the 3G dataset was that so many of the consumers were price sensitive. Price of 3G was mentioned by nearly every consumer. Comparing prices is an early adopter practice, while taking recommendations is a later adopter practice (Ryan and Gross 1943). Consumers compare both *pricing* and their social peers experience through recommendations.

Another type of *comparing* is geographic. V010 compares the complexity of Australian phones plans with the US, saying

V010h: *we would have had [2G phone] in the US … it was so great because they were really cheap. Much cheaper than here [Australia]. [US telcos] would charge per minute so you would get a $30 plan and get 300 anytime minutes… to any phone anywhere.. then after 8pm and on the weekends it was free ... so the disparity [across countries] between the technology you take up is enormous… we got really frustrated [in Australia] because we procrastinated for a long time about what kind of [mobile] phone we were going to get… it's just all those trying to work out all the plans and stuff really gave me a headache .... yes that was the big big difference because that was the whole thing. … in America it was just straightforward you know… here [Australia] there were 50 million plans and they were all different prices and you didn't know what they were for… if you weren't involved in any of that [telco business] then you just thought man this is crazy anyway.* V010h, husband, 30s, teacher, father.

V010 struggles to understand the complexity of what telcos are putting forward to Australian consumers. V010 compares the complex Australian telco offerings (see further in Section 4.3.2 Simplicity) with the simple US telco offerings. The complexity causes V010 "[to be] really frustrated", gives him a "headache", and he sees the situation as "crazy". As a result V010 delays getting a mobile phone. The complexity of mobile phone plans causes loss of value, which is reflected as negative emotional state, *procrastination*, *delay* and revenue loss for the telco industry.

Consumers use *comparing* as an important evaluating practice to assess value. Consumers compare prices over time, and across their social network (see Section 3.2.1 Recommending above) including across countries, and across competing telco providers. Consumers assess value based on *comparing*, and in conjunction with their *filtering*, *closing* and *exploring*.

To better understand consumers experience of 3G pricing, I examined prices in 3G brochures (see Appendix 10) to analyse how prices had moved over time for 3G mobile data. I was surprised to find how complex 3G data prices were. I found 15 value aspects of *price* for 3G mobile data. I consider the complexity of 3G pricing further in Section 4.3.2 Simplicity.

3.3.4 The value of suffering: Consumers as problem solvers

Loss of value can arise in either the pre or post purchase phases. In this section I present evidence for loss of value (before purchase) as a driver of consumer action. (Chapter 5 examines loss of value after purchase). Loss of value results in negative emotional response, which I characterise as a negative attitude towards the 3G mobile experience. Loss of value leads to consumer action to rectify and *problem solving*. *Problem solving* is an important consequence of valuing. Here, I present examples of loss of value in the pre-purchase phase of valuing. Purchasing can arise as a *problem solving* action. Some examples of 3G consumer loss are:

- V002: *I was on a [2G] plan… I … thought I was to pay $50 a month. And then my bills just kept getting bigger $50 $80 $90 $120. So I was like I've got to get off this plan. <u>I started looking around</u> to switch to another service provider and I didn't know anything about 3G… I thought I could just get my phone bills down by if I just used my phone less or something but then it went on. <u>Because I kept getting a few high bills</u> I went '<u>well this is no good</u>. It is obviously a pattern, not just a one off.'… I was on a plan that was going to cost me $50 but it wasn't actually a cap, it was just I paid $50 like a minimum and then they charged me more. I felt [$50 minimum not cap] was <u>like a bit of false advertising</u>.* V002, female 40s freelance writer.
- V014: *I got to the stage where I was almost <u>not using the[2G] phone to keep bills down</u>…[2G phone was] very expensive… I seemed to spend an enormous amount of money on the [2G] mobile phone which I didn't want to do… I was <u>trying to send SMS all the time</u> [to keep the bill down]…I was totally unsatisfied… I think there was both [for myself and my wife] there was just <u>growing dissatisfaction</u>… we were looking for ways to um use [2G phones] economically… but it was becoming increasingly difficult. Sometimes you have to speak on the phone or what have you. [2G bills were] becoming an issue, because it was <u>becoming a major expense</u>. I was spending $70 per month and I was on a $40 cap [with 2G telco].* V014, male 50s Professional, Artist.

Consumers suffer when they sense they are losing value. Rising prices, poor service and other problems cause consumers pain. Pain drives consumers into action to seek resolution to their problem. The two consumers above (V002, and V014) suffer "growing dissatisfaction" from their 2G rising bills. V002 uses phrases like "this is no good", "I wasn't happy", "I've got to get off this plan" to indicate her pain. V014 uses phrases like "very expensive", "totally unsatisfied", "almost

not using [phone]", "spend an enormous amount of money" to indicate his pain. Ultimately, their 3G purchasing action solves their loss of value problem from their 2G phone.

Consumers compare their current experience with their past experience to assess their current value. When V002 experiences rising monthly bills, she experiences a negative emotional reaction) which spurs V002 into action to seek a remedy, including *exploring*. V002 says,

V002: *I went into quite a few different stores… and were taking their pamphlets and trying to understand their different plans… and trying to compare them… they were so tricky… I couldn't figure out which one was better value ... so then I was just trying to keep my ear out for whether any friends or people I knew could recommend a phone* V002, female 40s freelance writer.

V002 seeks an answer by talking to her social network. V002's action of *comparing* her ongoing experience is an important source of her evolving value assessment. Thus *comparing* as a value assessment practice, is tightly integrated with *exploring* and seeking certainty and *simplicity* from experts in her social network.

Consumers *comparing* in conjunction with strong negative reactions indicates a loss of value. In V002's and V006's case, rising monthly phone bill provided a source of frustration and initiated drive for remedial action. Firstly they started to use their phone less. Secondly, they tapped social networks for relevant value information. For V006, his wife "*researched the conditions and found [3G] to be far superior to its rivals in terms of special deals… meaning she and I can speak for long periods*". In both consumers' cases, their social networks were sources of new information about how to get a better deal to relieve the emotional stress (*suffering*) of loss of value. But the *stress* was created in their internal world by *comparing* their current and previous experience (their rising phone bill). Thirdly, the *stress* is relieved by acting to seek an alternative to their current 2G telco provider. Thus, three actions remedy loss of value stress pre-purchase. Firstly, the consumers try their own strategies for using their phone less, such as using more SMS, rather than phone calls. Secondly by *exploring* consumers seek alternative providers, and recommendations. Thirdly, by *buying* (see further in Chapter 5) a 3G phone, consumers solve their 2G pricing and loss of value problem. On sensing loss of value, consumers act to relieve emotional suffering. (See further discussion of emotion in Hypothesis 5, Chapter 6.)

In Section 3.3.4, I examined consumer suffering in relation to their 3G mobile experience. I characterised their suffering as relating to loss of value, and I showed how consumers react to loss of value to relieve their suffering. Consumers did *exploring*, talking to their social networks and *buying* to relieve suffering. This construction is linked to the consumers' individual valuing practices (Section 3.3). Specifically, I found three individual value practices which show the consumer's individual response to surrounding value information. *Exploring* expands and reaches out to new value information. *Filtering* and *closing* restrict and block value information. *Comparing*

gives meaning to new value information. Consumers also suffer as a result of loss of value, which spurs them into action.

Conclusion

This chapter presents grounded analysis of consumers' 3G stories broken down into value concepts. Two main concepts are presented: value meanings and value practices. This chapter examined consumers' valuing practices before the purchase of a 3G mobile phone. Three value conversations were examined to analyse context for valuing practices: the consumer talking to the 3G telco, the consumer examining new contextual value information, and the consumer interacting with their social network. Two important insights arose from my pre-purchase analysis:

- Value (pre-purchase) has multiple meanings including: *connecting*, *power*, *beauty*, *bargain hunting* and *novelty* (Hypothesis 2). Consumers socially construct value from competing value meanings, through *recommending*. Value shifts with interpreting new value information (see Section 6.2).
- Value practices expand and limit interpreted value information. Consumers seek new value information by *exploring*. Consumers limit value information evaluated through *filtering* and *closing* (Hypothesis 4). Consumers evaluate value information through *comparing*.

Competing valuing practices lead to value tensions and value dynamics. Value meanings contest, and pull consumers in different directions. Through simple conceptual value building blocks (value practices and value meanings), consumers construct a complex and dynamic understanding of 3G mobile phone value. In the next chapter, I examine further valuing meanings and practices which emerge after purchasing a new technology; the reality of value. In the third results chapter, I examine further consumer actions which arise from valuing new technology; the consequences of value.

Chapter 4: The Reality of Value: Value construction after technology purchase

Innovation research usually ceases analysis at the point of consumers purchasing new technology (Mick and Fournier 1998). The data collected from 3G consumers in this thesis showed significant consumer valuing activity after purchase. The Promise of Value, discussed in the preceding chapter examined how consumers construct value *before* they purchase their 3G mobile phone. The following analysis extends to value construction practices of consumers *after* they purchase a 3G mobile phone. These constructions I characterised as consumer value conversations.

Post-purchase three new aspects of valuing appear. A significant finding in this chapter is that three new value meanings, largely invisible prior to purchase, emerge after purchase: *reliability*, *service*, and *simplicity*[3]. An important second insight I found was consumers construct a single overall assessment of new technology after purchase, and express that assessment as consumer *attitude*. Thirdly, after purchase consumer contracts with telcos become a point of contention. At purchase, telcos lock consumers into an ongoing relationship with a contract. If consumers experience loss of value or suffer negative value experiences, telco *lock-in* causes consumer suffering, which consumers respond to. Contract *complexity* (especially *pricing*) becomes an issue in this phase, creating tension (and frustration) between the telco and consumers. This chapter sets the scene for the third and final results chapter, The Consequences of Value, which shows how consumers *act* in response to post-purchase value construction. In Chapter 7 I compare and reflect on the value meanings and practices with the innovation and consumer value literature.

I have structured this chapter to analyse the consumers' interaction in three value conversations. Firstly, I examine the consumers' personal (inter)actions with their 3G mobile. Next I examine the consumers' interactions with their social network (friends, family, workmates, classmates) and lastly, I examine consumers' interactions with telco staff and customer service as they experience life with a new technology.

[3] I use italics here to indicate grounded theory concepts derived from the consumer interviews.

4.1 Consumer value conversation from individual action

This section examines and analyses consumers' post 3G purchase value construction practices, without social network or telco interaction. Some consumer experiences are constructed without personal contact, such as interacting with a phone, and reading phone bills. I present evidence for three new consumer individual value meanings which appear after purchase, "*3G is cheaper*", *reliability*, and consumers' *overall assessment*, the emotional result of valuing, I call *attitude*.

4.1.1 3G is cheaper: the value of a bargain

Valuing a new technology continues after purchase. Reality after 3G purchase provides good and bad news for consumers. The good news is 3G is sometimes cheaper than anticipated. The bad news is 3G is not cheaper for everyone. The ugly news is the 3G network suffers from *reliability* problems, leading to consumer distress and suffering (loss of value). The quotes from consumers below provide some examples of the variation in their lived experiences. These quotes show the ongoing value conversations that form the lived experience (the reality) of consumers with a new technology. The first quote shows a happy consumer who experiences good value from lower prices, for whom 3G is cheaper.

V016: *I am on a… what is it… $250 a month [plan] which includes $1100 of included calls so I am a very heavy user. If I was on a standard plan, say on an entry level plan, I would probably have a $700 a month phone bill …so what it means is that I pay $250 and a month and I rarely go over the limit …*

Interviewer: [previous spend?]

V016: *was probably around $350 … yes yes it was definitely cheaper, a lot cheaper [now]. Oh price is good. That is the reason to be there [on 3G].* V016, 39yo male, inner city Melbourne.

The second quote shows a consumer who experiences good value from lower prices. What V019 reveals later is that he threw his 3G phone out, after discovering the 3G sim card worked in his old 2G phone. In this case the telco loses the opportunity to sell to the consumer value-adding services 3G can provide, such as email, wireless internet and so on.

V019: *I'm on a special deal where I get I think $550 free calls a month… so if I make more than $450 then I start charge paying extra on top of the $79 [plan] but so far I haven't gone anywhere near that ... so on average the [3G] phone bill has been about $79 for the last few months whereas before that .... it was $150 $140 $130 whatever.* V019, 58yo male, rural salesman.

Consumers reported that prices of their monthly 3G phone bill are often substantially reduced by moving from a 2G to 3G mobile phone. MIC022, for instance, used to spend $180 per month on her 2G mobile phone, and changed to a 3G $99 monthly plan, where she can make up to $500 worth of calls each month. The result is MIC022 uses her 3G mobile phone more and her home phone less. Other consumers reported similar falls in monthly spend, such as V016 $250

(before: $350), V019 $79 (before: $140). For a lesser amount, high total calls are provided, such as V016 $700 worth of calls for $250, V019 $450 worth of calls for $79. Not all consumers were so lucky. MIC021 says,

MIC021: *Minimum monthly [bill] is like $200 for me…everyone who has [3G] phone… they are not happy…*

Interviewer: [when plan ends?]

MIC021: *hmmm… I'm going to disconnect [3G]. I'm not going to use [3G] anymore… ha ha …*

Interviewer: [spending previously?]

MIC021: *previously I use Optus prepaid the same thing per month maybe $60, yes not even $60 sometimes even less than that sometimes $30 sometimes $60, so this [3G] phone is minimum yes about $200 and something…*

Interviewer: [phone mean to you?]

MIC02: *it's wasting all my money ha ha ha…. Now I got used to it so I know that I have to pay this money so I don't worry about it… once I finish [contract] I'm waiting to finish my plan and then I will disconnect this [3G] phone or I'll think what I should do.* MIC021, female Indian postgrad student, 20s.

MIC021 has a poor new technology (3G) experience, and suffers a loss of value. Her monthly bills have tripled and she has to carry a spare phone (from another telco) to ensure she has *reliable* network coverage (discussed further in Chapter 5). A contract with her 3G telco means MIC021 is *locked in* (Section 4.3.3) to continuing loss of value. MIC021 is unhappy ("wasting all my money") and suffers as a result. The telco has failed to add value for MIC021, which signals problems for the 3G telcos chances of success with their new technology.

This section has set the scene for the variation in consumers' experience with 3G mobile phone after purchase. Mostly 3G is cheaper, which is good news for consumers (the promise), good news for the 3G telco, and good news for the success of 3G. But for some consumers there is a problem. The reality for some consumers is a loss of value, and suffering, as 3G fails to live up to its promise. The discussion of the overall experience and the concept, *attitude*, which contains and sustains these consumers experiences I examine in the following sections.

4.1.2 Value as an overall assessment

Consumers construct value at two levels: a single overall assessment and multiple attitudes by value meaning. Value arises from value assessments, and is expressed as an overall attitude. Consumers also construct *attitudes* to value meanings, such as *price*, *reliability*, *size*, *simplicity* (see Appendix 2 for a list of 3G meanings, and Appendix 5 for a list by consumer). In the following discussion, I examine the variation in value with 3G mobile after purchase. New value meanings emerge from shifts between consumers' pre- and post-purchase experience. *Attitude* emerges as an

enduring emotional expression of valuing. Some examples of overall 3G attitudes from consumers are:

- V012: *I <u>really really enjoy</u> the [3G] company*. V012, 18yo female working.
- MIC019: *<u>Happy</u> with package as a whole.* MIC019, 36yo male academic, father.
- *Interviewer: [value?]*

  MIC014: *last month I pay $30 for my phone… I think it is ok, this <u>[value] is fine</u>*.
  MIC014, 25yo male Chinese postgrad student.

The 3G technology, and the attractive pricing for voice calls have brought about many positive value experiences for a number of consumers. Consumers are able to express an overall opinion that cuts through competing value meanings that their 3G phone holds for them. A strong early impression that shines through from consumer's stories is the variation in overall experience for consumers. 3G is not universally positive. In early comparisons of the first eight interviews, I used the tag *The Good, The Bad* and *The Ugly* to separate the strong emotional variation of consumers' experiences into positive and negative contrasts and colour (varying intensities). Two examples of negative attitudes from consumer experiences are:

- *Interviewer: [describe the value?]*

  MIC021: *the value of the [3G] phone? [yes] There is no value for me*.
  MIC021, Indian postgrad student.

- V010 [wife]: *I think they [telcos] all rip you off*

  V010 [husband]: *I don't find [3G telco] any different at all. It's all they're just making money and they don't give a rats ass about their customers I don't wouldn't think… I wouldn't say [incumbent] is any better*.
  V010h, V010w, 30s married couple, male school teacher, female scientist, parents of small children.

These three consumers express their reactions to overall negative experiences. In the first case, the consumer is affected by two major issues. One is a misunderstanding about *pricing* (her unlimited free 3G to 3G calls turned out to be only $100 per month) and the second is discussed below about poor network *reliability* (see MIC021 comment in Section 4.1.3 below). V010w expresses an assessment about telcos and businesses more generally. Part of this impression is created by comparing her Australian experience with the more competitive and simpler telco marketplace in the United States (where they had lived for two years). V010w's negative reaction is consistent with the lack of *simplicity* (see Section 4.3.2) in 3G telco offerings. V010w and V010h are responding to the balance between the value kept by the telcos and the value provided to consumers (see Porter and Kramer 2011). The balance V010w sees as unfair where the telcos keep a disproportionate share of the value, leading to an overall negative impression of the entire telco industry. This overall negative experience of telcos contradicts the specific positive impressions V010h and V010w make towards their 3G phone before purchase ("*I want a really cool phone*",

"[3G phone] was a cool high tech phone", "[3G] phones look good"), and leads to the purchase of their 3G phone. Thus it is possible for a consumer to hold contradictory value assessments relating to different value targets: the telco, the phone service, the 3G handset. V010h can have a positive *attitude* at a product level, and a negative *attitude* at the telco organisation or industry level.

The ability to hold multiple simultaneous contradictory value assessments is useful for consumers to deal with a complex world. Green (2009) calls this practice, compartmentalising. Many consumers were found to hold contradictory *attitudes* against different value meanings. So a consumer could be happy with 3G *price*, but unhappy with 3G *reliability*. However, generally one strong attitude dominated several weak attitudes. Thus a strong negative attitude could dominate several weak positive attitudes and vice versa. Simultaneous strong positive and negative attitudes were not observed. Further investigation of *attitude* is recommended to examine the relation between multiple simultaneously held *attitudes*. This was not done in this thesis, since *attitude* was not the core concept under investigation. Preliminary investigation of *attitude* is presented below, while I analyse the connection of *attitude*, and emotion with value in Chapter 6. Further research directions required on *attitude* are suggested in Section 8.3.

Value assessments are expressed as *attitudes*. *Attitudes* are emotional expressions of a value experience. *Attitudes* connect to a value target, such as *price*, *function*, *beauty* or other value meanings. *Attitude* could also attach to an overall experience of a value target. *Attitudes* are found throughout the dataset, but could be simply analysed as two variables. These variables represent *attitudes* as ranging from strong to weak, and positive or negative. Rokeach (1968, p.124) contrasts attitudes and value, saying consumers hold "thousands of attitudes but only dozens of values". This view sees values as a hierarchy, where different values compete for a consumer's "mode of conduct" (1968, p.124). Value meanings and values are closely related (see Glossary). Attitudes are expressions of value assessments, while value meanings are the standards value is measured against. Thus attitudes are many while value meanings are few. Positive *attitudes* in the 3G consumer data include "happy", "fun", "good", and "like". Very positive *attitudes* would include words like "ecstatic", "fantastic", "wow", and "so good". Strong negative attitudes include "crap", "shit", "hated". Weak negative attitudes include "poor", "unhappy", and "not like".

Table 4: Attitudes attach to and can vary with value meanings.

Consumer	Data containing attitude	Interpretation indicates:
V015	"*[3G telco] reasonable with charges*"	Weak Positive *attitude* to *pricing*
V015	"*Texting just shits me*"	Strong Negative *attitude* to *function**
MIC019	"*Happy with content value*"	Weak Positive *attitude* to *function**
MIC019	"*[too] long to repair, wasn't happy*"	Weak Negative *attitude* to *service, time**
MIC018	"*Really cheap plan*"	Strong Positive *attitude* to *pricing*
MIC018	"*The network is quite poor*"	Weak Negative *attitude* to *reliability*

Note*: see Section 4.4 Underlying value meanings.

I investigate whether value is expressed as single (overall) or multiple (by value meaning) attitudes. I examine whether value can shift and in what circumstances, and whether attitudes can shift over time without new relevant value information (forgetting). I examined these questions in both the 3G (18 transcripts; N=2000 data points) and triangulating consumer datasets (N=170 comments).

A consumer transcript holds generally consistent overall attitudes. The overall attitude can change with new value information. A consumer can hold multiple conflicting attitudes towards 3G. V015 in Table 4 shows positive and negative attitudes towards his 3G experience. V015 has a positive attitude towards 3G pricing, but a negative attitude towards a 3G phone function, such as texting. MIC005 says 3G phone content was "better than expected" (weak positive) while internet data prices were "obscene" (strong negative). V002 found 3G plans "tricky" (weak negative), but her 3G phone was "cute and friendly" (weak positive).

Overall attitudes cut through lower level attitudes to summarise consumers' overall experience. I examined five transcripts to see if overall attitudes were consistent through the transcripts and found they were, but the strength of the overall attitude can vary between strong and weak. One consumer had a multiple (ambivalent) overall attitude saying "recommend [positive], but with some reservations [negative]" (MIC019). MIC014 contrasted his own positive overall attitude with a negative attitude from his peers "[recommend?] no because [social.network] prefer competitor". I checked the attitude findings with another five transcripts and found overall attitude shifting with new value information, or different value targets. V010w comments on different value targets, when she says "phone is good value" but "telcos are just ripping you off". Another type of attitude change involved conditional statements, such as MIC005 saying "if I get a poor customer experience" his attitude would change. Examining another eight transcripts for attitudes revealed that consumers mostly had a consistent overall attitude. Five consumers showed a value change shifting attitude, from positive to negative (V014, V017, V002, MIC020) and from negative to positive (MIC018). In two cases, an overall attitude was ambivalent. Both consumers (V004, V014) described 3G as a "necessary evil", suggesting both positive and negative overall attitudes. Therefore I found *attitudes* shift with new value information, and can attach to multiple value targets. Special cases of *attitude* I found include repeating other consumer's *attitudes*, and conditional attitudes as consumers predicted their *attitude* if new value information arose.

In the triangulating datasets, I examined overall attitudes and found results consistent with the 3G consumers' experiences. Generally consumers had consistent overall attitudes and reported four types of attitudes shifts. Firstly, new value information shifts attitudes: "I was a sceptic, but since purchasing my Kindle last year, I can't imagine my reading life without it" (Comment 40).

Secondly, a consumer's social network influences attitude variation: "most of the negative comments are from people [social network] who do not have a Kindle while many [social network] who have one seem to be very happy with it" (Comment 20). Thirdly, conditional statements can signal new potential attitudes, for example: "Kindle = (sic) Monster with two changes. Full High Rez (sic) Color. Full native PDF support" (Comment 18). Lastly, when differentiating between levels (value targets) overall attitudes can vary. For instance, comment 45 says "product is great, marketing is not". Single overall attitudes were much more common than multiple overall attitudes (Economist redesign, single 31 multiple nil; Economist Debate, single 31, multiple 1; Kindle single 32, multiple 2).

I examined whether an attitude can shift without value information. I was particularly interested in overall attitudes changing, perhaps depreciating or fading over time. Since the comments in the non-3G datasets were brief, multiple instances of overall attitudes were rare, except in the case of the *The Economist* redesign where the comments were about a value assessment of a new feature. Mostly consumers compared their before and after experience, some shifting positively, and some shifting negatively. I found only one instance of attitude spontaneously shifting in the 170 non-3G consumer comments I examined, and none in the 200 overall attitudes I found in the 3G dataset. The one exception comment suggests a shift in *attitude* over time relating to newness: "I don't know what I think of it [*The Economist* redesign] yet. But I'm sure it will be a great new experience" (Comment 100). This consumer comment suggests a spontaneous shift from neutral to positive attitude with familiarity, or learning through use. Overall the evidence from both 3G and non-3G consumer comments suggest that attitudes do not shift spontaneously, but do shift with new value information.

Attitude is a significant value-related concept discovered in the 3G data collected. *Attitude* is used in this thesis, consistently with previous attitude literature (see Section 6.1, Hypothesis 5). The analysis in this thesis, by taking a constructionist and grounded approach, seeks to build an understanding of value (and *attitude*) as a dynamic process of lived experience. Taking this approach is quite different to others, such as Rokeach (1968, 1973), who sought to distinguish groups by taking a snapshot of their values at a point in time. In a later chapter (see Chapter 6) attitude is examined in conjunction with the emotion literature to inform the value theory of innovation model presented.

In Section 4.1, I have considered the post-purchase variation in consumers' lived experience, both whether 3G is cheaper, and the consumers' overall experience. *Attitude* emerged as a significant concept which expresses and endures beyond the value assessment, as an emotional residue (strong or weak, positive or negative). *Attitudes* attach to value meanings, or to overall consumer experiences. Consumers can hold contradictory *attitudes* which attach to different value

meanings, or at different levels of value target. For instance, a consumer can have one *attitude* towards the 3G telco, and a different *attitude* towards their 3G phone. Generally over time consumers hold consistent overall attitudes (though shifting with new value information), but occasionally consumer's hold ambivalent attitudes. Whereas before purchase, purchase itself was an important result of a value assessment, after purchase, *attitude* is now an ongoing consequence of assessing value. The following discussion now turns to a fuller description of a new value meaning identified in value conversations after purchase - *reliability*.

4.1.3 "Network is shit": the value of reliability

In this section, I discuss a new meaning of value that occurs after purchase: network *reliability*. Many consumers' 3G costs were lower than 2G, but there was a downside to using 3G which shifted their value. Consumers' value shifted away from the positive (in some cases) to take a significantly negative attitude towards 3G.

Reliability emerged from the data as a new post-purchase meaning of value. The 3G service proved unreliable for some consumers, shifting value assessments based on pre-purchase inspection of tangible 3G phone products. *Reliability* is built from personal and contextual interpretations. *Reliability* is affected by a consumer's location, and type of 3G phone used. Some locations proved difficult for 3G networks to service. Three examples highlight problem areas for the 3G network. Network reception was poor inside buildings, above a certain level in a high rise building, and on the fringe of the city. While a 3G telco would only sell a 3G phone to a consumer who lived within the metro 3G footprint, consumers moved around and complained when they lost 3G signal. Examples of consumer's experience are shown below. MIC021 says,

- MIC021: *I saw the [3G] phones are very nice… [3G telco] give the free handset… I like the LG handset, the one I got… Afterward I bought this phone I didn't like it because <u>there is no network at all.</u> Like when you are inside… It's [3G telco] <u>just making people crap you know</u>… [it was] very nice you don't have to pay anything. Once you get into this [contract] then you know what the trouble is like… first thing is the basic thing is network… <u>network is shit</u>….*

  Interviewer: [improving?]

  MIC021: *I don't think so…. The main thing [3G telco] have to concentrate on is [network] reception.* MIC021, female Indian postgrad international student, 20s.

- V022: *I do know a few people who say '[3G] phones phhhttthhh I hated them' just because they couldn't get enough [network] coverage. But I think that never affected me because I live in trendy St Kilda like you so I think I am inner city enough, but maybe if you were out in the sticks [suburbs] it would be harder [to get reliable coverage].* V022, 44yo male entertainer, media, film, television, publishing.

These quotes show the variation consumer's experience in network performance. In the MIC021 and V022 quotes above, *attitude* is captured in the words "crap", "shit", "hated" (strong

negative attitudes), and "never affected" (neutral). *Attitudes* can also be read as emotion from tone rather than words themselves, like when MIC021 says "there is no network at all". I can remember the negative frustrated tone with which they were said.

Vargo and Lusch (2008) emphasise the importance of consumers' individual context interacting with technology, saying "the consumer is always a co-constructor of value" (p.7) and "value is always uniquely and phenomenologically determined by the beneficiary" (p.7). The consumer's context (location, activities, handset) interacts with telco's 3G network performance to create a consumer value outcome. The value outcome is reflected as in the consumer's ongoing emotional assessment, their *attitude*, towards their situation.

An alternate innovation interpretation can be made of *reliability*. Poor early network reliability is a tradeoff for early technology adoption (Christensen 1997, Bijker 1995, Rogers 2003, Moore 1991). As MIC005, a telecoms analyst and early 3G consumer adopter, says,

MIC005: *The first [3G] phone I bought was on the day of launch… Network quality was pretty poor [in] Sydney. Around the city and anything above level 10 in the city was a problem… when [3G] was first launched. [Dropped calls] was probably about 30% … that was why [3G] had heavy discounting on handsets and also on voice pricing. [Overall value, why was 3G worth it?] um… just as a price point, the price of the service, the additional functionality.*
MIC005, Telcoms analyst, 3G consumer.

MIC005 recognises value in 3G is a tradeoff between new services, poor early network performance and compensating price discounting. MIC005 assesses 3G value as weakly positive ("[worth it?] just as price"), but sufficiently to recommend 3G to his family and friends (see Section 4.2.1 *Recommending*). MIC021 suffers in the same circumstances but her interpretation is different. MIC021 expected a price discount but assumed network *reliability* would be like her 2G phone, and so is shocked, as evidenced by describing the 3G network as "crap", and "shit". MIC021 suffers loss of value. Low advertised prices, including free calls, a free 3G handset, and a nice looking phone raised her estimation of value. Poor *reliability* lowered her value. Contractual *lock-in* (see Section 4.3.3) limits MIC021's possibilities for remedial action, and hence she suffers (loss of value).

The innovation literature recognises problems of early technology adoption. Firstly, identifying and solving problems is part of the process of social construction of technology (Bijker 1995). Secondly, problems are burdens for early adopters (Moore 1991), which they at least tacitly accept in exchange for the benefits of being early to adopt. Thirdly, in a disruptive technology, poor early performance improves over time (an improving technology trajectory) as it becomes a mainstream technology, and the improvements can meet mainstream consumers' basic needs (Christensen 1997). However, the value to a consumer of a new technology depends upon their expectations and what they are *comparing* 3G to (see Section 4.2.2). A consumer (MIC021) who

compares the young 3G network with a mature 2G network is disappointed with *reliability*. A consumer, knowledgeable in telecoms development (MIC005, a telecoms analyst) compares 3G network performance to maturity of a 2G network, saying

MIC005: *I guess it took Vodafone and Optus [2G telcos] about four years to get to where [3G] got to in the space of 18 months. Like when Vodafone and Optus launched it took them at least two years to carry signals across the harbour bridge… that was why [3G] had heavy discounting on handsets and also on voice pricing [overall value, why was 3G worth it?] um.. just as a price point, the price of the service, the additional functionality.* MIC005, Telcoms analyst, 3G consumer.

Here, the impact for a 3G telco of *reliability* problems is not meeting the expectations of consumers, and therefore sustaining negative impact (attitude) on value. If consumers were told of network issues, sales might be lower but consumers would take away more positive impressions and value interpretation to 3G service, especially if improvements are observable (Rogers 2003). Observability is one of Rogers (2003) five indicators, which predict faster innovation adoption rate.

The consumer value literature provides several interpretations of *reliability* as a component of value. Quality for price paid (Zeithaml 1988), and quality in general are close correlatives to *reliability. Reliability* is also part of "use value", and can impact "exchange value", such as the *reliability* of a car (see Richins 1994, citing Aristotle). Drucker (1999, 2007) emphasises the subjectivity of quality, as I too emphasise the subjectivity of *reliability*. Drucker says quality is (subjectively) whatever a consumer is prepared to pay for, rather than (objective) a fixed production target set by the producer. I use *reliability* rather than quality, in this thesis, to emphasise the subjective meaning to consumers, though the literature also indicates quality can have both subjective and objective meanings (see for example Grönroos 1983, Garvin 1984, 1987, Reeves and Bednar 1994).

In Section 4.1.3, I have argued for a new meaning of value after purchase, I call *reliability*. What is important about *reliability* is its post-purchase timing. While (objective) product quality is visible before purchase, (subjective) service *reliability* (the performance of the 3G network) is largely invisible before purchase, since *reliability* is dynamic and contextual. Interpreting the value of *reliability* depends on consumer expectations. This also makes *reliability* difficult for a 3G telco to manage. Where *reliability* causes loss of value, consumers respond emotionally and develop negative *attitudes* (see also Section 4.2.1 Recommending and Section 4.3.3 Lock-in) in response to it.

In Section 4.1, I examined individual construction practices of value. I argued three points. Firstly, valuing occurs not only before purchase, but also continues after purchase of a new technology. Secondly, new value meanings appear after purchase (such as *reliability)* that consumers are in no place to assess before purchase. Thirdly, the experience of consumers varies with their context, so their value varies individually. Loss of value, results in negative *attitude* and

consumer suffering. While many consumers found 3G cheaper, not all did and as a result some consumers lost value and suffered. This section provides empirical evidence for Vargo and Lusch's (2008) assertion that "the consumer is always a co-creator of value" (p.7) and that value is "uniquely and phenomenologically determined by the beneficiary" (p.7). Now, I turn to consider and analyse the social construction value practices consumers use in conjunction with their social network, through *recommending* and *comparing*.

4.2 Consumer value conversation with their social network

After purchase, the consumer's focus shifts from receiving social information to sending social information. *Recommending* is again significant but the consumer is doing the *recommending*, rather than listening to the *recommending.* The other social process I will discuss in this section is *comparing.*

4.2.1 Recommending

Consumers are active participants in the success of a new technology. Marketing has long emphasised the strong positive and persuasive impact of "word of mouth" consumer advice in the success of new products (Kotler 1991). Innovation theory has similarly recognised the importance of consumer social referral from early to later adopters (Moore 1991, Rogers 2003). Similarly the reliance of later adopters on the positive reports from early adopters or opinion leaders, rather than external and untrusted distant information sources, such as salespeople and the media (Ryan and Gross 1943) shows the importance of intimate social rather than more distant information sources. Similarly diffusion has been modelled mathematically (Bass 1969) as epidemic like imitating behaviour, following earlier adopters. In the following examples, I will show the variation in *recommending*, I found in my interviews, and suggest four reasons that good *service* alone does not drive positive *recommending*. My analysis is brief here since *recommending* is not new to innovation theory.

4.2.1.1 Negative recommending

In several instances, consumers indicated negative *recommending* after they had suffered poor value experiences. Problems with network *reliability* and contractual *lock-in* were a significant driver of negative *recommending*. For instance, MIC010 says

MIC010: *I don't have a very good impression of the [3G] company itself. They… when I came, when you go to their shop, they are very good in selling. But they are selling you a lot of rubbish, telling you everything [to] sell. After you have bought, you find half of it is not true [such as no international SMS]…. I'm not saying I'm going to talk to everyone. But if they ask me, oh you've got a [3G] phone, is it good? And I am going to tell my friends, it is not good.* MIC010 30s Italian male PhD student, teacher.

MIC010 intensely and directly states his intention to provide negative *recommending*. MIC010 uses weaker negative words such as "not good". The mood of MIC010 is strongly negative, and is reflected elsewhere in words describing 3G and the 3G telco: "they are selling you a lot of rubbish", "disgusting", "crap", "not really impressed", "disgrace", "really unacceptable", and "very unacceptable". Strong negative emotional impact implies strong impetus for negative consumer *recommending*. The presence of strong negative *recommending* is a significant hurdle for innovators. Not only must prospective consumers form a positive opinion to overcome the inherent uncertainty of the new and unknown, but the failure of early adopting consumers to receive good value, evidenced by negative *recommending* will adversely affect socially connected consumers valuing a new technology.

4.2.1.2 Positive recommending

Consumers occasionally indicated positive *recommending*. I found several reasons why not all consumers with a positive experience were *recommending*. Some consumers recommend with reservations, while one consumer noted their social network had moved as a group to take advantage of 2G free calls. Other consumers were *recommending* to family (to take advantage of free calls) but not to others. An example of a strongly positive *recommending* comes from MIC005. MIC005 says,

MIC005: *[3G prices are] by far the cheapest on the market. I am putting all my family on [3G], all my friends on [3G].*

Interviewer: [recommending?]

MIC005: *absolutely ... Most of them that I have recommended [3G] to are ecstatic.*

Interviewer: [how many?]

MIC005: *probably I would say 15…*

Interviewer: [what choose to buy?]

MIC005: *probably my mates that have got their own businesses have gone with the A1000 [pre iPhone smartphone]… $3 [per month] email deal… <u>they've got email device in their hand</u> <u>… you are paying $3 bucks a month flat email cost</u>…*

Interviewer: [family?]

MIC005: *they are just taking LGs.*

Interviewer: [family experience?]

MIC005: *<u>it's been mixed</u>… some [family] got the early batch [3G phones] which had some software glitches of LG… other [family] <u>haven't had a problem in the world and love it.</u>*
MIC005, early adopter, telecoms analyst, Sydney.

MIC005 uses strong positive words, such as "cheapest", "ecstatic", "love it", "absolutely". The use of the word "love" indicates the strength and direction of the *attitude*, in this case positive

and strong. Stronger positive emotional impact suggests strong impetus for positive *recommending*. However, the reality is not as straightforward as this. Reasons for not *recommending* even with a good value experience follow.

There are several contexts in the data which interfere with good value leading easily to positive *recommending*. Firstly, a positive value experience is not sufficient for *recommending*. For instance when the consumer is a basic user ("I don't use all … those extra [3G] bits but it keeps my bill down" V020), time poor ("[recommending] hasn't come up" MIC022), or has little interest in the new technology then *recommending* is less likely. Secondly, where consumers use new technology to imitate old technology ("[got] new [3G] phone for nothing… then used [in] old [2G] phone" V019), there is less potential for *recommending* new technology functions and value. Thirdly, where using new technology demonstrates *reliability* problems to the social network (through dropped calls to friends and family: "they are the ones that get cut off all the time" V016), negative *recommending* occurs regardless of consumer interest.

In this section, I argue *recommending* is a powerful (but not new) tool encouraging and rejecting technology adoption, when driven by positive consumer value assessments. However, a positive value experience is not sufficient for recommending. I found several contexts where happy consumers would not recommend. In Section 4.3.2 *Simplicity* below, I also argue that complex pricing and bundling of 3G services challenges positive *recommending*. Together these reasons provide significant hurdles for positive *recommending* practices to overcome.

4.2.2 Comparing: the relative valuing of two

Comparing is the second social value construction practice I consider. In this section, I analyse the social practice of *comparing*, after consumers have purchased their 3G mobile phone. Value arises from *comparing*. A simple comparison where one thing exceeds another in all ways requires little valuing. One thing is simply greater than the other. But in most cases where on some value meanings A is better than B, but on other meanings B is better than A, then a preference between the two is a value assessment. The decision requires weighing and valuing the relative importance of different value meanings against each other. For instance, Schroeder (2008) suggests comparing Rodin and Mozart, and Salieri and Mozart. The first involves comparing incommensurable value meanings: beauty of music and beauty of sculpture. The second comparing might be simple if Mozart is superior to Salieri in all respects. In Chapter 3, I showed value can have different meanings in relation to 3G mobile phones. These meanings compete in importance so a consumer makes a complex overall assessment of value.

Comparing after purchase affects the value of 3G mobiles to consumers. These comparisons are largely social, but sometimes can be individual, such as comparing one phone against another, one bill against another, or tracing bill amounts over time (rising, or falling). Three types of

comparing stand out after 3G purchase. To recap, before purchase *comparing* consisted mainly of price comparisons between telcos, dissatisfaction with rising bills on 2G phones, and *comparing* Australian with overseas experience. After purchase, international versus Australian experience continues to be evocative, though not common. A more common *comparison* is between a consumer's and their family's experience. Other evocative *comparing* experiences, I discuss below are level of need across consumers, level of satisfaction and level of esteem.

4.2.2.1 Level of satisfaction – connecting by agreeing

The first and most significant *comparing* involves level of satisfaction. The first quote (below) shows a consumer reporting the common dissatisfaction people have with the level of 3G network *reliability*. The quote is important because it suggests that MIC010's level of value is tightly connected to what his peers think about the 3G network. MIC010's opinion is not only individually but socially constructed. He is connected to his social network. Through *connecting*, network members share and create common perceptions about the level of 3G network performance, and levels of satisfaction. The next step, is what the consumers do about their dissatisfaction, to empower themselves, since they are *locked in* (see Section 4.3.3) to two year contracts. The resulting actions are examined in Chapter 5.

MIC010: *Everybody I have been talking to with [3G] is <u>not happy</u>… it [3G network] keeps cutting off while you are talking… you can't use it [3G network] ah… it's not just me… oh, there are many [international] students in the city that are using a [3G] phone. They are all saying the same thing.*
MIC010 Italian male, 30s, PhD student, teacher.

MIC010 socially constructs the value in his 3G phone in conjunction with his peers. As a result of their shared experience with 3G *reliability* problems MIC010 enrols in the shared community belief that they are all unhappy. MIC010 is socially constructing his understanding of 3G value, validating his opinion through *comparing* that of his preferred reference group, his social peers. MIC010 seeks relief from the emotional loss of value by sharing his feeling ("not happy") with his social network. MIC010 feels validated through the similar assessment by his peers. MIC010 discovers that his personal problem (network *reliability*) is a shared problem, and so gains positive emotional *connecting* value from sharing his experience. MIC010 socially constructs value by *comparing*. From an innovation perspective, shared negative emotional outcome is a bad outcome for promoting adoption of 3G technology.

4.2.2.2 Level of need – disconnecting by disagreeing

A second type of *comparing*, involves disconnecting from a social group by disagreeing over need. V015 has a 3G mobile phone, but complains about the pressure his family puts on him to

continually carry the 3G mobile around with him. V015 describes with passionate intensity his dislike for his family imposing such *duties* on him (see Section 3.2.1 *Recommending).*

V015: *[mobile] has become indispensable but it has become and you will do that when you get here [older] with a hell of a lot of people you would never think of of ah… not doing it [using mobile phone]. I live without it [mobile phone]…. I could live without it… quite easily but I am not allowed to [by family]… there are people my age who think [mobile] are the best thing since button up boots. I don't. They annoy me [mobile phone]…. People in general tell me there is something the matter with me because I won't accept them [mobile].* V015, 78yo male, retired, widowed.

V015 describes how his valuing of the 3G phone disconnects him from his social peers. V015 grudgingly uses his 3G mobile, but is unhappy about a family duty to do so: "my two sons say you should be carrying your mobile around… I find it an imposition… I'm hounded into it". The negative emotional response is evidence of his loss of value, even while *using* his 3G mobile continues. V015 reports he is the target of pressure from outside the family too, from "people in general" who tell him there is something wrong with him from not wanting to use a mobile phone. While this social pressure is weak, and the family pressure strong, the pressure nevertheless negatively affects his valuing of the 3G mobile. V015's personal *needs* take priority in assessing the value of his 3G phone. V015 distances himself from "a lot of people", and stands firm in his individual negative valuing. V015 rejects social pressure to continue to value his 3G phone negatively and thus inconsistently with his social network. V015 provides a strong negative dissociating contrast with the connecting above of MIC010. *Comparing* as a value practice may create conflict between social and individual value construction. From an innovation perspective, negative personal valuing is also a bad outcome for innovators wanting to encourage new users to try 3G, but one that is out of the innovator's control.

4.2.2.3 Level of esteem – value arising from conspicuous consumption

A third type of *comparing* affects the social value a consumer experiences in relation to her 3G mobile phone. A consumer, V017, reports she feels valued more highly ("kudos", "feel a little more sophisticated") for the possession of her 3G mobile by the attentions of her social peers, in an unintended instance of conspicuous consumption. While her reaction to this new attention is weakly positive, it is offset by her "emotional attachment" to her previous phone "my old brick". V017 reports she was "embarrassed" when her 2G phone was called "antiquated". V017 has conflicting value meanings to deal with (*newness*, *beauty*, *nostalgia*). She reports that she prefers to have a phone which makes her stand out from the crowd, and both the old and new phone achieve this. V017 compares and values aspects of both the new (3G) and old (2G) phone. V017 compares her individual value construction with social value construction: "I've had lots of comments". V017 values the *beauty* of the new phone "slick and sexy looking". She speaks nostalgically

(remembering a positive "emotional attachment") about her old phone. Value is an ongoing balancing exercise, and V017 does this balancing while *comparing* social information about her old and new phone.

V017: *My new phone has changed something [relationship with phone]… it has made me feel a little more sophisticated, a little more um… like.. um…I get a bit of attention from… [friends, family, work colleagues]… when… I when people see me with my phone… I've had lots of comments like that is a really slick sexy looking phone and a lot of people assume that it is quite expensive… because it is kind of compact, and it is white and um yes there is a sort of kudos that goes with this phone that certainly I didn't have with my old brick. In fact one person called my old phone antiquated and you know it was kind of a brick um and so I used to feel a little embarrassed with my old phone although I had a different emotional attachment to my old phone which I don't have to this phone which is really funny…* V017, 30s female worker.

V017 balances competing value assessments from her peers and her individual value construction. V017 compares the value between her old and new phones. V017 receives positive social feedback for her new 3G phone's *beauty*. Yet the positive social valuing partly offsets the lower price and nostalgia for the emotional attachment (*connecting*) she has previously made to her old brick-like 2G phone. V017 displays some cognitive dissonance (Festinger 1957 in Lawson et al. 1997) and some ambivalence towards her 3G phone, resulting from conflicting attitudes towards several value meanings.

From an innovation perspective, dissonance is common (when comparing old and new), and innovators should be careful not to hide weak points of products (during pre-purchase) from consumers since post-purchase value assessment will communicate any resulting loss of value through social networks to the detriment of innovators. Fishbein and Ajzen (1975) discuss cognitive dissonance as the regret in giving up the benefits of the old or unpurchased alternatives, and problems of the new, giving rise to a sense of dissonance. I argue that dissonance is closely related to loss of value arising from *comparing*.

4.2.2.4 Comparing contexts: Australia versus overseas

A fourth *comparing* practice shows consumer context affecting value. V004 compares Australian telcos' services to her experience with overseas family and while travelling. I include this type of *comparing*, due to the emotional intensity and degree of financial impact that V004 implies.

V004: *Because I travel overseas I see what other carriers overseas… offer… it's cheaper and it's got more functionality… I think we pay a lot for what we think we have [in Australia]… [compared to] Europe, South East Asia… in comparison with my cousins in Scandinavia we pay huge bills… their level of functionality has been introduced sooner quicker and to a better degree and certainly don't cost as much.* V004, 40s female consultant, mobile worker, Finnish.

V004's *attitude* towards telcos in Australia is affected by *comparing* value information, even though it is not widely available to other consumers. Her motivation to positively *recommend* her telco's 3G services are not due to her unfavourable comparison. V004's context affects her construction of value. Local telcos will face difficulty in satisfying V004 without either raising value, or explaining why Australian telco value is different from Scandinavia. There may be reasonable explanations why Australian telco value lags Scandinavia's, such as Australia's greater distance from international markets, Australia's small marketplace, or the large distances across which networks in Australia need to be built. Such new information may shift V004's value assessment positively.

From an innovation perspective, consumers' value is based on their context, which may include international best practice comparisons. Local marketplace best practice may no longer be sufficient to deliver value to consumers where comparative information from overseas is available. Consumers comparing context means innovators will face growing competitive obstacles to satisfy consumers even while being best in the local market.

In Section 4.2.2 Comparing, I have shown how *comparing* shifts value for consumers. Consumers do *comparing* based on their context (social and physical), largely uncontrolled and unaffected by the 3G telco. In this regard, consumers co-create value (Vargo and Lusch 2008) as consumer context interacts with the 3G telco's value offerings to produce a value assessment. Valuing is a social process, and *comparing* is one significant social valuing practice.

In Section 4.2, I argued that two significant social construction processes occur after new technology purchase, *recommending* and *comparing*. Both value practices are subjective and emphasise that consumers co-create value individually and with their social network both before and after purchase. For *recommending* to occur, favourable value must arise in the consumer's context. Loss of value (if strong) can lead to negative *recommending* while positive value (if strong) can lead to positive *recommending*. Yet the consumer's context can interrupt *recommending* through lack of interest, *time* or choosing to use a 3G phone only for its 2G *functions*. Similarly, *comparing* affects value, but depends on what a consumer chooses to *compare* with. Consumers *comparing* differently can lead to different value outcomes (*attitudes*). A consumer who compares Australian telco value to overseas may understand 3G value quite differently from their social peers. *Comparing* can be used to *connect* or *disconnect* with social peers, as consumers balance their individual *needs* with social responsibilities and *duties*. *Comparing* is also affected by conspicuous consumption, especially when a consumer's social network positively or negatively comment on consumer's valuing behaviour.

4.3 Consumer value conversation with the telco

This section analyses consumers' value construction practices that take place after a telco sells a consumer a 3G mobile phone. I present evidence for two new value meanings which come into focus after purchase, *service*, and *simplicity* and a telco strategy affecting consumer value, *lock-in*.

4.3.1 The value of service: Consuming service

After purchasing a 3G mobile phone, new value meanings come to the forefront of consumers' experience. One of these value meanings is *service*. After purchase, consumers find a need to contact the telco, often when something goes wrong, or for information to clarify something. *Service* in this analysis is about personal attention, in person, in a store, on the phone, or by email. *Service* creates an impression for the consumer and is valued if positive or devalued if it is a negative experience. *Service* acts as a flexible interface between the needs of the consumer and the processes of the 3G telco (Zuboff and Maxmin 2002). Outcomes vary for consumers, depending on the context of the exchange. I present quotes from consumers to illustrate and analyse the variation I found in consumers' experience of valuing *service*. *Service* as a value meaning aligns with Vargo and Lusch's (2004, 2008) service dominant logic (SDL; anticipated by Zuboff and Maxmin 2002, Prahalad and Ramaswamy 2000) and follows calls for innovators to focus on individual value construction (Prahalad and Krishnan 2008). SDL interprets products as instances of intangible service delivery. This view allows a focus on individual consumer needs, rather than a one size fits all view of products. I argue in this section *service* positively or negatively affects consumer value, depending on the consumer outcome of a *service* encounter.

Good *service* creates positive *attitudes* for consumers, indicating value creation. After purchase good *service* adds value for consumers, creating positive attitudes like "excellent", "very professional", "never had a service problem", "really good". An example of a positive *service* experience is found from MIC022.

MIC022: *I haven't had a lot to do with [3G telco], just to use the phone network and get the messages and you know maybe every now and then ring [3G consumer service] <u>and they are always very professional</u>. I guess one of those things that appeals to a lot of customers is that you don't have to worry too much about that once you pay your bill, once you've signed up, they look after you.*

Interviewer: [how do you find the service?]

MIC022: *Great. I've <u>never had a service problem</u>. The <u>directory service is excellent</u>. Yes… no, <u>I couldn't really complain at all</u>. I've never had problems getting through. The network is good. I get phone calls from overseas, like phone calls from overseas. Yes… no, <u>it's really good</u>.*
MIC022, 47yo working single mother.

A second positive *service* experience emphasises store staff. 3G telco store staff are on the front line of *service* delivery. As mentioned in my earlier observations (see Section 3.3.1 *Exploring*), 3G telco staff are young, often in their 20s, with senior staff around 30. V022, describes a positive experience with 3G telco staff, saying,

Interviewer: [how do you find the 3G telco?]

V022: *Oh they are all very young, good looking, chirpy. They yes all seem like groovy young things. There is no problem that have ever said is beyond solving… they have never said something is impossible or blamed me and said this is your fault the [3G] phone doesn't work. So they have got good psychology behind them.* V022, 40s male, parent, famous entertainment worker.

Poor *service*, in contrast to good *service*, comes in several forms and intensities. In my data, I found four types of poor *service*. The first and strongest was providing unreliable information to consumers. Secondly, and weaker was lack of information and poor training. Thirdly, there was a contrast between excellent pre-sales *service* but poor after-sales *problem solving* service. Lastly there was *service* that made a consumer feel uncomfortable, and outside the younger targeted demographic.

Service is firstly based on delivery of reliable information. Consumers need to be able to rely (see Section 4.1.3 Reliability) on what telco staff tell them. Where *service* is unreliable, then there is a serious problem for the consumer, and a significant negative impact on the value the consumer experiences.

MIC010: *I don't have a very good impression of the [3G] company itself. They… when I came, when you go to their shop, they are very good in selling. But they are selling you a lot of rubbish, telling you everything [to] sell. After you have bought [3G phone], you find half of it is not true [such as no international SMS]…. I'm not saying I'm going to talk to everyone. But if they ask me, oh you've got a [3G] phone, is it good? And I am going to tell my friends, it is not good.* MIC010 30s Italian male PhD student, teacher.

MIC010 experiences a strong negative *service* experience, affecting his relationship with his telco. Elsewhere MIC010 describes his network *reliability* experience as "disgusting" and "unacceptable" (see Section 4.2.1). Such strong negative *attitude* suggests 3G telcos have *service* problems. The link MIC010 makes with *recommending*, suggests there is a serious consequence for 3G telcos arising out of poor *service.* For the purposes of *service,* if a consumer cannot rely on what telco sales staff say, it is difficult for a consumer to solve problems (Chapter 5) and do positive *recommending*. Negative *recommending* on the basis of poor *service* is likely to affect the adoption by social peers.

Secondly, lack of information can lead to poor service. Service delivery is not always perfect, and evolves over time, hopefully towards greater reliability. *Service* provision can be a learning experience for telcos, and there is scope for *service* to improve over time. An early adopter compares the good service later experienced with poor early *service* experiences.

MIC005: *When [3G] was first launched… I was continually ringing customer service… in the early days [customer service] had no idea what they were doing… like how much education have you guys had. Like obviously the training was a bit lax in the early days.* MIC005, telecoms analyst, Sydney.

When telco staff lack technical knowledge, consumers must seek alternate information sources to solve their problems (see Section 3.2.3 Inquiring). V004 describes poor early 3G service as "the bleeding [edge of]" technology. V004 means lack of information is common before telcos learn about a new technology. The lack of information brings V004 frustration through lack of adequate systems, including knowledge, training and telco interest in providing support.

V004: *You understand [3G is] bleeding technology (sic)… if you've got any intelligence then you will know [3G is] going to go through this process. Because software developers and telecommunications people, they they always use the general public as guinea pigs… that is just the way the world works ummm… it's just frustrating… how do they respond to their customer…[telcos] use you as part of the learning curve… my experience is mostly is that the technology gets introduced before the training of the people is done… usually you are the one that has got more knowledge than the actual dealer that is selling you the phone…*

Interviewer: [relationship with telco?]

V004: *a necessary evil in a nutshell… [telcos] I don't think that they actually extend relationships… I think they just bill you.* V004, 40s female consultant, mobile worker.

Thirdly, *service* can suffer between pre and post-purchase transition where 3G pre-purchase sales *service* outperforms 3G post-purchase customer *service*. V017 quoted below, finds pre-sales *service* is excellent, while post-purchase remedial customer *service* is poor. The 3G telcos have a strong financial incentive to be good at getting consumers to sign up to new contracts and technology (increasing revenue) but only a weak financial incentive to keep consumers happy (see Section 4.3.3 Lock-In). If insufficient training and resources (staff numbers) are provided to keep consumers happy, post-purchase *service* value is at risk.

V017: *[Incumbent telco] is a bit um… hit and miss with their service…. Like I find that they're really excellent with their Sales team. Whenever they call me off their own bat to offer me something they are really good and the kind of people have been trained really well and I find them really… um kind of um… they always hook me in… but when I call them to get any service, I find I get a really less than… I don't… I find their customer service is really poor and often um…like you know I rang up when I got shocked, really shocked by one of my bills. I found it really high. And this girl was like well, what did you expect. You know it was that sort of service [with poor attitude]… so I just found them really unhelpful in that respect [service].* V017, 30s female worker.

From a value perspective, sales *service* delivery is much easier pre-purchase, when value is about excitement and the promise of *novelty*, *pricing* and *beauty* of new technology. Post purchase, the complexity of consumers' individual context, challenges the flexibility of telcos' support systems. Value shifts from pre to post-purchase, from simple fantasy, selling the promise of the new

technology, to the reality of the new technology intersecting with the complex real world of the consumer needs and expectations.

Lastly, consumers feel uncomfortable when their demographic is not catered for. V010h, who is a keen technology adopter, and a father with small children, finds his *service* experience in the 3G telco store less than satisfying. The 3G telco is not parent or family friendly, preferring to target young adult consumers and teens. By not being family friendly, the 3G telco adversely affects the value for some consumers. In my 14 hours of observation, while there were many couples and adult groups visiting the 3G store, only a few children entered the 3G store. By failing to be flexible enough to deal with children, the 3G telco is limiting the potential to satisfy all types of consumers in the community. V010h outlines his experience at a 3G store, saying

V010h: *We have to go into the shop when we lose the phone and get reconnected and my experience of being in there [3G telco store] with child is that they are young people and they don't go hummmppff yes. I've kind of found [3G staff] rude and uncomfortable and not nice. It's not good. It's not a good consumer experience.. but that is just one shop. [3G telco] has something to say for who they employ but but it is really… is seems like a real business transaction… I don't know. It's a real Gen Y experience. It's not good, not in a good way.* V010h 30s husband, father.

Zuboff and Maxmin (2002) argue for a service dominant logic, anticipating Vargo and Lusch (2004). Zuboff and Maxmin (2002) argue for the tension between consumer value and corporate profit maximising. The tension is generated between two opposing forces. On the one hand are consumers' personal value dynamic and evolving contextual needs. On the other hand is corporate profit maximising which leads to business rules focussed on high volume, high repetition, and lowest cost product delivery. Zuboff and Maxmin (2002) argue *service* struggles to satisfy consumer needs if corporations pursue cheap but inflexible *service* strategies.

Innovation theory rarely mentions *service* until recently (Zuboff and Maxmin 2002, Prahalad and Krishnan 2008) with some exceptions (Peters and Waterman 1982). *Service* could be a differentiator (Porter 1980), and is commonly mentioned to set an innovator apart from the competition (Kim and Mauborgne 2005). *Service* is a sensitivity to consumer needs, the interface between telco and consumer, the value conversation, the "moment of truth" (Grönroos 1990). Through *service* exchange consumers assess value. Recent innovation theory provides guidance on improving *service*. Prahalad and Krishnan (2008), consistent with Vargo and Lusch's (2008) service dominant logic, argue that,

Value is based on unique, personalised experiences of consumers. Firms have to learn to focus on one consumer and [their] experience at a time, even if they serve 100 million consumers. The focus is on the centrality of the individual.(p.11)

Such approaches emphasise co-construction of value, and focus on individual consumer's needs. Such an approach can only improve telco *service,* if telcos cared to adopt such a view.

In this section, I argued that *service* can positively or negatively affect post-purchase consumer value. Negative *service* experiences can lead to strongly negative *attitudes* and result in negative *recommending.* I presented evidence for positive sales *service* and several types of negative *service*. The strongest negative response to *service* came from unreliable 3G sales advice. *Service* problems Zuboff and Maxmin (2002) argue, result from tension between complex consumer needs intersecting inflexible telco systems designed for high volume mass production to maximise profit. Recent innovation theory (Prahalad and Krishnan 2008) and service dominant logic (Vargo and Lusch 2008) encourages telcos to develop systems to deliver personalised *service* to consumers.

The following discussion analyses this. Now I turn to a second post-purchase value meaning consumers sought, from interacting with the telco, which I call *simplicity*.

4.3.2 The value of simplicity: Consumers as simplifiers

In my data, consumers value *simplicity*. Consumers report that too many 3G *functions* and contractual complexity create problems for them. Where consumers reach a state of confusion, I interpret this confusion as a result of complexity, and interpret this complexity as a loss of value. Complexity is defined as loss of *simplicity* and vice versa.

3G mobile phones have complex pricing in Australia (see Appendices 10, 11), which poses challenges for consumers. Previously, I examined consumers' use of *filtering* and *closing* to simplify their pre-purchase learning. Consumers blocked out some information to focus on more important information. This section looks at consumers' responses to 3G telco pricing and product offerings, with examples from 3G telco brochures. A contrast is provided with the innovation literature. Lastly, *simplicity* is compared to the consumer value literature to determine to what extent *simplicity* has been identified as valuable in previous consumer value research.

Consumers can experience new 3G features negatively. Too much novelty, too many contractual terms confuses, frustrates and annoys consumers. My interpretation of 3G data suggests consumers value *simplicity*. Three examples are:

- V004: *Whole packaging is just so confusing…. It's all trial and error and typically user pays for that education….*

  Interviewer: [value?]

  it's not clear…..[it's] <u>smoke and mirrors</u>… hard to ascertain is it true value for money… new technology…. new services… you don't know how it compares.
  V004, 40s female consultant, Finnish mobile worker.

- V015: *I just want to make it <u>as simple as possible at my age</u>… [this manual] just annoys me…. I want [3G mobile] to do what I want it to do… I want to take calls in and out and nothing else.* V015, 79 yo male, Melbourne.

V015 and V004 value *simplicity*. Large manuals annoy V015. Complex contracts and pricing bothers V004 (see Appendix 11). V015 wants a simple phone, perhaps a 2G phone, but he has found himself with a hand-me-down 3G phone after his wife died. In both examples with 3G phones, complexity has led to a negative attitude ("annoys me" V015, "so confusing" V004). The telco differentiates the 3G network through new 3G services (innovation as novelty), but this strategy counters V015's need for *simplicity*. The telco wants consumers to embrace 3G services, but consumers want simple function from their 3G phone. Flexibility is required from the 3G telco (Prahalad and Krishnan 2008) to meet V015's needs. A third consumer says,

MIC021: *The [3G] prices are a bit expensive… but the main thing is the main problem is when you get the plan to some customer <u>they never say it clearly</u>, like this is what is this plan….they said like [3G to 3G] is free [but in reality it is] only up to $100 [free per month]. They never said that… [now] <u>I'm too scared to use</u> [data services] because they will charge me for that too. <u>They are saying that its free</u>, yes sending you messages, you can use this part or that part, this is free ... Maybe later on they will say this is your bill and I will have to pay for it… that is why I never browse on that [data services].* MIC021, 30s female Indian postgrad student.

MIC021 has suffered a negative experience from not understanding there was a $100 monthly limit on her free 3G calls (which she can use to her boyfriend). MIC021 now fears using other advertised free services in case she makes a similar mistake and incurs an expensive bill (on top of her current minimum $200 bill). MIC021 is "too scared to use" 3G services. This is a far from ideal position to place a consumer, especially in a network growth phase, when consumer *recommending* assists growth.

To better illustrate the complexity 3G consumers deal with, I include examples of telco's 3G pricing and comments about consumer usage from their brochures. Examples of telco pricing (see example in Appendix 11 and below) enable a better appreciation of the information breadth and complexity that faces consumers when valuing 3G data services.

The 3G telco ascertained early on that data services were a point of differentiation with existing 2G phone services. 3G offers faster data delivery, roughly ten to fifty times faster than 2G networks already in the marketplace. However, the first mover 3G telco chose a complex pricing approach to capture revenue from 3G data services. A *3G services* pricing brochure is 28 pages long (HTA 2006). 3G Pricing (p.24) has 26 categories of data services, plus internet data download ($0.50 per Mb; or $500 per Gb). Encouraging consumers to use unlimited monthly ("Value Pack") services, such as "Info pack" ($3 per month including Stocks and Weather), "Entertainment pack" ($3 per month, including Comedy) HTA say,

If you're not ready to grab a Value Pack [like $3 per month], just yet, Monthly Passes are listed below, check out the low pay-as-you-go pricing for all the cool stuff on [3G]. (HTA 2006, p.25)

Table 5: Pricing of sample 3G data services (Jan 2007)

Weather		**Comedy**		**Finance**	
Text	15c	Strange photos	25c	Text story, Indices, Currencies, Top 10 ASX	15c
Radar image	25c	Cartoon of the day	25c	Stock quote	25c
Video	50c	Video	50c	Video	50c
				Watch folio	50c
				Charting	50c

Source: 3G telco brochure (HTA 2006).

MIC020 describes her experience with complex data pricing.

MIC020: *Data services, <u>they are a little bit expensive</u>… Maybe once is $4 [for a ringtone] but you are doing once, twice, three, ten times, twenty times… in the beginning [free trial] I was using news…*

Interviewer: [not now?]

MIC020: *because now they charge more… every time you open the function 3G they charge you… I have to wait for the bill to find out [price]… <u>I don't know how much they charge me</u>… in the beginning [bill] was cheap and now the bill is increasing [more calls and text]*

Interviewer: [data services?]

MIC020: *no ha ha can you imagine if I use this [data services] it would be more.*
MIC020, 30yo female Colombian postgrad student.

MIC020 is put off by complex (per use) pricing, resulting in *closing* off further using 3G data services. Per use pricing means a consumer does not know how much they will pay in a month, if they don't keep track of what 3G services they are using. This complex pricing approach is compared to either a monthly unlimited plan or prepaid (use until you have no more credit) pricing approach, such as Apple iTunes and App Store. The 3G phones are like unlimited credit card accounts where consumers can endlessly consume, until they are billed (see example in Section 5.1.3 Closing). MIC020 has problems with the *complexity* of the data pricing: not knowing what she will be charged for 3G data services in her monthly bill. This uncertainty, because of per use pricing, prompts MIC020 to ignore 3G data services (*closing;* see Chapter 5) to keep her 3G phone bill at a reasonable amount for a student. *Complexity* is negatively impacting MIC020's experience, reducing the chance for positive *recommending* based on her otherwise good experience.

The 3G telco uses complex pricing. Yet consumers' value simplicity. A key complex pricing example from 3G is the initial pricing for 3G email. Email was initially priced at $0.15 per email, but proved unpopular. When email was repriced to $3 per month for unlimited emails in 2004, usage grew. Subscription data packages, like unlimited email reached 20 per cent of subscribers within nine months of introduction (3G Telco Annual Report 2004; HTA 2005, p.10). *Simplicity* can create value even offsetting a higher price. Unlimited usage (flat fee) pricing gives consumers

greater value and certainty through pricing *simplicity* than more complex (and uncertain) but lower per use pricing.

Simplicity contrasts with the innovation and diffusion concept of relative advantage (Rogers 2003): a key factor explaining rate of innovation adoption in the innovation literature. Rogers defines relative advantage as the "ratio of expected benefits and the [price] of adoption" (2003, p.232). Relative advantage implies more functions are better, whereas valuing *simplicity* means less is more valuable. In a simple fraction, relative advantage is always increased by adding benefits, while holding the price steady. If only tangible price is considered, more benefits are always better. If non-tangible value like complexity is assessed then every benefit added must exceed the loss of value from greater complexity. New features which add no needed *function*, may decrease value by adding complexity.

Complexity, like relative advantage is one of Rogers (2003) five factors affecting rate of adoption (as are compatibility, observability and trialability). Complexity slows adoption, so simplicity speeds up rate of adoption. A value approach, including *simplicity*, emphasises adding more functions reduces simplicity and slows down adoption rate, in contrast to relative advantage. Rogers's five factors create dynamic value tension between new functions speeding up and complexity slowing down rate of 1adoption. This interpretation of Rogers five factors makes the innovation decision more dynamic, when the innovation is evolving. Since Rogers dealt with mainly static innovations (not changing over time), the complexity/relative advantage dynamic was not emphasised. For instance, Rogers examined simpler 2G mobile phones against the five adoption factors and finds no complexity issues before more complex 3G mobile phones became common (2003, p.259-265). The added complexity of 3G pricing and contracts means 3G consumers understand innovation more dynamically, through value.

In Chapter 7, I compare the value theory of innovation with the consumer value literature. *Simplicity* is not found in several taxonomies of value I consider there (Woodruff 1997, Richins 1994, Zeithaml 1988, Holbrook 1996, Flint, Woodruff and Gardial 2002). Nor is *simplicity* found in Lai's (1995) value typology, Mick and Fournier's (1998) technology paradoxes or Rokeach's (1973) list of values, but *simplicity* is found in extended lists of values (see for instance 500 values collated at HumanityQuest.com). The remaining value meanings of this thesis are found in consumer value literature. *Simplicity* is more common in the design-oriented innovation literature (Verganti 2009, Norman 1988, though Norman 2004 focuses more on emotion and aesthetics). In philosophy, *simplicity* is connected with Occam's Razor but traced back to Aristotle and Aquinas and forward to Kant, and Einstein (Baker 2010). Porter and Kramer (2011) argue corporate and marketing drive for profit maximising at the expense of social and consumer value has blinkered attention to consumer need, including the importance for consumers of *simplicity*. *Simplicity* is not

new for researchers, who focus on parsimony, yet eludes managers and marketers in the eyes of 3G consumers.

This section argued consumers value *simplicity*. 3G telcos have embraced complex pricing as demonstrated by the pricing example in Table 5. Consumers have demonstrated their preference for *simplicity* by (1) removing functions from their phones, (2) making their 3G phones imitate simpler 2G phones, and (3) embracing subscription pricing for data services. A benefit of simpler product and service design is to improve *service*, by reducing the risk for something to go wrong, and improving *reliability*.

4.3.3 The value of lock-in: Consumers as duty bound

Lock-in prevents a consumer leaving a telco during a service contract period. Where a consumer has a positive experience, *lock-in* has no impact. When consumers experience problems after purchase (see for instance Section 4.1.3 Reliability), they seek solutions. Often these contracts are for a two year term. In this instance, changing 3G telco provider may provide no financial relief to the consumer, since the existing two year contract must be paid until it expires. Early exit fees are typically the monthly service rate times the months left on the contract. The August 2010 Vodafone Hutchison Australia Pty Ltd brochure characterises this type of service contract. The front page headline says,

Nokia N97 mini Was $49 Cap now $0 upfront on the $29 Cap (over 24 months. Total min. cost = $696).[1]

Note 1. Minimum monthly spend is $29. Early exit fee: $29 x months left on contract. Unlocking fee applies.
August 2010, 3G telco brochure, p.1.

In my data, the consumer experience of *lock-in* varies. Four consumers, I assess for impact of *lock-in* show variation in experience, from strong to weakly negative. V004 describes her mobile overall experience as weakly negative, a "necessary evil". V016 says "I'll probably leave" indicating weak overall negative attitude. MIC010 experiences strong negative attitude to telcos ("they sell you rubbish"), the social impact of reliability ("mum very worried… thought I was dead"), and to the service ("network … another disgusting thing"). MIC021 says poor service "is not fair", friends are "not happy", the telco is "just making people crap you know" and network has poor reliability ("network is shit"), indicating strong negative attitudes. The variation could relate to personal or emotional propensity. My preferred interpretation is a connection between *lock-in* and consumers' level of technical knowledge. More knowledgeable consumers may be less emotional about *lock-in*, while less knowledgeable consumers get quite emotional when *lock-in* prevents remedial action after loss of value. The following quotes provide evidence from consumers of the impact of *lock-in* on their evaluation of a 3G mobile phone. The first quote below shows a

sophisticated consumer's perspective, that *lock-in* is a profit-maximising *power* exercise, part of the price which has to be paid to access a necessity. *Lock-in* is part of V004's value assessment. V004 says,

V044: *The trouble with the new technology is that you have got new services but you don't really know how it [the value] compares. It's all trial and error and typically it is the user that pays for that education. You're not told things. You've got to find it out through usage.*

Interviewer: [what do you think about the contract?]

V004: … *complicated…*

Interviewer: [what about locking you in?]

V004: *locking you in. It's obvious to make money. Obviously to make money and you are wanting to not be locked in because of course um you do not want to be tied to something that you may not need, may or may not service into the future… [telcos] try and lock you in for as long as possible… I try and keep [contract] down to a minimum… I also think there is a technological divide. There is a whole lot of people who have no idea… so yes my opinion of [national incumbent telco] is that it is a necessary evil.*

V004 40s, female consultant, Finnish, mobile worker.

Where happy consumers do not talk about being locked in, some consumers who have bad value experience accept *lock-in*. While consumers readily suggest they will leave at the end of their contract period (after *lock-in*) they leave the door open for remedies which improve their value and could lead to them continuing a relationship with their current telco. For instance, V016 says "I'll probably leave", and MIC021 says "I will disconnect… or I will think what to do". From a mobile worker's perspective, with high usage, *lock-in* is part of the business of communication. V016 says,

V016: *My current handset is nearing the end of its useful life and it will need an upgrade fairly shortly. But if I do that within [3G telco] I need to re-evaluate whether I want to stay with the [3G telco] network. Because if I buy a new handset I won't be able to take it to another [telco] provider.*

Interviewer: [will be locked in for another period of time?]

V016: *whatever two years or whatever it [is]. I'll probably leave [3G telco]…*

Interviewer: [value?]

V016: *I rate it fairly low I think the service with this phone right now is pretty much the um… um… it's functional but its really nothing better than that… look I would probably be pretty interested if [3G telco] introduced say a business users plan which you know would have something some sort of strategy behind it that ensures more reliable access…. I think if a different [more reliable] plan was maybe 25% more expensive I would accept that… but I haven't had a look to see if they offer any different tier of service.*

V016, 39yo male, inner city Melbourne, $50,000 per annum.

From a basic user's perspective, the 3G data suggests more emotion is involved when *lock-in* is relevant. MIC021, a young Indian international student is upset at finding the promises of a new technology are broken, when upon discovering the reality that the 3G network is unreliable and immature. She becomes upset but is resigned to wait out her 24 month contract, notwithstanding

that her phone "it's wasting all my money", MIC021 over time accepts her situation, saying "I got used to it" and her emotional impact declined "I don't worry about it". MIC021's negative experience leads to ongoing negative *recommending*, and avoidance of value-added services the telco offers her. MIC021 now distrusts the 3G telco. This situation is not ideal for a new technology which is keen for the 3G services to be used and displayed, and *recommending* to pass through the social network to encourage more technology adoption. MIC021 is shown in Section 4.1.1 Cheaper as a contrast to most consumers who found 3G cheaper. MIC021 went from a maximum $60 2G bill to a minimum $200 bill on her 3G mobile, with expected disappointment. MIC021 says,

MIC021: *I will definitely give [3G] up, this one [3G telco] ha ha ha. I don't want to use this [3G] ok. [3G] is just making people crap you know. Saying like [3G phone] is very nice, you don't have to pay anything [to start]. Once you get into this [contract]… you know what the trouble is [reliability of network access]. First thing is basic thing is network reception. If the first thing have that [poor network] but nothing is happening for you.*

Interviewer: [fix network?]

MIC021: *no network is shit ...*

Interviewer: [value?]

MIC021: *there is no value for me…. I'm just now on the plan so I have to stick to it. I think I've got one year yes, one year to go but it's yes it's a 24 month plan.*

Interviewer: [phone mean to you?]

MIC021: *it's wasting all my money ha ha ha…now I got used to it so I know that I have to pay this money so I don't worry about it… once I finish [contract] I'm waiting to finish my plan and then I will disconnect this phone, or I will think what to do…*

Interviewer: [say to other people?]

MIC021: *about [3G] I'll recommend them not to have one phone ha ha… I told a couple of people like last year a couple of girls want to buy [3G] but still they bought the [3G] phone. Now they know why I told them no.* MIC021, 20s female Indian postgrad student.

In Section 4.3.3 on *lock-in*, I have argued that *lock-in* is a significant telco strategy which affects consumer value construction. While *lock-in* is not a consumer value meaning or practice of value, *lock-in* places a constraint onto consumer value. *Lock-in* has positive short term benefits protecting telco revenue, but this approach may be counterproductive (even value destroying) by creating ongoing negative consumer attitude in the longer term. Consumers respond differently to *lock-in*, if they have a poor value experience. More basic users, I suggest (though other demographic or personality explanations are also possible), are more upset by *lock-in* and loss of value. Regardless of the cause, upset consumers (such as MIC021) use negative *recommending* to cope with the negative emotional impact they suffer. Negative *recommending* affects the perceptions of value other consumers develop before they purchase a 3G phone. In the longer term it may be cheaper to release unhappy consumers from their contractual obligations. Such proactive *problem solving* (see Chapter 5) is likely to be highly appreciated by consumers, and likely to result

in positive *recommending* from them, which will encourage other consumers to adopt 3G technology earlier.

In Section 4.3 on the consumer value conversation with the telco, I have argued for three emerging post-purchase grounded concepts. Two concepts are new value meanings, *service* and *simplicity* and the third is the telco strategy and important value context of *lock-in*. These three value concepts impact consumers and their value construction practices, significantly after purchase.

Service is important because after purchase *service* can create or destroy value for consumers. Innovation literature (Zuboff and Maxmin 2002) emphasises the disconnect between complex consumer needs and inflexible telco business systems. The challenge (see recommendations in Section 8.5) now posed by the SDL literature (Vargo and Lusch 2004, 2008) is to overcome the disconnect through *service*. *Simplicity* is important because 3G telcos have embraced complex per usage data pricing, and consumers suffer when they struggle to understand such pricing. Some consumers see complexity as telco "smoke and mirrors", while other consumers focus on simplifying their 3G phones themselves, by removing functions. The 3G telcos have an opportunity to learn *simplicity*, and realise that consumers will even accept higher prices in exchange for *simplicity*.

Lock-in is important because it can negatively impact consumers emotionally. Consumer's emotional response reflects loss of value and loss of value drives negative recommending. My interpretation of the 3G data is the consumer's level of emotional response to loss of value varies with the consumers' level of technical knowledge. Regardless of the source of the emotional intensity, the impact of ongoing value construction significantly influences consumers' *recommending* practices. *Recommending* is a significant factor in the rate of technology adoption (Rogers 2003, Bass 1969).

4.4 Underlying value meanings

Four value meanings (*need*, *function*, *time* and *emotion*) underlie consumer valuing. Emotion is discussed further in Chapter 6 in relation to attitude, and in Section 3.3.4 Suffering, a negative emotional value response. *Need*, *function* and *time* are considered so obvious or not open to analysis that they are mentioned here only for completeness. *Function* and *time* were mentioned by every consumer I exhaustively coded. Examples of these value meanings in the 3G consumer dataset are (and see further in Appendix 7 value meanings by consumer):

- Need*: My family that live [far away] I need to videocall them.* V012, 18yo female, working.
- Need*: My plan had run out. I needed to upgrade my telephone.* V006, 46yo male, father.
- Function*: [3G phone is] just a very useful tool, just like my watch.* MIC019, 50s rural male.
- Function*: [what do you think about your phone?] mmmm ... very useful ... very useful for me ... a point of connection.* MIC020, 30yo female Colombian student.

- Time*: mobile is very convenient ... if I am running late ... I can make a quick communication.* V014, 50s male professional, artist.
- Time*: it took a while to get [3G] phone working to satisfaction ... [repair took] too long, I wasn't happy.* MIC019, 37yo researcher, father.

4.5 Value meanings in triangulating datasets

Value meanings were found in all triangulating datasets. The triangulating datasets include the telco interviews, 3G brochures, Annual Report text, and non-3G consumer datasets. I found value meanings in all the triangulating datasets but some value meanings appear more than others. *Duty* was the value meaning commonly not found, but also *price* in relation to a free service, and *service*/*reliability* in relation to a future service. Interesting results include lack of *beauty* for Kindle, and variation between datasets. These results are included here for completeness.

Table 6: Frequency of value meanings in triangulating datasets

Dataset	High frequency	Medium	Low
3G Consumers (see Appendix 2)	Price, function, service/reliability, time	New, emotion, need, simple, duty	Power, community, beauty
3G Brochures	Price, function, power, beauty, emotion	Time, community, need, new, simplicity	Service/reliability, duty (nil)
3G Telco analysts	Function, power	New, community, service/reliability, time	Need, beauty, emotion, simplicity, duty (nil)
3G Annual Report	Function, community, simplicity, price	Power, time, new, service/reliability	Beauty, need, emotion, duty (nil)
Kindle 3G	Price, function, time, connection	Emotion, simplicity	Service/reliability, need, power, beauty (nil), duty (nil), new (nil)
Free news service	New, beauty, simplicity, power	Function, emotion, time	Community, duty (nil), price (nil), service/reliability (nil)
Future clean power	New, community, power, price	Need, function, time	Emotion, beauty, duty, simplicity (nil), service/reliability (nil)

Note: value meanings not found in a dataset are marked (nil).

Conclusion

In this chapter I argue for the existence of three post-purchase value meanings: *reliability, service* and *simplicity*, two significant post-purchase social value construction practices, *recommending* and *comparing*, and the innovator strategy of *lock-in* to prevent consumers from remedying loss of value. Two key insights emerge from my post-purchase value analysis:

- Valuing continues after purchase, significantly affecting *recommending*. New value meanings emerge after purchase: *reliability*, *service*, *simplicity*.

- Consumers express value experiences emotionally as attitude (overall and by value meaning, strong or weak, positive or negative; Hypothesis 3, 3a). Consumers socially construct value through *comparing*.

What is important in this chapter is the attempt to better understand ongoing post-purchase value dynamics: a gap in the consumer value literature (Woodruff and Flint 2006, Grönroos 2011). Mick and Fournier (1998), who examined technology consumption paradoxes using grounded theory, noted post-purchase consumer investigation is rare in diffusion of innovation research. I constructed grounded concepts to explain the post-purchase dynamics and personalisation of value, reflected in individual, and social value practices. Since valuing does not end at time of sale, innovators must be vigilant to manage ongoing consumer value experiences by maintaining an ongoing value conversation with consumers. Value shifts over time, and shifts between pre and post-purchase contexts of a new technology as new and relevant value information arises from consumers' 3G experiences. The challenge for telcos and innovators generally is to develop business processes which can handle value dynamics and personalisation. A recommendation I made in this chapter was the need for telcos to embrace *simplicity* in value offerings (especially *pricing*) to better facilitate consumer *recommending.* I will touch on my further solutions to these value challenges in my conclusions and recommendations in Chapter 8.

In the first results chapter, The Promise of Value, I examined how consumers construct value before purchase, focussing on value meanings like *bargain hunting, connecting, beauty, power,* and *novelty* and value practices like *exploring, comparing, observing, inquiring, filtering* and *closing*. In the next chapter, The Consequences of Value, I examine consumers' actions after purchase of their 3G mobile phone. These actions contrast with the consumer (value practice) responses to shifting value, I discussed in this chapter, The Reality of Value.

Chapter 5: Consequences of Value: the Action-Value Connection

This chapter examines consumers' actions in response to value. Previous chapters examined how consumers construct value before purchase (Chapter 3) and after purchase (Chapter 4). Value construction practices are social or individual, and often emotional and intentional. The following discussion involves analysis of the self-reported actions of consumers, for the purpose of cross-checking the credibility and plausibility of their statements. Consumer action is important for three reasons. Firstly, action confirms consumer statements about intention, which show only potential action. Secondly, action tempers *emotion*. Consumers say things when they get upset, but what actions consumers choose indicates which intentions are strong enough to pursue as action. Thirdly, *buying* is a key outcome of diffusion of innovation. Other actions may be important in supporting consumers leading up to and resulting from purchasing, but are not often a research focus. I take the opportunity to make consumer action, including but not limited to *buying*, a focus here.

This chapter presents two important insights from the 3G consumer data that are not possible when focussing on value meanings and value practices alone. Firstly, the strongest connection to consumer action is loss of value, through practices I call *problem solving*. Secondly, an important consumer action is *waiting* in response to weak value. Where value is strong, action is immediate. This aspect of value Schumpeter calls inertia (1934, p.87). The purpose of this chapter is to describe and analyse the actions of consumers after they experience consequences of living with their 3G mobile phone. These actions are tangible expressions of the value conversations. The actions are expressions of personal practices, but also result from interactions with the telco and consumer's social network. This chapter argues that two main value-related actions are used: *reconfiguring* value and *solving* value problems. The first is the positive expression of value, and the second is the negative expression of value (loss of value). The positive value actions include *waiting*, *buying*, and *using*. The negative value actions include *seeking telco assistance*, *seeking alternatives, closing* and *doing nothing*. To argue my point, I have structured this chapter to analyse consumers' interactions in two ways. Firstly, I examine consumers' (inter)actions when they have negative value experiences and develop coping strategies in response to these experiences.

Secondly, I examine the consumers' positive value experiences and the actions these give rise to, with the realities of their new technology.

5.1 Problem solving: consumers as problem solvers

In this section, I argue consumers act strongly in response to value diminishing problems to protect and maintain value. In the next section, I argue consumers also act by *reconfiguring* value with an expectation of gaining value. In both cases, consumers are acting to improve (or recover) their value. Therefore in this section I analyse the types of actions consumers undertake, and the types of common loss of value consumers reported in relation to their 3G mobile phones.

I characterise the main consumer response action to loss of value, as *problem solving.* I identified four types of *problem solving* action. One type of *problem solving* action involved the telco, *seeking telco assistance*. Three types of individual *problem solving* are: *seeking alternatives*, *closing* and *doing nothing*. Social action has been discussed previously as *inquiring*, *observing*, and *recommending* and will not be discussed in this chapter. I will now deal with and analyse each consumer action and provide examples.

5.1.1 Seeking Telco assistance

Seeking telco assistance is the most common consumer action reported when a consumer suffers a problem leading to loss of value. Three typical consumer examples of *seeking telco assistance* is by ringing the customer service helpline, going into a telco store to ask a question, or going to a repair centre. For instance, V002 says

V002: *I had a problem with [3G phone] roaming when I went out of Melbourne ... so I was pretty grumpy and I thought the [situation] was really crappy but obviously didn't feel strongly enough about it to go to a shop ... and then of course a year and a half later ... I finally went into a shop ... the [sales] person ah just fiddled with my phone a little bit and then got it to roam, put it on to roaming outside of Melbourne, and then [roaming] was fine .... whoever set the phone up for me when I first got it didn't do [roaming setup] but if I had been a bit more savvy I might have been aware of [problem].* V002, 40yo mobile worker, freelance writer.

V002 experiences loss of value from losing function when her 3G phones goes outside the metro 3G network. For a long time V002 *does nothing*, then *seeks telco assistance* in a store and the problem is quickly rectified to her satisfaction. V002 reports her action is driven by loss of value. In between, V002 displays a negative attitude "grumpy", "crappy", but not sufficient to spur V002 into action. The trigger for positive remedial action is not immediate and clear. V002 describes her action saying "I finally went into a shop." In this context "finally" suggests a coming together of matters favourable to resolving her problem. An opportunity arose to visit a store when time, interest and other motivators (solving other problems) were favourable. The time and effort of

visiting a store was likely offset by being in the neighbourhood when it was easy and simple, and with available time to go into a telco store, to get the problem resolved.

A different consumer, MIC005 shows an early adopter problem with network reliability.

MIC005: *When [3G] was first launched it was probably about 30 per cent [dropped calls] in the first three to six months ... [when] I was using the phone in highrise in the city tunnel or going across the harbour bridge you know you dropped coverage ...*

Interviewer: [what was your reaction to that?]

MIC005: *frustration ...*

Interviewer: [did you express this frustration in any way?]

MIC005: *I was continually ringing customer service .... but in the end I rang the CEO and said you've got no coverage on the bridge, you've got no coverage here, you know you've got no coverage here you know*

Interviewer: [sort it out?]

MIC005: *yes ha ha basically ... this is the problem and this is the areas that I am having these problems was basically where the key demographic was of whom they were trying to target.* MIC005 telcoms analyst, early adopter Sydney.

MIC005 suffers network reliability issues and along with negative attitude "frustration", enacts his attitude through contacting the telco's customer service, and even the CEO, giving an indication of the strength of his frustration and close relationship to the telco. Such action is indicative of a strong connection between loss of value and consumer action. Loss of *function* and *reliability* (both value meanings) were common problems which triggered remedial consumer action.

Other telco visits are more specific to 3G mobile phones, and less relevant to the 3G network. V089 tells the story,

V089: *One day for some reason [my] iPhone conked out. It wasn't the battery. This was a couple of weeks after I bought it from [telco] shop at Lygon St and I was lost that particular day because all my appointments were in this phone and I forgot what meetings I had that day because I couldn't access my phone. So I had to quickly get into the [telco] shop and say get me online you know. I don't know what meetings I am supposed to go to .... well these guys said we understand the problem and we'll get onto it. I had to leave the phone there because some software had to be reconfigured. But I took down my appointments for the day and then went and collected the phone mid afternoon ... I think my experience has been great with these phones I cringe when the phone bills arrive sometimes.* V089, 53yo male, Associate Professor.

V089's immediate action (not delayed like V002) is to recover his personal appointments information from his iPhone, his time sensitive calendar schedule information. V089 suffers significant loss of value ("I was lost") requiring immediate action for remedy. His experience overall is positive ("has been great") regardless of the temporary loss of function suggesting positive overall valuing of the service recovery.

In Chapter 3, I recounted how high 2G bills sent consumers looking for solutions, which ended in them purchasing their 3G mobile. Loss of value, before or after purchase was the strongest indicator of consumer action. Loss of value, while not causing action, is closely associated with and a strong indicator of action. This connection between loss of value and consumer action was found in nearly every consumer interview (see Appendix 3). Significantly, this negative connection was more common and hence significant than connecting positive value and consumer action. Thus it seems likely that the greater a consumer experiences loss of value (especially when characterised as pain and suffering), the more likely the experience will trigger urgent consumer action. In contrast, the discovering of potential new value from *exploring* or *recommending* value processes does not trigger similar immediate action. These hypotheses are discussed further in Chapter 6.

5.1.2 Seeking alternatives

The second type of consumer action arising from loss of value is *seeking an alternative*. Consumers sometimes solve problems on their own, without resorting to dealing with the telco. Some problems are specifically excluded from the telco's control through the telco's own decisions and choices. For instance, the first 3G telco to market chose to build a 3G network only in the major metro areas and sign roaming agreements with other networks to allow the 3G phones to roam onto 2G networks outside the metro areas. Losing 3G access outside the city cannot therefore cannot be solved by the 3G telco, since they made a business decision to build only a metro 3G network. V012 explains her solution.

V012: *I used to live in Perth… I used to um always travel to the country for my grandparents… my [3G] phone would never ever work in the country so I thought I might get a NextG [incumbent telco 3G] phone that is actually going to work in the country… because I'm 18, I can't live without my phone… my phone is my life ... if I go out of coverage I am just panicking because I can't get hold of anybody. Um ... I'm lonely. I've got no friends to contact. And that is why I thought I would get a next generation phone [incumbent 3G telco] because it is exactly like a CDMA [incumbent telco 2G] phone better for the countryside .... when I come back to being in Perth in the country I mean city I've got my [3G] phone which is cheaper for me.* V012 18yo female, working $650 per week

V012 after buying a 3G phone finds that it is not reliable for using outside the city. V012's solution is to buy a second phone, using the incumbent telco's 3G network which has a reliable network outside metro areas but which is much more expensive to use. Therefore V012 has a city phone for making cheap city calls and a country phone for receiving (at least) calls in the country. Several consumers recounted the second phone strategy, even for use in the city to overcome network reliability issues. For international students a second 2G phone provided backup to the cheaper but somewhat unreliable 3G phone, especially in buildings.

Two consumers solve their network *reliability* problems differently. MIC014 walks out on the street when the 3G phone doesn't work in the buildings. V016, when his 3G phone drops out in

the middle of a call, just calls the person back again. Thus consumers develop strategies to remedy loss of value through their own remedial action where such action is possible, cheap and convenient. Neither experience of loss of value makes these consumers strong candidates for positive *recommending*.

5.1.3 Closing

A third consumer loss of value action is *closing*. *Closing*, discussed in Chapter 3, is where consumers don't *use* 3G data services because they see no need, no value. I characterise *closing* as a consumer action. *Closing* is a blocking or closing-off action, limiting the choices of a consumer, almost as a policy. *Closing* is positive choice not to do something. Emotion (see Chapter 6) is a theoretical source of *closing* (Damasio 1994). Some examples will clarify *closing*.

V089 provides a simple example of *closing*, when a change in context shifts value. V089 is a keen 3G iPhone data user. V089 uses email, mapping and gps, checks stock prices, and his calendar. However, in one situation, V089 enacts a *closing* strategy for his 3G data usage.

V089: *I don't use [iPhone] overseas because I don't know how expensive it is going to be.*
V089, 53yo male, Associate Professor.

V089 is concerned about a big data bill when coming back from international conferences, or his regular overseas teaching. To avoid the shock of a big bill, and to save investigating the prices of overseas data services, V089 *simple* action is to not use overseas data services. I argue this inaction is an important choice, and can be classed as a *closing* action for value interpretation purposes. V089 proactively protects his value (no high 3G data bill) through his *closing* action.

A more complex example of *closing* comes from consumer V051. The context for V051's story is the delicate area of a parent managing a teenager's 3G mobile phone usage and billing liability to a parent. V051, in discussing his teenage children, reports suffering loss of value when a phone bill arrives which "wiped off a week's income", around $1,500. V051 notes several complex contextual issues. Firstly, teens are sophisticated (yet impulsive) 3G and mobile phone users. Secondly, peer pressure is significant for teens. Thirdly, 3G phone addiction is an issue. I interpret the use of the mobile phone (to the extent of addiction) to indicate the high value teenagers place on *connecting* with their peers often and intensely. V051 notes calls from one of his children to one other person thirty times in one day. Thus V051 is driven into action to protect his income for expenditure on other household needs. Three actions are involved: one *connecting* and two preventive remedial *closing* actions. Firstly, to protect the parent-teenager relationship the *connecting* value is emphasised through family discussion (a social value conversation). The first *closing* action is to "take him off the plan and get him onto prepaid". This action removes the unlimited credit and excess use fees and requires the teen to manage their communicating usage within a prepaid budget. The second *closing* action is to "stop all calls from our domestic phone to

mobiles". Mobile calls are much more expensive than local calls, so *closing* access to mobile calls puts a upper limit on at least the rate per minute if not the whole monthly bill. Both *closing* actions protect value in terms of limiting the *price* of the monthly phone bill. Relationship value, V051's *connecting* value, is also protected through a gentle, consultative approach with his teenage children. V051 says,

V051: *Kids these days are probably the most advanced users of the [3G mobile] technology ... because they learn very quickly ... they use the phones all the time .... they use and abuse their privileges ... and sometimes I need to explain to them that we can use our scarce resources in other ways like go out and have a nice meal instead of use our resources on telephones. You don't need to make thirty calls to one person in one day I mean but sometimes they do, so that is a bit annoying to me but that is the young person generation. That is a big challenge for a lot of parents who have had their fingers burnt ha ha by expensive phone bills. Sometimes parents decide to take radical steps like switch their children's telephone from ah ... they can't make domestic calls to mobile and they sort of listen. I'll take you off the [3G mobile] plan and you'll just have prepaid just to limit the usage because it can get out of control and it has ... they are the beneficiaries and I am the victim ... there is peer group pressure as well ... creating problems for parents ... so it has to be handled with care. Responsible usage is the key thing I think ...*

Interviewer: [strategies for responsible usage?]

V051: *well I basically sit down and talk with my daughter or my son. And I show them the bill and then I say this has wiped off a week's income right and someone has to pay for all these expenses ... so I get them to start thinking and if that doesn't work then I've had to with my son, I've had to sort of take him off the plan and get him onto prepaid and stop all calls from our domestic phone to mobiles ... so I think it is a bit of a wakeup call for them as well because they have to be confronted with reality. There is only so much protection that we can give them and then it becomes sort of counter productive. So that is the challenge of being a parent in the technological age.*
V051, 47yo male, administrative professional staff, $70,000 income.

This quote shows V051 actively managing his value. V051 uses *closing* actions as *problem solving*. V051 protects claims on his income and to counter the telcos unlimited credit offer to teenagers. 3G mobile plans are open-ended credit accounts, where bills of tens of thousands of dollars are possible (Gans 2009). With excess data services priced at $0.50 per Mb ($500 per Gb) on low $29 monthly plans, and a 1Gb downloads possible from youtube or Vimeo video services, high excess data bills loom. Even a single music video download can be 50Mb. Thus V051 enacted a *closing* solution to limit exposure to financial loss of value. V051 notes parents share their strategies (*comparing*) with each other through discussion and *recommending*.

Thus *closing* is as a consequence of (loss of) value. *Closing* is a preventing behaviour, protecting the consumer from potential loss of future value, often monetary value. In contrast, in Chapter 3, *closing* was a pre-purchase phase activity (for example "I don't want to have ringtones… because I don't need [them]"; "I'm very blind to internet advertising"), partly financial and partly about sifting useful high value messages from distracting low value messages.

5.1.4 Doing nothing

A fourth type of consumer action is *doing nothing*. V089 provided an example above of not using international data services, and in Chapter 3 I cited examples of V014 limiting his 2G bill by using his phone less and instead using SMS. An example of not using a 3G phone was also cited in Chapter 4 when V019 bought a 3G mobile, but kept only the 3G sim card, and used the sim in his 2G phone. V019 *simplified* his 3G phone by using (and hence valuing) his 3G sim in his 2G phone. V014 chooses to not answer his phone in his car. V052 puts her phone on silent when she wants "quality time" without interruption. V052 and V014 value peace and quiet and by *doing nothing*, prevent interruption. I see *doing nothing* as closely related to, and perhaps another type of *closing*. Both *closing* and *doing nothing* block avenues of action, reducing and simplifying the consumer's experience, whether that experience is of a new phone, calls in the car, quiet time or avoiding using data services while overseas. A slightly different example is the opposite of acting out of loss of value. MIC014 says,

Interviewer: [contract?]

MIC014: *yes two years but I can cancel it at any time ... now I can choose keep it or cancel it ...*

Interviewer: [keep it now?]

MIC014: *yes because of my girlfriend. I can call her anytime within ten minutes without charge.* MIC014, 25yo male Chinese postgrad student.

MIC014 enacts a kind of *doing nothing* action. MIC014 keeps his 3G phone after his two year contract expiry because of the value he gets from free calls to his girlfriend. MIC014 sees value in continuing to use his 3G phone and service. Unless there is a change in value MIC014 is likely to continue using his 3G service. There is a kind of value momentum, suggesting value does not shift (and no action results) unless there is some relevant (and significant enough) shift in value information. New value information could include the phone breaking, MIC014's girlfriend changing her plan, or the 3G telco rescinding its free 3G to 3G call pricing.

V002 mentions another kind of *doing nothing* when the problem, the loss of value is insufficient to trigger action. V002 says,

V002: *after a few failed attempts at organising the email thing [installation] I just gave up because it is not actually related to yahoo [her email provider] (yawns) and [3G telco] talking to one another or something ... it wasn't a going thing ... I rang [helpdesk about email problem] and they tried to help [changing email to 3G telco address] but I didn't want to change my [yahoo] email address so then I went I just can't be bothered. It's not that important.* V002, 40yo female freelance writer, mobile worker.

V002 gives up on her action (*seeking telco assistance*) to solve her problem, no email access, through talking to the telco. She weighs her time and effort against the benefit of getting her email. The outcome of her value assessment is *doing nothing*. Two years later, after *buying* an iPhone 3GS, V002 set up her Yahoo email in five minutes. *Doing nothing* is important because it

indicates there is a threshold of action below which no action is an appropriate consumer value response.

An action threshold implies value momentum. Value will continue unless affected by new value information. Unless the value information exceeds a threshold, no visible action occurs. However, attitude (and emotion) is affected by any shift in value information. Thus, attitude (emotional impact) is an earlier sign of shifting value than consumer action. For instance, a price rise may not reduce sales quantities but consumers notice and their attitude shifts with loss of value to become more negative. Price rises may increase profit but harm consumer attitude. Thus it is logically important to track consumer attitude alongside profit, because both reflect shifts in value. (See discussion in Section 7.4 on Innovation Measurement.)

In this section I have argued for the connection between loss of value (especially in relation to *pricing*, *reliability*, loss of *function*), and several specific types of consumer action that appeared regularly in the consumer 3G dataset. Other value meanings such as *simplicity, need* (V015), and *service* (MIC005, MIC019) were found less likely to connect to consumer action.

I analysed four types of consumer action that were most common in the 3G consumers' experiences. These actions were triggered by loss of value, and include *seeking telco assistance* by phone or in store, *seeking alternatives*, *closing* and *doing nothing*. One of the strongest associations found in this thesis is the link between loss of value and consumer action (*problem solving*). Consumers act swiftly and strongly when they suffer loss of value to remedy that loss. The greater the consumer's loss, the stronger is the consumer's response. The less the loss of value the weaker is the consumer's response. A value threshold between the two must be reached before consumer action commences. While significant, value threshold and value momentum are not significant enough to be included in Chapter 6 Hypotheses.

5.2 Value for money: consumer action from value

In this section, I argue for the positive consequences of value. Value arises from value meanings and value practices. I argue value connects to consumer action, though in the previous section, loss of value was the stronger connection to action. Value, while a weaker stimulus for action, is nonetheless an important driver of consumer action. The quest for positive value is however a more cautious and measured activity, though not without its emotional impacts, sometimes overwhelming and irresistible. Overall I call the positive actions which result from valuing *reconfiguring*.

Reconfiguring exchanges one bundle of value for another bundle of value. For instance, purchasing a 3G mobile phone exchanges the value of cash (or the liability of lease contract) with the bundle of value a 3G mobile phone represents. Such a value bundle includes *power* (to wirelessly access the internet), *function* (to make calls and use apps), *beauty*, and *connecting* value

(for instance in relating to other 3G mobile owners). Thus *reconfiguring* includes exchanges of money and time for products, services, information and experiences. *Exploring*, for instance, exchanges (consumes) shopping *time* to acquire new value information to assess mobile phones or other products and services of interest. The value concepts I discuss here are examples of *reconfiguring.* In this section, I argue for two points. The first is that weak value connects to *waiting* (further *exploring* or other value assessments). The second is that strong value connects to *buying* action without *waiting*. But first I touch on the main actions I found in the consumer dataset, and consider which actions have been covered previously.

Several consumer actions have been covered, discussed and analysed above, including the value practices *exploring*, *comparing*, *filtering/closing*, *recommending* and *doing nothing*. The final actions covered in this section are *buying* and *waiting*. Consumer action such as *buying* is often connected to other value practices. For instance, MIC010 says

MIC010: *I always buy after a long process of collecting information about the product. I don't buy just because I buy. So I collect [information]… I been thinking about getting [3G mobile] for six months before I actually took it and I went to the store several times. I see the phones, get the features of each phone, about the services, the network…..* MIC010, 30yo male Italian

MIC010 links *buying* with value practices of *exploring* and *comparing*, the process of collecting and analysing value information. *Exploring* and *comparing* was discussed in pre-purchase value practices in Chapter 3. In contrast, MIC014 links *buying* to value meanings.

MIC014: *This phone 3G is not very expensive for a student so it was very easy to get one…. I think I would choose 3G because my classmate wanted me to buy that because at that time 3G was a new new technology, that was a fresh thing, and people attract by a fresh thing…*
MIC014, 25yo Chinese postgrad student.

MIC014 links *buying* with several value meanings. MIC014 mentions *price* ("not very expensive"), *simplicity* ("very easy") and emphasises particularly *novelty* ("fresh thing") by repeating four times words implying newness ("new new… fresh… fresh"). *Simplicity* in this case I interpret to mean that the choice to adopt was simple given the strong value (including social, functional, and novelty value) in the 3G phone compared to price. *Novelty* and *recommending* I discussed in Chapter 3. The interaction between MIC014 and his classmates, his social network, socially constructs his understanding of value, through positive *recommending* from these classmates ("wanted me to buy"). MIC014 starts his story in this excerpt with comments about *pricing*, suggesting the importance of pricing. I discussed *bargain hunting* as a value meaning in Chapter 3, indicating the importance (value) of price to consumers. Consumer actions, like *buying*, are intimately wrapped up with value meanings (such as *novelty* and *function*) and value practices (such as *exploring* and *recommending*). Now I will tease apart the link between value and action.

5.2.1 Weak value connects to *waiting*

Some consumers collect many pieces of 3G value information before purchase. Consumer MIC019, an academic researcher, and parent, lists the many benefits and functions his 3G phone provides. MIC019 recounts his 3G phone functions (and value) include use as a PDA (digital assistant), calendar, contact list, email, convenience of size and lightness, all for a good price. MIC019's context impacts his *buying*. MIC019 changes jobs, so gives up his work phone and is about to head overseas to see family when he visits a shop, does last minute *comparing*, and takes a bonus headset. MIC019 says "so all these things came together and I said this is the time". V019 can list around nineteen (many of them quoted in Section 3.1.3) pieces of value information, some value meanings, some value practices and some personal context that finally resulted in *buying*. This is why the connection between value and *buying* action is more tenuous and indirect than where consumers act in response to problems. A single value assessment, a single value meaning or practice is not likely to result in *buying*. But value is an accumulation of positive evidence (good *price*, useful *functions*) and influencing personal context (such as changing jobs, and travelling overseas) which connects MIC019 to make a *buying* action.

Sometimes consumers, in contrast to accumulating value information, take only a small amount of value information into account before *buying*. Single mother, 47yo worker MIC022 listens to her brother *recommending* "I've got a really good phone deal". She recounts her brother asked her "which phone do you want?" to which she replied "look you choose, and send me one". MIC022 has relied completely on a trusted source for *recommending* the entire transaction. MIC022 was entirely satisfied but as a time poor worker did no *exploring* or *comparing*. MIC022 does not use advanced 3G functions (email and internet) and does no *recommending* as "it hasn't come up". Value emerges for MIC022 very fast from reliable *recommending*. Value emerges slowly for MIC019 from accumulating value information from *exploring*. Appendix 5 shows value practices I found ordered by consumer. No clear picture appeared linking types of value practices and types of consumers and timing of adoption.

The connection between valuing and *buying* is not a straightforward single process, but is personal and contextual. There is similarity and difference between the value theory of innovation explanations and early and later adopter explanations. MIC019 adopts a rational and competent information-gathering approach whereas MIC022 relies on her social network, since she has no time for *exploring*. MIC019 acts like an early adopter: self-reliant and empowered. MIC022 acts like a later adopter: reliant on social advice. Yet, both consumers, I argue, act based on value. Value information is personally or socially gathered and acted upon. Indicators of early adoption such as income, level of education, level of connectedness, level of rationality and intelligence (Rogers

2003, p.288-291) are less important than value-related, subjective indicators such as level of interest, level of time available for *exploring*, and personal context.

Thus, I characterise MIC019 as *waiting* during the course of accumulating value meanings and value assessments, while MIC022 is *buying* without *waiting*. There is more value for MIC022, because MIC022 is a time poor consumer, and the strength of the *recommending* from such a reliable source, a family member, is significant. MIC019 has more patience and later contextual triggers are more important. MIC019 is a more sophisticated purchaser, so takes more information into account. MIC022 is less sophisticated, so more reliant on trustworthy sources. Yet from an innovation timing perspective, they both purchase like early adopters (in 2005). I argue both consumers adopt when they assess value. Value just means different things for different consumers. In some instances value is so compelling consumers adopt fast. I discuss evidence of this type of value in the next section.

5.2.2 Strong value connects to *buying* without *waiting*

Strong value arises when there are clear, obvious and positive benefits and results in, not only strongly positive emotional impact, but also action. Weak value arises when the benefits are unclear, uncertain, and less obvious. Weak value gives rise to weak emotional impacts and *waiting*. See the discussion of emotional impacts (Chapter 6), and their enduring expression I call *attitude* (Chapter 4). There are three examples where consumers indicate fast technology adoption. I interpret this data as strong value closely connected consumers to transcend *doing nothing* (Section 5.1.4, 5.2.1) and move into a *buying* mode of action. Some consumers have a policy of always *buying* something new (high value from *novelty*), which I interpret as a kind of *closing*. One consumer says,

MIC050: *Well I had the 2G [iPhone] phone and I liked that enough and so I got the 3G one [Apple iPhone]…. <u>I will always have the latest iPhone</u>. I don't care what it is ha ha ha regardless… the 3G bit was just what happened to me in the latest iPhone. I didn't care about it per se.*
V050, 40s male Professor, father, self-describes as "early adopter".

In the same way as MIC022 accepts a reliable family recommendation (Section 5.2.1), V050 has relied for his *buying* choice, on Apple's *recommending*. V050 will buy whatever 3G phone Apple makes. There is value for V050 to *simplify*, and rely (see 4.1.3 Reliability) on Apple to produce a good value product. V050 is *closing* his choice to consider competitors to the iPhone as a result of strong positive past experience (attitude and value) with Apple. I could interpret that V050 does not value 3G, and I think that is a fair assessment. V050 values Apple's judgment to make good products. V050 doesn't buy the product even for its functions. V050 buys it for the *novelty*. Thus V050 acts based on experienced strong value (and attitude). Rogers (2003) would suggest V050 is an innovator (the earliest adopter category), and V050 is certainly wealthy, highly socially

connected and well-travelled as early adopters are predicted to be. However, V050 is not an early adopter of 3G, just the Apple iPhone. The first 3G Apple iPhone was five years later to market than the first Australian 3G phones. Thus V050's *buying* is specific to where his value is strongest, in the connection to Apple products, rather than 3G functions.

A last quote from V050 on his iPhone shows the emotional intensity of the *connection* V050 has with the phone itself.

Interviewer: [what does your phone mean to you?]

V050: *something I carry around with me all the time…*

Interviewer: [do you use it for many things?]

V050: *no no ha ha ha ha ha I just need to have it with me…. For email… I don't talk much on mobile phones.* V050, 40s male Professor, father.

A second example of strong value and *buying* comes from V054. A self-described anti-technology consumer, V054 (see Section 3.1.1 Connecting) reports *buying* without *waiting* when attracted strongly by a new 3G phone mapping function. The value of a specific technology function has overcome V054's expressed general anti-technology preference.

V054: *You only have to wait six months and make your decision about that as opposed to the technology because <u>you have only to wait for about six months</u> and the one you thought was whizz bang is <u>available on a $zero contract or a cheaper rate</u>, <u>so I am inclined to sort of wait that little bit extra</u> and then try to get a little bit of value for money as opposed to with the new technology… I bought the phone I've got now particularly because it has you know a navigation device on it, which was good too, and I've used that a fair bit sort of thing… [what happened with buying mapping phone?] ummm… no well <u>actually I suppose I got that one when it first came out</u>… you can get them you know on very cheap plans six months after I got it, so it didn't matter because I got it on what I wanted to pay for it anyway… kept the same monthly rate and with that I picked up the new phone for nothing practically.* V054, 40yo male, school teacher, single parent.

V054 has a general policy of *waiting* for new technology to come down in price. V052 says he will "wait that little bit extra… to get….value for money", but his latest 3G mapping phone, he bought straight away, because the price was right, and he was attracted to the mapping function which he finds "good". V054 kept paying the same monthly contract amount that he was happy paying and got the mapping phone "for nothing practically". V054 sees "good" value in the mapping function, sufficient to put off his normal *waiting*. The emotional language in valuing the new *function* is not particularly strong, since "good" is only moderately positive as opposed to "excellent", "terrific" or "exciting". Yet the language directed at *price* is strongly positive "for nothing practically". This consumer's action is only weak evidence of the proposition that strong *functional* value is needed for *buying* without *waiting.* But the action suggests *pricing* was paramount combined with weak value on *function*.

A third example of *buying* without *waiting* starts with *waiting*, and involves *recommending* and *observing* a close member of his social network. V089 says,

V089: *Well it took me a fair while to get to 3G because I had a 2G phone which cost me bloody over $1000 bucks the O_2 [on a plan] yes yes so I had to wait for that to expire before I could go to the Blackberry… but moving to the iPhone I didn't. Switching from the Blackberry… well I wasn't prepared to wait for the iPhone because a lot of people were saying it was great, you've got to get it and blah blah blah…. One colleague….is the editor of the Australian [ethnic] weekly and a good friend. He went overseas and came back with an iPhone and every time he would come he would put it on the table and put it on loudspeaker and talk to different people and access his 3G and blah blah blah and I said that sounds very practical I can do with one of those. He didn't say [V089] go and buy it. It was just using it copy not copycat but I mean more about a me too or I can see the potential of that… I don't think it was more of a fashion thing. It wasn't hey he's got it and I've got to have it. It was more like I can see what value he's getting. I can get some value out of that too.* V089, 53yo Associate Professor, Macedonian.

While describing himself as coming from an "engineering background" and "fascinated by the latest version of mobile phones" V089 says "I love my iPhone" for all its functions: "stockmarket… emails… photograph and email it to whoever… useful… in the car… if you are stuck in traffic". V089 describes *buying* and *waiting*. There was *waiting* before buying a Blackberry, but no *waiting* before buying an iPhone. *Observing* a work colleague and "good friend" triggered the different behaviour, but Apple must be given some credit for a phone V089 can "love". The "love" is an indicator of strong value though this is a post-purchase value assessment. There does seem an element of imitating behaviour (Bass 1969), but V089 characterises his purchasing more logically as "I can see what value he's getting" or iPhone "potential" rather than accumulating emotional cues. My interpretation is what developed into "love" is an emotional and excitement based construction of value, driven by *observing* a colleague and friend that triggered a positive value assessment. His emotional response overwhelms the rational *waiting* until a contract expires. This consumer provides positive evidence for strong value resulting in *buying* without *waiting.*

In conclusion, I argue that strong value connects to *buying*, while weak value connects to *waiting* or *exploring* (see Section 3.3.1). *Using* 3G mobiles is also a strong response to value (as discussed in Section 5.1.3 Closing). For instance, teenagers are "addicted" according to V051, to using their 3G mobile phones (addicted to *connecting)* to the extent they will make "30 calls to one person in one day". The examples above are indicative of strong value assessment connecting to 3G mobile *use* and *buying*. Not everyone wants to use a mobile phone, but according to their assessments of value, some consumers and especially teenagers value *using* 3G mobile phones very highly, as indicated by their sometimes extreme usage.

Conclusion

In this chapter, I have addressed the consequences of value. I considered the actions of 3G consumers and the connection of these actions with value. Three important outcomes of this chapter are:

- Consumers' adopting action arises when consumers perceive strong value (Hypothesis 1).
- Loss of value is the consumers' strongest connection to action (Hypothesis 1a).
- *Waiting* is a consumer response to weak value.

Firstly, actions arising from value and loss of value connect with consumers moving into action, even though sometimes that action might be *waiting* or *doing nothing*. Value is closely connected to consumer *buying*, but only where the value is strong and clear. Value is difficult to assess since it is not easily or clearly comparable across multiple value meanings. Yet *buying* is an indicator of value demonstrated by consumers' movement to action. Secondly, the stronger, more common driver for consumer action was loss of value. A common response of consumers to loss of value was *seeking telco assistance*, but three other important actions were found in the 3G consumer dataset; *seeking alternatives*, *closing* and *doing nothing*. Thirdly, weak value connects to consumers *waiting* or *doing nothing*. The two innovation concepts, early and later adopters (and hence resistance and delay) are recast in light of the third insight. Value provides a contextual and individual explanation for early and later adopter behaviour beyond Rogers (2003) demographic, and personality indicators.

This chapter completes the conceptual foundation of a value theory of innovation in 3G mobile phones. In the next chapter, I present the value theory of innovation in 3G mobile phones (and model), before comparing these foundations, the value meanings and practices, with the innovation and consumer value literature in Chapter 7.

Chapter 6: A Grounded Theory: A Consumer Value Theory of Innovation in 3G Mobile Phones

This chapter presents a value theory of innovation in 3G mobile phones: a new (grounded) theory linking consumer value and innovation. I built the theory from my grounded approach (Chapter 2) and my results (Chapters 3, 4, and 5). I analyse how the theory connects with the innovation and consumer value literature in Chapter 7. The theory emphasises the value practices and value meanings I found in my data.

In this chapter, I present a theoretical discussion in three parts. Firstly, I present evidence of how the value concepts connect together into an integrated model of value. The connections give rise to four hypotheses that inform the value theory of innovation in 3G mobile phones. A fifth hypothesis emphasises *simplicity* as a value meaning and a related value practice. Importantly, these hypotheses identify three proposed important properties of value; value is complex, action-oriented and emotional. I emphasise the place of emotions in assessing value as an important insight of the thesis. Secondly, I examine the close relationship between value, emotion, and attitude in my data and examine relevant literature to assess the plausibility and credibility of emotion and attitude as central value concepts. Lastly, I discuss two further properties of value that emerged from the data and an integrated view of value: value is social/contextual and dynamic. In the next chapter, I compare the value theory with relevant literature.

In this thesis, I set out to understand how and why consumers adopt new technology. I chose 3G mobile phones as the research site because at the beginning of this research 3G was a new technology undergoing an initial social evaluation. 3G was launched in Australia in 2003, the year before this thesis began. A grounded theory is concepts (Table 7) and their connections (the Hypotheses below). A grounded theory is written (see Section 2.5.1.4) as discussion (Chapters 3, 4, 5) or as hypotheses to discover the core problem of the participants, abstracted to a conceptual level. Value emerged as a core concept to explain what consumers do to understand a new technology. Loss of value emerged as the core problem, and the main concern that consumers interviewed deal with, in the context of assessing a new technology. A high level structure (see

Appendix 13) emerged around three phases of understanding new technology (pre-purchase, post-purchase and consequences of value), and three value conversations (social, individual and telco). The story of value is best told when structured around the way consumers experience value in their lives. The progressive stages I moved through to develop the model of a value theory of innovation in 3G mobile phones are presented in detail in Appendix 14. When I say the model, I refer to the figures below. In contrast, the value theory of innovation in 3G mobile phones includes the models, the value concepts (value meanings, value practices, attitude; see Appendix 1), the relationships between the concepts (see 6.1 Value Hypotheses), and the story of value I tell in this thesis.

In this chapter, I describe and explain how value meanings and value practices provide the dynamic engine of value, through creating an integrated model of the dynamics of value, built from the value concepts which emerged in the results. Recalling the results in Chapters 3, 4 and 5, I found 12 value meanings. I found 12 value practices consumers use to construct value, plus the important telco practices: inducements and *lock-in*. Table 7 summarises the value meanings and practices by phases.

Table 7: Value meanings and value practices by value phase and value conversation.

Value Phases / Dynamics	**Pre Purchase (Ch.4)**	**Post Purchase (Ch.5)**	**Consequences (Ch.6)**
Value Meanings	*Connecting* *Novelty* *Price / bargain hunting* *Power* *Beauty* *Duty*	*Overall Assessment* *Service / Reliability* *Simplicity* <u>Underlying</u>: *Need / pleasure* *Function / fun* *Time* *Emotion*	
Value Practices: Individual / Physical	*Exploring* *Comparing* *Filtering/Closing*		*Waiting* (weak value) *Buying* /*Using* (strong value) <u>*Problem solving*</u>: *Seeking alternatives* *Closing* (strong loss of value) *Do nothing* (weak loss of value)
Value Practices: Social	*Observing* *Inquiring* *Recommending*	*Recommending* *Comparing*	
Value Practices: Telco (also Social)	Inducements	*Lock-in*	*Seeking telco assistance* (loss of value)

6.1 How do the grounded value concepts connect together?

In this section, I provide evidence for how the value concepts in the table above connect together to form a value model of innovation. The evidence for these connections comes from an analysis of the interview data, where I searched for data points which provided examples of the concepts connecting together. From the 2000 data points, around 600 connecting examples were coded. I coded connections at a high level rather than low level, so I considered all value practices as one, and all value meanings as one. Thus I only looked at connections between value meanings, value assessment, attitude, social network, innovator and consumer strategy, context and consumer action. If you look at the coding example in Appendix 10, the concepts are coded on the right hand side, and the connecting concepts are coded on the left hand side.

In two ways, I aggregated the connections analysis to build an overall model of value. In the first analysis I overlaid all the connections onto one diagram to determine the strength of connection between concepts. Looking at the final diagram, I characterised the connections as strong, medium or weak. In the second analysis, I counted the number of interviews in which each type of connection between concepts appeared and ranked the connections from most common to least common. I used three bands for the connections, and so classified the connections as high, medium or low frequency. Thus I built an integrated view of the value concepts, into a single model. While the model is complicated, the model can be analysed as several layers, which allows a simple start and then increasing levels of comprehensiveness, to the extent that satisfies the needs of the reader.

From the connections analysis, I draw out five hypotheses, and interpreted five major properties of value. I discuss the hypotheses next, with evidence from the interview transcripts for each of the major connections. The complete list of connections is provided in Appendix 6. The most important connecting hypotheses were not always the most strongly supported by the connections analysis, as shown in Table 8.

Table 8: Evidence and Importance of Hypotheses from the Connections/Coding Analysis

Important Value Hypotheses from Connections/Coding Analysis	**Strongest Evidence from Connections/Coding Analysis**
H1 (Hypothesis 1): Value closely links to consumer action. Consumers adopt new technology as they assess value (Value Assessment Practices ↔ Action: 10/18 consumers; Value meanings ↔ Action: 9/18 consumers) **Property of Value**: Value is action-oriented.	**H1a**: Losing value more closely links to action (problem solving) than gaining value. (Loss of Value ↔ Action: 15/18 consumers) **Property of Value**: Value is action-oriented.
H2: Value has multiple, conflicting meanings. **Property of Value**: Value is complex.	
H3a: Attitude occurs at two levels; overall and by value meaning. **Property of Value**: Value is complex (multi-	**H3**: Consumers express value experiences as *attitude*. (I.strategy ↔ Value Assessment Practices ↔ Attitude: 16/18 consumers)

Important Value Hypotheses from Connections/Coding Analysis	Strongest Evidence from Connections/Coding Analysis
dimensional) and simple (able to be expressed as a single overall attitude).	**Property of Value**: Value is dynamic and contextual.
H4: *Simplicity* and *Closing* are two important value concepts.	
H5: Value is more closely linked to emotion (*attitude*) rather than goals. (Attitude ↔ Action: 8/18 consumers, but Attitude coded in 15/18 consumers) **Property of Value**: Value is emotional.	
Property of Value: Value is cyclical and shifts in response to new information.	**Property of Value**: Value is social. (Social value practices ↔ Value Assessment: 17/18 consumers)

I made several attempts to connect the value concepts into a model. The first model below (Figure 1) I presented at the DRUID Conference (2009). The first model shows a more stylised simplified model of value with interlocking cycles. In the second model, there is a strong connection from the Innovator Strategy to Value meanings and then to attitude. There are weaker connections from Attitude, Value assessment practices, social network to consumer action. The weakest connections to value are with Consumer Strategy, and Context which were dropped from the thesis discussion. Reviewers at the DRUID conference found this model too complicated.

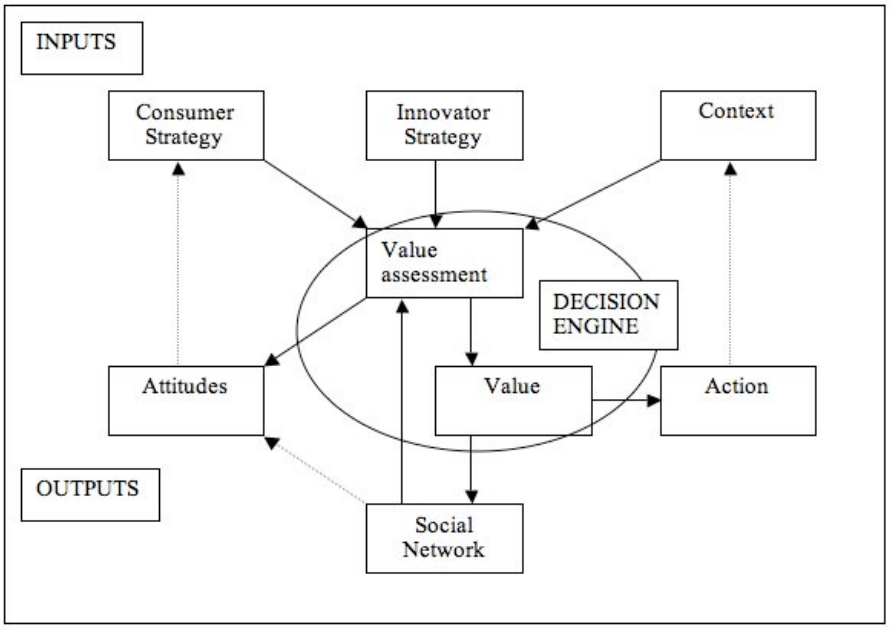

Figure 1: 2009 DRUID Value Model, Copenhagen.

In response to the peer review of Figure 1, I aimed to produce a simple model of value which I present in Figure 2. Figure 2 opens *the black box of value*, identifying conceptual components of value and their relations. The black box of value lies within innovation, but at the core of value lies another unopened black box; emotion (see Section 8.3 Further work). The model emphasises the emotional aspect of value, and the value aspect of innovation. The arrows between

the concepts are indicative and not causal, since the empirical evidence (Figure 3) shows the concepts are densely connected. The model shows how consumers value a new technology, grounded in the experience of 3G mobile phone consumers. This model is an aggregate of consumers' experiences (see Appendices 3, 5 and 7 for individual consumer experiences). Value meanings and value practices (Table 7) combine to give rise to the process (and hence dynamics) of value. The dynamics of the value model in Figure 2 involve five processes:

(1) Consumers use value meanings to assess if new value information about a value target is something of value (Value Meaning ↔ Emotion/Attitude).

(2) Consumers use value practices to acquire or block new value information (Value Assessment Practices ↔ Emotion/Attitude).

(3) Consumers assess value information against value meanings to make a value assessment (Emotion/Attitude).

(4) A consumer has an emotional response within their value assessment and if strong enough this response shifts a consumer's overall attitude to a value target (Emotion / Attitude ↔ Adoption Action).

(5) Strong positive or negative responses to new technology connect to social practices, such as *recommending*, and can influence their peers who are yet to purchase (Social context/Adoption Action ↔ Social Value Practices).

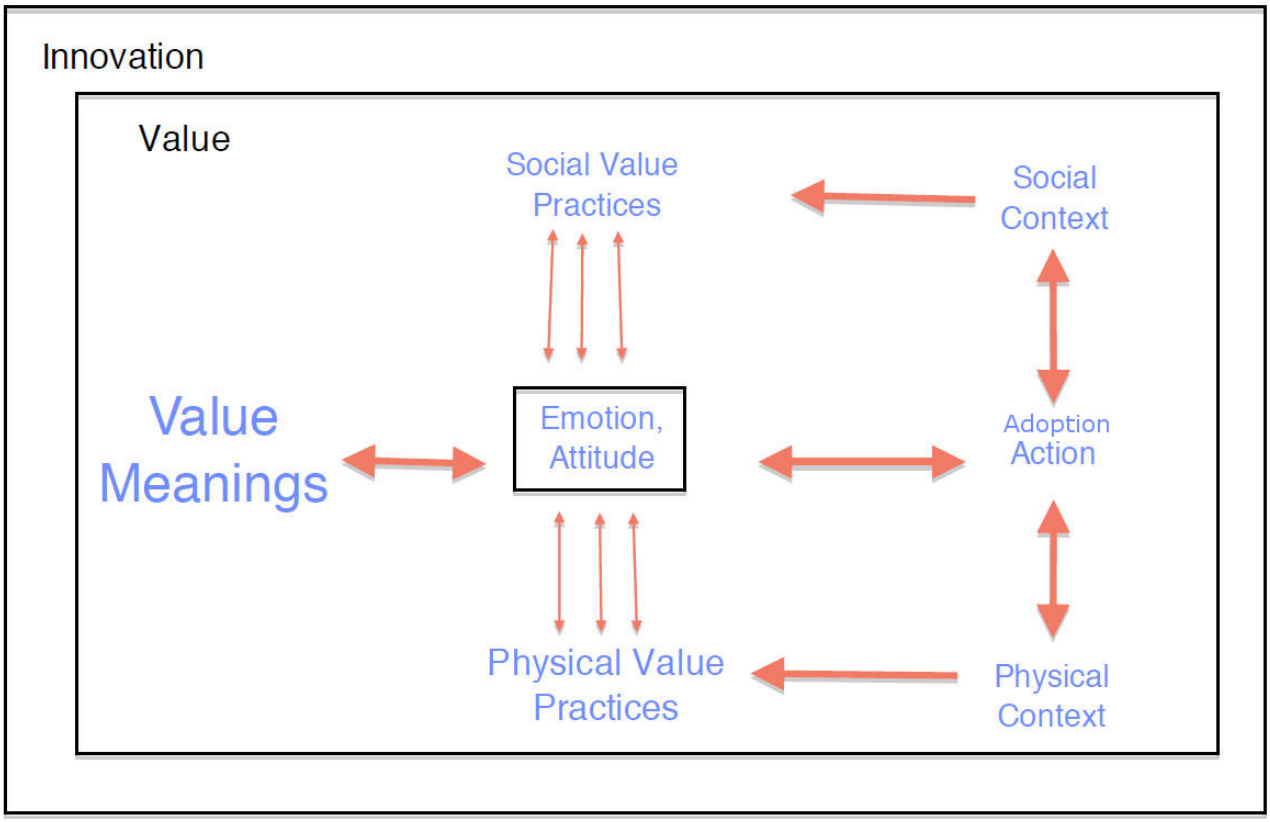

Figure 2: A simple model of the value theory of innovation in 3G mobile phones.

What I disliked about the Figures 1 and 2 was that each of the value concepts numbered are given equal weight by being equal size. This is not representative of the interview data. In fact, value meanings made up about half of the consumer data points, value assessment practices 11%, and the remaining six concepts between 4-6% of the data each (see Table 3, Chapter 2). Thus value meanings and practices account for the bulk of the data, while the remaining concepts together explain one third of the data. So I redrew the second concept diagram to also show weight of evidence, including strength of connections. The third model (Figure 3) shows the many relations between the value concepts, found in the connections analysis (Appendix 6).

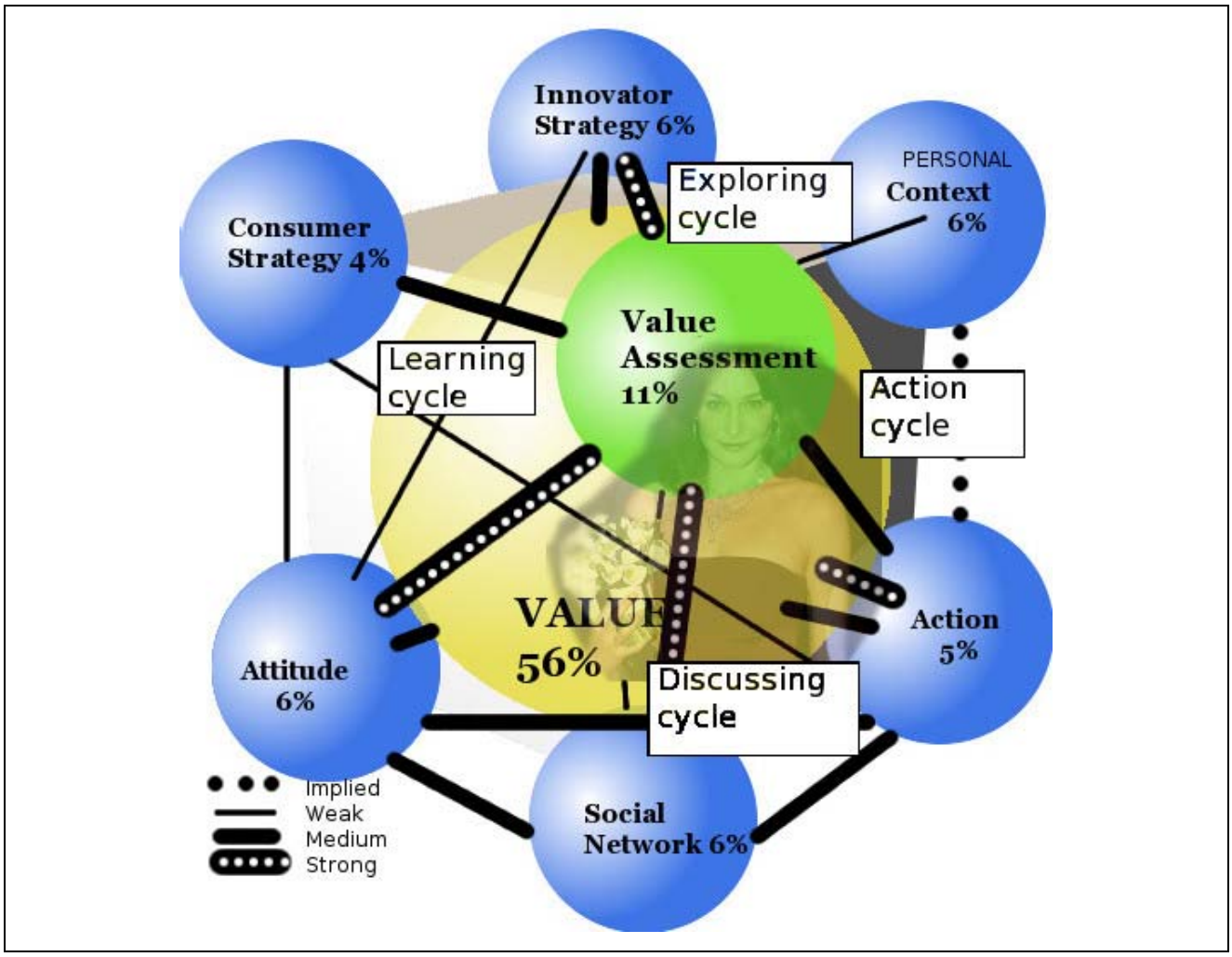

Figure 3: Connections analysis of grounded value concepts.

NB: Concepts are related to frequency in 3G consumer dataset, exhaustively coded. Size relative to frequency of concept and connections in interview data coding. See further in Appendices 1 and 6. Value (56%) refers to the number of data points where consumers main focus is value meanings.

Property of Value: Value is cyclical, dynamic and restless. Besides the many inter-relations between the value concepts, what emerged from considering how the value concepts connected (Figure 3) together was the potential cyclical nature of value. Value shifts with new information, and that shift influences consumers' action, consumers' social network, and consumers themselves

as they experience the outcomes of their actions. This cyclical property is derived from analysing the connections rather than particular data points. Reflecting on Figure 3, the connections suggested new information processed into attitudes, actions and social interaction, which gave rise to new information, starting the cycle again. Only when there was no new information did the process of valuing rest. I gave characteristic names to the activity of the cycles; learning, exploring, discussing and action. I present further analysis of my evolving analysis in Appendix 14, and discuss this further in Section 6.2. This property is an early indication of the nature of value, and requires more careful empirical evidence.

Peer review of Figure 2 (during the thesis examination process) suggested that I had oversimplified the value process, and thereby lost some important detail (see Appendix 14). Therefore, I make available a more detailed and comprehensive view of the value model, presented in Figure 4. The hypotheses (H1, H1a, H3) are visible in Figure 4 between high level value concepts. This model shows all the value concepts presented in Chapters 3, 4, 5 and the Hypotheses found in the connections analysis. This model shows the many parts and relations of value, and emphasises the centrality of attitude and emotion, and the cyclical hypothesised nature of value. The figure uses the structure of Chapters 3, 4, 5 to organise the diagram into pre- and post-purchase actions, and three value conversations; social, telco and individual. The arrows between the concepts are indicative and not causal, since the empirical evidence in Figure 3 shows the concepts are densely connected. Thus Figure 4 is a little more stylised than Figure 3, similar to Figure 1. The steps to develop Figure 4 are worked through in Appendix 14.

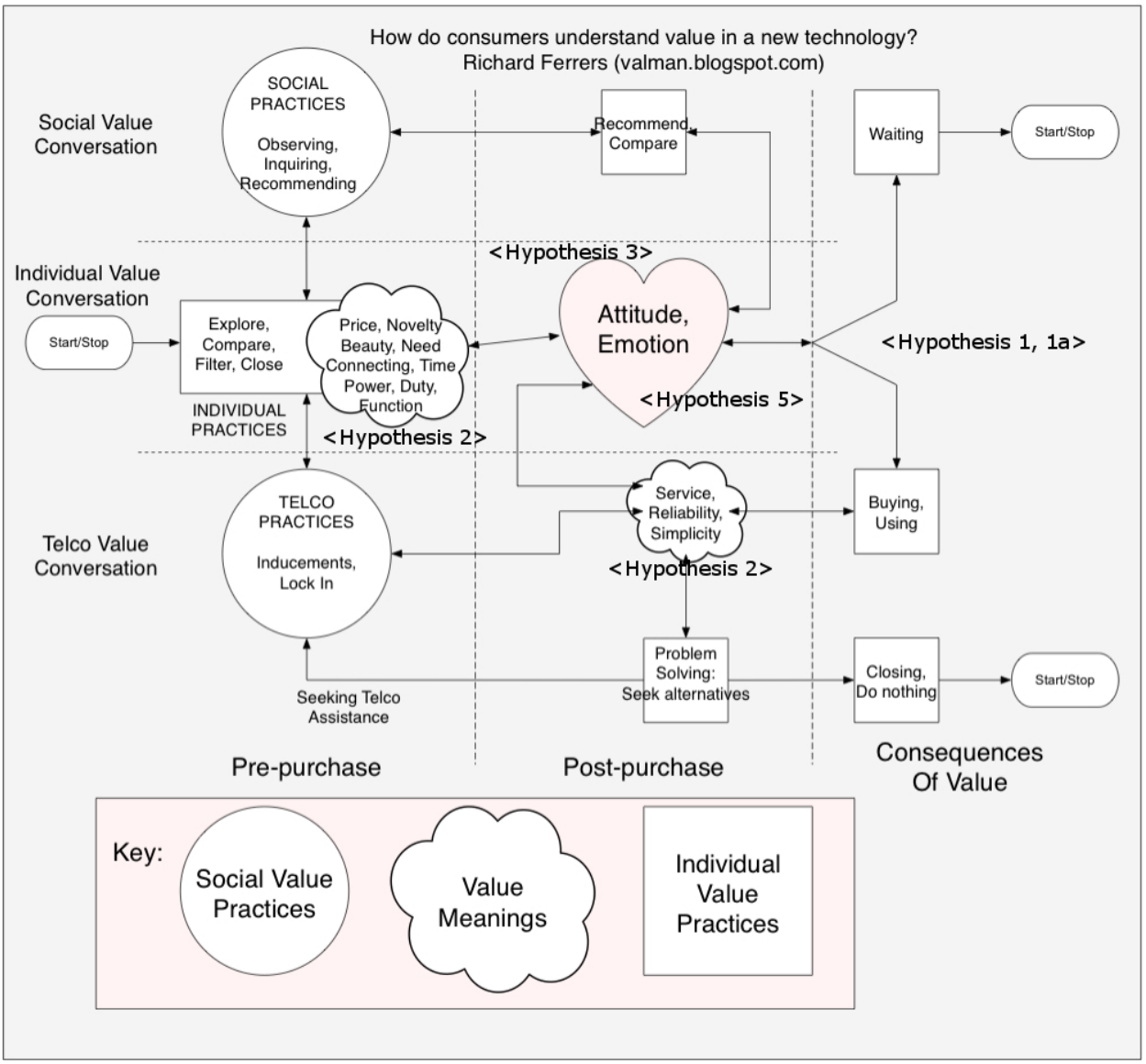

Figure 4: A comprehensive model of the value process, including value meanings and practices.

I now turn to consider the data from the connections analysis to support the five value hypotheses.

Hypothesis 1. Value is closely linked to consumer actions with new technology.

In this hypothesis, I examine the link between value and action. The first examples show value meanings linking to consumer action.

> MIC020: *In the beginning [3G telco] was offering ringtones for free… now they stop… I think a year ago. Now you have to pay… [special deal?] yes [ended?] yes. I used that [a lot]. Yes.* MIC020, 30yo female postgrad student, Colombian

> V012*: I've gots lots of photos of my family in Perth and New Zealand on my phone…. Like unstoppable [highly valuable] files. I like my music so I take it with me everywhere I go. So I download all my music onto my phone which stores up a lot of memory…*
> V012, 18yo female, working.

> MIC014: *[keep phone after contract expires?] yes because free calls to my girlfriend who uses 3G. yes because of my girlfriend I can call her anytime within ten minutes without charge, yes we all use 3G yes…* MIC014, 25yo male, Chinese, postgrad student.

V004: *[what does your phone mean to you?] I would say technological freedom. I don't have to be anywhere particular… I can actually with my Bluetooth um in the car… suddenly go right I have to send a text… or um I can quickly send an email… because I have got all these options… I am less tied to my desk* V004, 30s, mobile worker, female.

MIC005: *plus you have got on-net calling (3G to 3G) is free so you are getting a user group on [3G] and make on net calls and it doesn't cost anything…*
MIC005, male early adopter, telecoms analyst.

These statements are examples of value meanings connecting to consumer action. Action can be making 3G calls, particularly free calls offered by a 3G telco to friends (MIC005), or partners (MIC014), making 3G enabled data use like emailing (V004) or carrying around personal digital memories of family and music (V012). MIC020's action is also indicated when something is free, then reversed to inaction, when the special 'free' deal expires. The value meanings are indicated through use, particularly high use (MIC020), through emotional connection to family connections like photos and music, which V012 calls "unstoppable". I interpret unstoppable to mean particularly important, useful and valuable. The emotion also reveals value as something important and useful: "it doesn't cost anything" (MIC005), "I can call her anytime" (MI014). V004 describes her 3G phone use as "quickly", "suddenly", "options", "freedom", and explains her value of using a 3G phone to work at her convenience, while out and about. V012 emotion about her family photos, and her music is evident "I like my music and take it with me wherever I go". While "liking" is weakly positive the action to "take [the music] wherever I go" indicates a strength of feeling that she reflects in continuous ongoing action. Consumer actions arise out of perceived value.

Value practices are also linked to consumer action. Some examples of consumer experiences I coded as connecting value practices and action are:

MIC010: *buy after a long process of collecting information…*
MIC010, 30s Italian male PhD student, teacher.

MIC019: *plan [meant] not have to pay outright, enabled really cheap calls… all these things came together, this is the time… I went down to the shop in the mall… I looked at alternate phones… so I just went, signed up and bought it…* MIC019, 37yo male, researcher, father with children.

V010h: *[cool phone] that was my focus… we were going to get this plan and get this cool phone too… that was why we chose [3G telco] because it was both… well I think that is why we chose [3G telco] because they had a good price and phone combination.*
V010h, husband 30s school teacher, father.

V017: *well I must admit I got sucked into my new one [3G mobile] because when I went to change my plan [shop staff] went 'you can upgrade your phone'… I've got sucked in the feature of the more music sounding [ring] tone… like it [ringtone] just sounds beautiful.*
V017, 32yo female, $40,000 income.

Value meanings and value practices link to consumer action. MIC010 above indicates

extended *exploring* ("long process of collecting information"), whereas for V017 action comes first, going to a 3G telco store for one reason, and then being offered new value information (an upgrade on her phone with "more music sounding [ring] tone") which she finds valuable ("just sounds beautiful"). V010h emphasises the aggregating of value information, the right plan and the right phone, while MIC019 goes even further and lists off types of value offered ("not have to pay outright", "cheap calls") and *comparing* activity ("looked at alternate phones") which finally culminated in action ("so I just went, signed up and bought it"). These examples show value meanings and value practices closely connected to each other, and to consumer action.

I argue value links to the consumer actions: *buying* and *waiting*. Consumers' *problem solving* actions protect their existing value, while value *reconfiguring* (*buying, exploring, comparing*; see Chapter 5) seeks new value, such as exchanging one asset (cash) for another asset (the value target). While the consumer value literature suggests consumers purchase to satisfy goals (means-end analysis; Zeithaml 1988, Woodruff 1997), the 3G consumer dataset reveals additional constructions of value and how they influence the consumer's response to innovation. Past researchers have defined value by examining consumer goals, though recent analysis finds less support empirically for goals (Kim, Gupta and Koh 2011). In this thesis however, goals did not appear as a grounded theory coding that could account for the bulk of consumers' experiences. I did code activity I describe as *consumer strategies* (see Appendix 1, about 4% of consumer data compared to about 65% for value meanings and practices). Examples of this concept in the data were behaviours such as looking for a cheaper plan, which could be interpreted as a goal. However, this type of goal I interpret from the data to describe a value-seeking activity, so contributes to the first hypothesis. Consumers seek and protect value. When describing their technology purchasing experience, consumers express their *emotional* response to value rather than talk about goals they might have.

Value is closely linked to consumer innovation adoption. Hypothesis 1 suggests a need to reinterpret existing innovation diffusion theory. Bass (1969) suggests 3 per cent of the population are innovators who will try anything new, while around 30 per cent follow the leader as imitators (Meade and Islam 2006). Rogers (2003) suggests income, high social connectedness, higher social status, higher empathy and greater rationality (and so on for 26 generalisations) are the predictors for early adoption. I argue on the basis of Hypothesis 1, consumers adopt as they see and assess value in their individual situation.

Hypothesis 1a. Losing value is more closely linked to action (*problem solving*) than gaining value.

In this hypothesis I examine the link between loss of value and action.

V014: *I got to the stage where I was almost not using the phone to keep bills down [found*

2G phone before] very expensive… well I was trying not to talk on it…. I was trying to send SMS's all the time… V014, male 50s Professional, artist.

V016: *in the middle of a conversation the signal can just fall over…. Then I have to call again the person I'm speaking [to]…. Just a beautiful thing…*
V016, 39yo male, inner city Melbourne, $50,000 per annum.

V017: *one thing that really annoys me about this [3G] phone is that in the texting thing it seems like… you can't use apostrophes [really?] yes and it really shits me. I spoke to them [helpdesk] and they were like it is only in the predictive text does it have a function whereby you can put one in…* V017, 32yo female, $40,000 income.

V015: *[2G] phone out of contract… giving [my wife] problems…. She made up her mind that she wanted to update it…* V015, 78yo male, retired, widowed.

The above examples were coded as the connection between loss of value, and the consumer moving into action. An analysis of the types of situations that arose revealed the most common loss of value problem was a loss of phone or network function. All of the above examples show loss of function (loss of network reception V016, no punctuation V017, general problems V016), except V014 whose problem is with high price in the form of high monthly bills. How consumers react to the problems also varies, in the type of action they respond with. The most common response to a problem is to seek the innovator's assistance, as V017 does above by ringing her phone company's helpdesk. The next most common action response was to terminate a current service and seek an alternative service, which is what V015's wife does when she has problems with her phone. The other major type of action is shown by the examples of V016 and V014. In these cases, the consumers cope with the problem on their own, sometimes by choosing not to use the phone. V016 just calls back when their phone reception fails during a call. V014, when faced with a high phone bill does something to reduce his bill. V014 uses his phone less for calls, and uses SMS to replace calls, to try to reduce his phone bill. Thus consumers found several problems, affecting types of value (*function*, *price*, *reliability*), and responded with several types of action (seeking innovator assistance, terminate service seek alternatives, or solve by themselves, including not using their phone).

Nearly all consumers (15 out of 18, see Appendix 3; loss of value ↔ action) report action when their value was threatened or suddenly reduced. When a consumer's phone broke, or they experienced bad service, or received an unexpected high bill, I characterise these occurrences as a loss of value. Yet when new value is offered (Hypothesis 1), consumers generally slowly accumulated positive value information and attitudes before *buying*. Consumers can move quickly into action when *problem solving*. If *buying* was a key action outcome of value, consumers were most commonly driven into action, not to gain the benefit of 3G value, but to remedy a problem. Problems are more immediate and emotionally charged, linking consumers to action more easily than the promise of a future benefit.

Property of Value: Value is action-oriented. Adoption action is an important consequence (Chapter 5) and activity of valuing. Adoption action includes *buying*, *using*, *problem solving* and *waiting*. The split in outcome between *buying* and *waiting* shows a preference consistent with positive or negative value assessments. A comprehensive value model (Figure 4, Appendix 14) shows consumer action closely associated with *buying* or *waiting*; expressing a consumer preference.

Implication for 3G telcos: Consumers seek to remedy loss of value. Targetting consumers who are experiencing problems, for instance broken phones, are more open to try new products. Consumers continue to experience and share assessments of value after purchase, so if innovators hide aspects of value, such as price and network reliability, before purchase, that approach will be counter-productive to building high quality consumer relationships. Clarity and disclosure of problems with a new technology, while making good consumer assistance and ongoing information available will help maintain consumer relationships. For instance, when Apple's phone aerials had a defect, Apple provided compensation, solutions and advice to consumers in a manner consistent with putting consumer value before profits. In contrast, a 3G telco, charges $0.50 per Mb excess data use fee on its new iPhone 5 $30 and $35 per month plan which includes 200Mb data. The $30 monthly fee would be exceeded by the excess use fee if 30% more data than expected was used (Optus 2012).

Implication for Innovation Policy makers: A value emphasis means thinking beyond GDP in measuring consumer outcomes, and national well-being. Taking a broad view of value, and allowing for various changing interpretations of what value is, means policy makers should engage in an ongoing conversation with consumers to discover their value. To encourage consumer action, policy makers can couch their arguments in a way that shows the impact of policy on consumer value. If the impact on consumer value is negative, then consumers are likely to act strongly and swiftly. If the impact on consumer value is positive, then consumers are less likely to act, until they weigh the effort to act against the benefit of acting.

Hypothesis 2. Value has multiple and conflicting meanings.

In this hypothesis, I emphasise the multi-dimensional nature of value.

MIC022: *really good deal… very easy to access... it's a fine phone… very economical… [service] excellent… couldn't complain at all… network is good… it's really really good.. it's really good value… [do you use data services?] I am time poor…*
MIC022, 47yo single mother, $60,000 income.

MIC014: *[phone] good but for example in a [university] building sometimes [3G phone] cannot make a call so that is a disadvantage… [3G telco] my girlfriend want to cancel [entertainment] package… she call customer service... she call three times three times and then cancel it three times… she forgot the password so we cancel three times.. she was unhappy about this… about the delay.* MIC014, 25yo male, Chinese, postgrad student.

MIC019: *on average [3G telco] are by far the cheapest… I found the Motorola A1000. It*

was a good combination of capabilities. It was the right size , not too big, not too heavy, it was truly a convergent device… plan enable really cheap calls… I can check my uni email.. extra to access internet outside of 3G content of [3G telco] at $0.04 per kb… ok for text.. with emails I just download the headers to see the topic… check if need to read before downloading… mostly 99% I don't read the email… MIC019, 37yo male, researcher, father with children.

MIC021: *I like the LG phone, the one I got.. [3G telco] gave the free LG handset, you don't have to pay for the handset… you just have to pay monthly $33… because most other people say [3G telco] is very good… but afterwards I bought this phone I didn't like it… because there is no network at all… and always I will get heaps of voice messages… so I'm using the [2G phone] as well, so I am always using the [2G] phone because anywhere I go I don't have to worry about [3G reception]… minimum [monthly bill] is like $200 for me…[plan ends] mmm I'm going to disconnect it… [3G telco] is just making people crap you know… saying like [3G] is very nice… you don't have to pay anything…. Ha ha ha there is no value for me…I'm too scared to use [3G data services] [3G telco] will charge [say services is free then] charge for that one too…*
MIC021, 20yo female Indian postgrad student.

These example quotes show consumers aggregating many mostly positive value assessments about their 3G phones. Value is, for example, about *function*, *price*, *service* and *services*, *time*, and *weight*. In each quote, the largely positive messages are offset by a negative value assessment. So MIC022 doesn't use data services because she doesn't understand them and is "time poor" so doesn't have the time to figure them out. MIC014 finds the phone good, but the network service is weak inside buildings where reception is unreliable, and customer service was slow to make a change he wanted made. MIC019 is very happy with the 3G phone functions but finds the price expensive ($0.04 per kb, $40,000 per GB), so acts to limit his financial liability by only reading the title of his emails. Consumers had a mix of positive and negative value experiences, which varied before and after their 3G phone purchase. Generally positive experiences led consumers to purchase a 3G phone at attractive call rates, and sometimes negative 2G phone experiences (such as rising or unexpected high bills V002, V014) pushed consumers towards a new 3G experience. Some consumers, such as MIC021, have had not nearly such a positive overall experience. Reliability of 3G networks, MIC021 found after purchase was of such concern to her that she needed to have a second 2G phone as backup. Not only was reception poor, but MIC021 suffered large ongoing bills. Nevertheless, MIC021 has some positive experience, such as "I like this LG phone". MIC021, along with the other consumers more positive overall experience, has multiple conflicting value meanings.

Multiple value meanings (see Table 7) were demonstrated in the 3G consumer dataset. Value meanings vary by consumer, by value target and with new value information. This hypothesis is consistent with the 'value is complex' property and emphasises the central nature of multiple meanings to understanding value. Complex, in this situation, arises when consumers assess multiple dimensions (multiple value meanings), compare them against each other, to come to an

overall result and action. The complexity arises when value meanings have to be compared and traded off against each other. For instance, a consumer could be faced with choosing between two 3G phones; an iPhone and a Samsung Galaxy SII, with many differences between them (speed, size, weight, material, software, camera resolution, brand). Multiple value meanings explain the challenges scholars, innovators and marketers have encountered in the past when defining and categorising consumer value.

Valuing can be simple or complex when dealing with multiple value meanings. Simple valuing, where one thing is better than another in all aspects, is obvious and rational. Complex valuing requires a value judgement to compare incommensurable value meanings (see Section 4.2.2). Emotion simplifies complex valuing to a single overall attitude (see Hypothesis 3A). Complex valuing can lead to paradoxes (see Mick and Fournier 1998) or ambivalence, such as a positive attitude on one value meaning and a negative attitude on another value meaning. For instance, two consumers described their 3G mobile phone as a "necessary evil". These consumers hold both positive and negative attitudes to their phone. Yet their act of having and keeping a 3G phone suggests that overall the benefits outweigh the costs. These consumers have constructed an overall attitude, slightly positive, but built from multiple value meanings. Overall attitude can be either positive or negative, depending on the weight of evidence and the consumer's emotional value assessment, irrespective of attitudes to particular value meanings.

Multiple value meanings are implied in the innovation literature. Christensen's (1997) theory of disruptive technology can be explained as multiple value meanings. A disruptive technology is disruptive because a new and emerging value meaning attracts a new audience, for whom the disruptive meaning is important. While Christensen uses the word 'performance' to describe a technology trajectory over time, he can be interpreted as talking about competing with new value meanings. For instance, in his disk drive case study, small size disk drives emerged as a disruptive and alternate value meaning. In this thesis, I extend and reinterpret Christensen's disruptive technology theory as a kind of value theory.

Value innovation (Kim and Mauborgne 2005) supports a multi-dimensional view of value. Kim and Mauborgne (2005) similarly imply the multiple meanings of value in their strategy canvas tool that analyses the relative strategies of two competitors. What separates competitors (in a strategy canvas analysis) is the relative emphasis firms place on different meanings of value. For instance, Mercedes has a high quality, high price strategy, while Toyota has a lower quality, lower price strategy. Tesla, the electric car maker, creates a new value meaning by adding clean energy to the strategy canvas. New value meanings create the uncontested market space of Kim and Mauborgne's (2005) value innovation. Kim and Mauborgne emphasise this meaning-creating process as part of the Four Actions Framework, and the eliminate-reduce-raise-create (p.35) tool.

Their fourth create aspect focuses on "which factors [of value] should be created that the industry has never offered" (p.29). The 'create' aspect means finding new value meanings of worth to consumers that no competitor has yet offered. Together, all four actions create and enhance value and eliminate or reduce expenses that create no value, improving overall value for consumers.

While multiple conflicting value meanings are not new, and are implied in the innovation literature, I consider Hypothesis 2 a contribution of this thesis, since it places contesting value meanings at the centre of value analysis. The concept of multiple value meanings is a necessary building block upon which Hypothesis 5, linking emotion to value, rests.

Property of Value: Value is complex. I use complex in the sense of consumers processing multiple dimensions of input, with no equivalent scale on each of the dimensions, making aggregating more difficult than adding up a score on each dimension. The value model (Figure 4) emphasises consumer meaning, derived from analysing consumer experiences (Vargo and Lusch 2008). Value has been described as a tradeoff (Flint 2006), such as quality compared to price (Zeithaml 1988, Dollinger 1995, Flint 2006). The tradeoff recognises the tension between contesting value meanings with no equivalent scale to make the meanings easily comparable. Not only are these meanings difficult to compare, but several typologies of value are found in the consumer value literature (See Chapter 7; Lai 1995, Woodruff 1997, Richins 1994, Holbrook 1996) that have not a few, but a multitude of value meanings. Value contains paradoxes (Mick and Fournier 1998), consistent with multiple competing and contesting value meanings. The many meanings of value and the contesting between meanings (and associated *attitudes*) make value complex. Emotion, I argue, simplifies the complexity of multiple value meanings to a single overall attitude (Hypothesis 3a, 5).

Value is complex because value has multiple contesting meanings (see Appendix 7 showing value meanings by consumer). These meanings compete with each other for supremacy as consumers construct value. Thus, consumers can be torn between *pleasure* and *duty*, *beauty* and *price*, *function* and *service*, *community* and *need*, *time* and *novelty*. Value is also complex because new types and instances of value occur. New meanings of value can emerge over time, for instance recent interest in clean energy. Consumers also experience new instances of value from their particular context (see Appendix 2 linking 3G value instances with value meanings), such as a new app on their 3G iPhone. In this way, what consumers can value is limitless.

Implication for 3G telcos: Consumers' views of value moves over time. Telcos need to engage with consumers to discover and monitor what value is important to them. This process I call the 'value conversation' and it is an example of 'value management'. Innovations can add new important value meanings for the benefit of 3G mobile consumers, such as new functions from 3G like a Skype app or a "cool sounding ringtone", or new materials like aluminium or glass.

Innovations can come from listening to consumers ('value management') or from advising consumers what they don't yet know they need ('value leadership'; see Section 8.5.3)

Implication for Innovation Policy makers: Consumers manage and make decisions while balancing many competing needs. Consumers' needs change over time, through local social connections, and through wider social influences. Policy needs to respond to changes in what consumers value over time, through engaging with consumers in the 'value conversation'.

Hypothesis 3. Consumers express value experiences as *attitude*.

In this hypothesis I emphasise the relationship between value and attitude.

V014: *[now] very happy [with 3G]… you know I've been amazed at how reliable [3G telco] are… you know I sound like I am on an ad but it's true…I'm not really interested in [other 3G services]… to me it's very much a necessary evil to have a mobile phone… so I was dubious but I was talked into [3G by my wife]… I've had a few mobiles… I was with [big telco] [wife] was with [other big telco]… and both were total crap…*
V014, male 50s Professional, artist.

MIC018: *one of the best deals of the time… very affordable… [3G telco] services are not that good but the value is not that bad… customer service is not that bad… problems with [coverage]… I love my voicemail… I try to depend on [3G mobile] as less as possible…a lot of their [3G] phones got software problems… just annoying…* MIC018, 20yo male student.

V015: *texting just shits me… I could live without [3G mobile] …quite easily but I am not allowed to… find [phone, duty to carry] a bloody nuisance… see right almost all of [3G mobiles] have got all this shit on them now [functions]… I will go to [3G telco] and ask them is there anything more they can take off that machine [3G mobile]… [3G telco] quite reasonable with the charges… [bill] doesn't worry me… it is the bloody [3G] phone that annoys me…* V015, 78yo male, retired, widowed.

V012: *oh I think [data packs] they are very very good …* V012, 18yo female, working.

The three consumers above demonstrate variation, positive and negative, strong and weak in their *attitudes* to many aspects of their 3G mobile phones. These examples are just a few of the many similar expressions that every consumer used to describe their experience. I characterise their attitudes particularly in terms of the emotional responses they have to their experiences. The intensity of emotion is apparent to me when they say "amazed", "not interested", "necessary evil", "total crap", "dubious" (V014), "best", "very affordable", "not that good", "not that bad", "love", "problems", "annoying" (MIC018), "just shits me", "easily", "nuisance", "take off", "quite reasonable", "bloody phone", "annoys me" (V015).

When I say *attitude*, I am referring to my grounded theory coding description of a frequently occurring concept in my 3G consumer dataset, but it is also a marketing term associated with consumer behaviour. In Section 6.1.1, below I compare my code *attitude*, and the use of attitude (and emotion) in the consumer behaviour literature. While the marketing term attitude, has an emotional and cognitive element, it was the emotional element that stood out in my data.

Several properties connected to *attitude* appear in my analysis. Attitudes attach to value

targets. So MIC018 says "I love my voicemail" and "[3G] phones got software problems". "Problems and "love" are evidence of attitude and the value targets are voicemail and software. Attitude is the enduring emotional response to value experiences (see Section 4.1.2). Examples of consumer attitudes found in the 3G mobile phone dataset include: "[my phone is] brilliant", "fabulous", "I love [my voicemail function]", "amazed", "fantastic"; "happy", "better", "[3G phone] good [value as a PDA]", "prefer"; "problems", "don't want", "annoy", "dislike"; "total crap", "pissed off", "[texting function just] shits me", "[I was] totally unsatisfied [with the telco]". *Attitude* is positive ("love", "happy". "prefer") or negative ("annoy", "dislike", "pissed off"), strong ("fantastic", "pissed off") or weak ("dislike", "prefer"). *Attitudes* attach to a value target at one of two levels: overall and by value meaning. Attitudes are enduring *emotional* expressions of value. I discuss further below (Section 6.1.1) the connection between value, emotion and attitude. These attitudes are distinguished from emotions since they are directed at 3G mobile phones (or related value targets) or value meanings for aspects of those phones.

Attitude is found in Rogers (2003) innovation decision process as part of the persuasion phase. Connected with emotion, Rogers sees persuasion as a feeling stage after the first knowledge gathering and thinking stage. Attitude does not play a part in other major innovation diffusion theories, such as Bass (1969), Ryan and Gross (1943), Christensen (1997) or Kim and Mauborgne (2005). In this thesis, I connect attitude with value creation (positive attitude) or value destruction (negative attitude). Attitude is an important indicator of value and innovation beyond tangible indicators like sales. (See further discussion in Section 7.4 Innovation Measurement.)

Hypothesis 3a. Consumers express attitude at two value levels; as relating to multiple specific value meanings and as a single overall attitude summarising value generally.

In this hypothesis I examine a property of *attitude*, namely that it occurs at two levels.

MIC022: *really good deal… very easy to access…I think it's really good value…*
MIC022, 47yo single mother, $60,000 income.

MIC014: *Last month I pay $30 for my phone… um I think it is ok… this [value] is fine…*
MIC014, 25yo male, Chinese, postgrad student

MIC019: *so I'm quite happy with the whole sort of thing… on the whole good…*
MIC019, 37yo male, researcher, father with children.

MIC021: *[Interviewer: describe the value] ha ha ha there is no value for me…*
MIC021, 20yo female Indian postgrad student.

MIC010: *latest technology is not really good… I'm going to tell all my friends I'm unsatisfied…*MIC010 30s Italian male PhD student, teacher.

V006: *I can't complain [about value] but I think next time I might pay a bit extra and get a*

better phone… V006, 46yo male Greek, inner city Melbourne, father.

Attitudes connect to value targets at two levels; as multiple attitudes relating to specific value meanings and a single overall attitude. The consumers in the examples above, give overall impressions of their 3G mobile phone and service. I coded these examples as an overall *attitude*, not linked to a specific product, service, feature which most attitudes do. Several different forms of language indicate an overall *attitude*, such as "on the whole" (MIC019), "there is no value" (MI021) without limiting the statement to a value target, "this is fine" (MIC014) and "I think it's really good value" (MIC022) using a pronoun to keep the value target vague.

Examples of specific *attitudes* are shown in Hypothesis 3, such as "I love my voicemail", "[data packs] they are very very good", and "it's the bloody phone which annoys me". Specific attitudes link an attitude to a specific value target, in these examples, voicemail, data packs and the 3G phone. I found consumers express specific and general overall impressions (*attitudes*) which may not necessarily coincide.

Attitudes attach to value targets after a value assessment, at two levels: either overall or by value meanings. For instance, consumers say "[I am] happy with the package as a whole" indicating an overall attitude. A consumer may also say "the price is very good for [my 3G mobile]", indicating a positive attitude towards a value meaning, *pricing*. Overall value is expressed as an overall attitude. Overall value aggregates competing and sometimes inconsistent *attitudes* at a value-meaning level. For instance, a consumer says "so I'm quite happy with the whole sort of thing", or "latest technology is not very good", or "I think it [3G mobile] is really good value", or "there is no value for me [in 3G mobile]". All these are examples of overall attitudes.

As I discussed in Section 4.1.2, overall <u>value endures</u> until affected by new information. I specifically sought examples of *attitudes* changing spontaneously. I examined my 3G and triangulating dataset to see if I could find evidence of such a spontaneous change. I could only find a single instance in the triangulating datasets, and no instances in the 200 overall attitudes I found in the 3G dataset. Yet attitudes changed with new information, or changes in circumstances, or social recommendations. I found many attitudes, both positive and negative. Interestingly, I generally found no strongly positive and strongly negative attitudes occurring at the same time for one consumer (except for two consumers calling their 3G phone a 'necessary evil'). I did find weak negative attitudes with strong positive attitudes, and weak positive attitudes with strong negative attitudes. I found overall attitudes generally consistent through a transcript.

My earlier innovation literature review discussed emotion and attitude in connection to innovation using Rogers (2003). Rogers uses attitude as a single indicative emotional construct in the persuasion stage of the innovation decision model. Wood and Moreau (2006) also connect emotion and innovation, but find only positive and negative emotion, rather than separate value

targets, indicated by two levels of attitude. Goss (2005) connects the emotional drive of entrepreneurs to the sociology literature of emotion, but emotion is seen as only positive or negative: shame or pride. Collins' (1999) work on emotional energy from interaction rituals, is important, particularly as a motivational and social construction driver in scholarly innovation. Interaction rituals are regular local group activities used to motivate group members when apart from each, through a shared emotional experience. Collins cites church attendance as an example. Brown (2008) also sees emotional payoffs in innovation at two levels: firstly, through design, and secondly by price and function. My approach places emotion and attitude at the centre of valuing, with attitude tracing shifts in value, both overall and by value meaning attached to value targets. The innovation literature recognises overall assessment of value, but only Brown (2008) sees the possibility for attitudes being linked to multiple value meanings.

Implication for 3G telcos: Measuring consumer attitude both over time and across current and prospective consumers is important. Attitude should be used in conjunction with Sales and Profit as a key performance indicator of value creation. Attitude can move inconsistently with other financial indicators. Price rises may increase sales and profits in the shorter term but damage longer term consumer relations with telcos. Consumer attitude changes can be immediately measured to better inform telcos of levels of consumer value.

Implication for Innovation Policy makers: To measure innovation in the economy, it is important to focus on rapidly growing businesses by sales, profit and attitude. Gains in all or any of these three indicators suggest innovation at work (excluding business purchases, or other capital injections) to be encouraged through policy. Innovation measures should measure attitude across industries, over time, and at corporate level. Attitude also allows measurement of performance (and innovation) at non-profit organisations, including Government, though less precisely when not counting revenue and profits.

Hypothesis 4. *Closing* is an important value practice and *simplicity* is an important value meaning.

In this hypothesis, I emphasise that while most value meanings are obvious and not new, two value concepts are unusual and important in their rarity in the literature.

Closing

MIC010: *not interested in data services…* MIC010 30s Italian male PhD student, teacher.

MIC018: *[use 3G data services?] no ignore internet emails [advertising services] [price?] no it's not the price. I have no demand for that [3G services]…* MIC018, 20yo male student.

MIC020: *I'm not a big sports fan…I'm not going to spend money to get up to date sports info…* MIC020, 30yo female postgrad student, Colombian.

V002: *not really interested in fancy cameras or video phones… it doesn't appeal to me…*

V002, 40yo female, mobile worker

V010h: *you could get on the internet but we don't ever use that service because again that was more money…we just weren't interested…* V010h, husband 30s school teacher, father.

These examples show consumers *closing*, that is choosing not to consider using 3G data services. Data services have risen in popularity with the more common use of smartphones, and the reduction of data costs (from $40,000 per GB in 2005, MIC005). The value practice I call *closing* is an important barrier for innovators to overcome. *Closing* keeps consumers away from what they see as irrelevant information and challenges innovators to be relevant and useful to consumers.

Simplicity

V004: *I think the whole packaging is just so confusing… it takes actually quite a lot of time to sit down and go through it all and see what is best for you… it's not clear.. they kind of leave it al to oh look you have got all this choice it is all up to you… you've got no idea the average person wouldn't have a clue… I think a lot of the time [contract] is smoke and mirrors … I don't think [3G telco] are very clear up front…*
V004, 30s, mobile worker, female.

V010w: *we got really frustrated because we procrastinated for a long time about what kind of [3G] phone we were going to get… it's just all those trying to work out all the plans and stuff really gave me a headache…* V010h: *yes that was the big difference because that was the whole thing we in America it was just so straightforward you know…*
V010w, wife, 30s female scientist, mother.

V017: *[2G phone] just had all the basics were there… [2G phone] was just very simple and straight forward… this [3G phone] is fancier but it is missing all those basics…*
V017, 32yo female, $40,000 income.

V002: *[plans] were all so confusing… I remember trying getting taking pamphlets home with me and trying to compare them.. and not it didn't help they were so tricky… I couldn't figure out which one was better value and which one would suit me the most…*
V002, 40yo female, mobile worker.

The above consumer experiences lament how complicated 3G mobile phone pricing is, and positively cast their simpler 2G phones (V017), or international experience (V010h, V010w), or try to compare plans to find what best suits their needs (V004, V002). The complicated offers presented to the consumer is a barrier to consumers experiencing value in their phone and their 3G service. Such a barrier, is a loss of value, potentially slowing adoption, and connected to negative value experiences for consumers. If such poor experiences are shared, this could slow adoption of the 3G technology.

While many of the value practices and value meanings are obvious and not new (such as *price*, *need* and *recommending*), collecting value practices and meanings together to explain the process and nature of value is significant and useful. Two value concepts stand out as novel, unusual and hence important (see Tables A2-2, A2-3 comparing value meanings and practices with innovation and consumer value literature in Appendix 2). Only *simplicity* of the value meanings did not appear in the consumer value literature. Only *closing* (and *waiting*) of the value practices did

not appear in the innovation literature. These concepts contradict the idea that more is always better, and suggest sometimes less is more. *Closing* suggests consumers actively block value information, reducing the quantity and distraction of value information received. *Simplicity* is something consumers value. Valuing simplicity suggests there is a cost and loss of value to adding more to a phone, such as adding new functions to a 3G phone. Together, the *simplicity* and *closing* value concepts articulate a 'less is more' counterpoint to adding function to add value. The design literature within innovation studies (see for instance Verganti 2009, Kelley 2001) similarly emphasises *simplicity* though not the equivalent value process, *closing.* The emotion literature (Damasio 1994, Picard 1997, Matthews and Wells 1994; see Hypothesis 5) suggests emotion is an active component of *closing* and *simplicity*.

In contrast to the importance I place on simplicity, it remains nascent in the management literature and presents opportunities for new research in a value-centric world. Miller (1993), and Lumpkin and Dess (1995) examine simplicity in the management literature. Interestingly, this work examines how firms' early successes limit their later approaches to strategy: a form of strategy-simplifying. These firms rely on their early successful strategy approach to continue to be successful in a changing environment. Needless to say consumers play no part in this literature. This simplicity literature also connects to paradox literature which looks at how firms manage multiple competing demands (Smith and Lewis 2011, Schreyögg and Sydow 2010, Schreyögg and Kliesch-Eberl 2007, Pina and Rego 2010) in the same way consumers balance multiple value meanings. A likely step forward in better understanding *simplicity* is to follow design literature that emphasises the value to consumers of simplicity in design. Thus there appears a gap to consider consumer need for *simplicity* in future management research.

Hypothesis 5: Value is more closely linked to emotion than goals.

In the value model, I emphasise the link between value and emotion. The consumer value literature, in contrast, suggests consumer goals drive consumer action (Flint, Woodruff and Gardial 2002, Woodruff 1997, Zeithaml 1988; see Section 7.7) and explain consumer behaviour.

> V012: *my phone is the world to me… because I am 18 I can't live without my phone… my phone is my life…it has got everything in it my family my friends my photos videos it has got everything meaningful messages numbers you need…* V012, 18yo female, working.
>
> MIC010: *so I'm not happy at all… because my whole family was in Italy. And they all text me all the time because it is cheaper…but my mum for two weeks she wasn't able to contact me. She was very worried. She thought I was dead…*
> MIC010 30s Italian male PhD student, teacher.
>
> V014: *it has surprised me how I have this new need to be contactable and in fact I feel insecure if I go out without my mobile phone…* V014, male 50s Professional, artist.
>
> V010w: *I think we were pretty excited when we got our new phone ha ha ha… we were real excited…* V010w, wife, 30s female scientist, mother.

> MIC021: *Afterward I bought this [3G] phone I didn't like it because there is no network at all, like when you are inside… [3G telco] just making people crap you know… Very nice you don't have to pay anything [up front] once you get into this then you know what the trouble is like… first thing is basic thing is network… network is shit… [improving?] I don't think so…* MIC021, 20yo female Indian postgrad student.

These consumers show the emotional side of their experiences. Many 3G consumer experiences are emotional, and that emotion is strong or weak, positive or negative, and closely connected to attitude, through which the emotion endures. By tracing consumer's attitudes through their transcript, I was able to see that their attitudes remained consistent over time, until affected by new information (see Section 4.1.2). I found attitude and emotion was strongly connected to value in my data, both before and after purchase. Negative emotions came about especially after purchase through discovering information not known at the time of purchase, such as poor network reception (MIC021), or inability to receive international SMS (MIC010). Emotion, I hypothesise, enables the many complex attitudes attached to specific products, services and experiences to be aggregated into an overall impression. I examine this hypothesis further against the emotion literature below.

Property of Value: Value is <u>emotional</u>. *Emotion* is a significant and central ingredient of the value model. Valuing, I argue, has an emotional residue that endures over time as attitude. *Attitude* coexists with pre-purchase and post-purchase value meanings. *Attitude* links to either *buying* (if strong value) or *waiting* (if only weak value), and if especially strong, social *recommending*. The centre of the value model is *attitude* and *emotion*. *Attitude* is an emotional expression of value.

Emotions link to value-related action at certain emotional thresholds. What this means is that shifts in value do not necessarily lead to consumer action (see Section 5.2.1 on *waiting*). Emotions, when not translated into action, are also remembered as attitudes. Value action occurs connected to consumers encountering new value information and as value assessments exceed emotional thresholds. The presence of excesses of emotion ("network is shit" MIC021, "my phone is the world to me" V012) associates closely with three types of action or value practice. Firstly, *buying* takes place connected with a strong positive attitude (and *waiting* after developing a weak attitude) to a value target. Secondly, post-purchase *recommending* takes place when there is strong positive or strong negative value. As a consumer senses loss of value after purchase, then thirdly *problem solving* action will occur. Problem solving activities I found include: *seeking alternatives, seeking telco assistance*, *closing* and *doing nothing*.

Valuing practices and their results are intangible. Consumer emotions work first internally, and when weak are felt but not necessarily disclosed to outsiders. For instance, *comparing* and *closing*, connected to weak attitudes, are not explicitly communicated. Emotion becomes visible action (the consequence of value) associated with and as emotional thresholds are exceeded or through an unexpected opportunity (such as *inquiring*, see Section 3.2.3). Valuing can be interpreted as an

emotional feedback experience rather than a goal-directed pathway. Comparing emotion and goal-seeking literature is beyond the scope of this thesis, but is an important next step for understanding value, which I discuss in Chapter 8.

Implication for 3G telcos: Consumers will follow value and value means more than price and function. As Apple has shown beauty and simplicity are also value meanings that associate with consumers moving into action. Creating a positive emotional consumer experience in a telco store will encourage consumers to buy. But value assessments continue beyond the time consumers are in store, to assess value information as it comes to hand. Delivering ongoing value beyond an emotional high in a store is a good long term plan to satisfy consumers. Emotion is also important because it simplifies complex decisions when there is a lot of information for consumers to sort through. For instance, a retail store could provide couches, coffee and quiet space for consumers to sit and relax, assisting consumers to reflect on complex purchasing decisions. Reflection can help consumers sort through complex buying information, revealing their emotional assessment of value. It is possible this approach could assist consumers to more quickly come to an overall decision.

Implication for Innovation Policy makers: When measuring innovation, it is important to measure emotional outcomes, as well as tangible outcomes like sales and profit (see further Section 7.4.1). Emotions, measured as attitudes can indicate value creation or value destruction, independent of rising or falling tangible measures. Consumers act quickly when value is threatened, and emotional thresholds are exceeded. When offered a potential benefit like mobile broadband, consumers are less decisive. Thus for policy makers wishing to encourage consumer action, I recommend focussing messages on actual loss of value rather than potential gains in value.

I place emotion at the centre of my consumer value model of innovation (see Figure 4). Emotion acts as the connector between value practices, value meaning, and adoption action (*buying*, *waiting*). Emotion acts as a mechanism whereby complex value assessments are balanced, simplified, aggregated and summarised into an overall assessment, either positive or negative. The evidence for emotion playing this role comes from the emotional element of attitude. In my data, I found attitude expresses the outcome of a consumer value assessment (see Hypothesis 3). Consumers use highly emotional language when describing their experience, and particularly their positive and negative value assessments. While it is not possible to observe causation, the high frequency with which emotion coincides with value assessment provides strong evidence for an associated effect. That multiple value meanings are associated with attitudinal outcomes in the presence of an emotional indicator suggests a strong likelihood that emotion plays a linking role. I gained further confidence in placing emotions in a central role through investigating the emotions, innovation and consumer value literature for alternate explanations.

The diffusion of innovation literature touches on emotion as part of the adoption of

innovation process, but the consumer value literature prefers to see consumers as goal-driven rather than emotional. While Rogers (2003) includes emotion in his persuasion stage of innovation decision, emotion is largely absent from other major diffusion of innovation studies (Bass 1969, Ryan and Gross 1943, Christensen 1997, Kim and Mauborgne 2005; see exceptions in discussion of Hypothesis 3a). The consumer value literature makes the argument that consumers are goal-driven (means-end analysis; Zeithaml 1988, Woodruff 1997), yet this is only weakly supported in my 3G dataset (as value-seeking and problem solving as a goal).

My data shows the value process is an *emotional* feedback process of sensing and iterating, rather than a goal-directed progression. Therefore I examined the emotions literature to better understand value. Three aspects of emotion in the emotional intelligence literature stand out as relevant to better understanding value. Firstly, emotion is judgemental (Arnold 1960, LeDoux 1995, Damasio 1994). Secondly, emotion is action-oriented (James 1884, Simon 1967, deSouza 2010). Thirdly emotion is a form of perceiving (Damasio 1994, Picard 1997, Ashkanasy 2003). I discuss these three aspects of emotion as they relate to value. Thereafter, I consider the connection between emotion, attitude and value.

Emotion is a form of judgment. Since Arnold (1960), emotions are known to form positive or negative evaluations. Anger arises, for instance, when remarks are interpreted negatively. Emotions are seen as a survival mechanism (LeDoux 1995), especially in relation to predator defence and social affiliation (Ekman 1972, Ekman 1989). Emotions therefore display and communicate fundamental social evaluations. Damasio (1994) showed empirically that brain injured subjects, incapable of emotion, were hindered in practical decision-making. Emotional judgment is not only positive or negative, but also varies in intensity towards an emotional target (typically but not always). Recent experimental work on complex decision-making has shown that complex decisions necessarily involve intuitive, or unconscious decision-making (Dijksterhuis 2007, p.32; see also Nordgren and Dijksterhuis 2009, Dijksterhuis et al. 2006), similar to emotional judgment.

Emotion is action-oriented. As a survival mechanism, such as fight or flight, emotion manifests as action. The James-Lange approach (deSouza 2010, Prinz 2004, Jones 2008) suggests emotion arises from bodily action and not vice versa. Simon (1967) argues the essence of emotion is the action of interrupting controlled cognitive processes. Such interruptions are often urgent socially-oriented needs that, Simon argues, drive much social behaviour.

Emotion is complex and relates to perceiving. Ashkanasy defines emotion as an "interaction of cognitive and non-cognitive neural systems" (2003, p.11). DeSouza (2010) argues emotion is complex, behavioural, expressive, phenomenological and physical. Emotion plays an important role in bounding attention, by directing attention and simplifying focus (Damasio 1994, Matthews and

Wells 1994, Picard 1997), consistent with the *closing* value practice. Emotions role in selecting what to pay attention to as a way of managing competing inputs seems especially relevant to value as a selective perceiving phenomenon. For example, when observing consumers, it is apparent that consumers sort through many competing inputs as they wander through a 3G telco store. Damasio (1994) asserts cognitive and emotional systems work closely together.

In conclusion, the emotions literature shows a strong support for emotion fulfilling the evaluating and aggregating role I have interpreted it to play within the concept of value. The emotions literature bears out that emotion and value are consistent in being: (1) action-oriented (2) evaluative (3) behavioural (4) social (5) physical and (6) expressive. The overlap between value and emotion is so strong that I sought points of difference and found two. Firstly, value is more often money-oriented, where emotion more often is not. Secondly, emotional assessments often occur very quickly, while value assessments have both fast emotional responses and slow accumulating of new value information before action. So, the pacing or the timing of a value assessment is a point of difference between fast emotion and fast or slow value assessment. Regardless of these perhaps minor differences, the emotion literature suggests a strong connection between emotion and value.

6.1.1 Emotion, attitude and value

This section compares emotion and attitude with value. In my 3G dataset, I found text I classified and coded as an attitude. I found over 200 attitudes almost all connected to value meanings. In contrast to the many attitudes linked to value meanings, there were also a small number of overall attitudes, not connected to particular value meanings. Given the closeness between emotion, attitude and value, I examined the attitude literature to distinguish between attitude and emotion. Emotion and attitude as concepts have strong conceptual overlap, represented in my data by positive and negative emotional intensity indicators.

Several attitude definitions from the literature, of which there are close to one hundred (Fishbein 1966), highlight the difference between attitude and emotion. Attitude is variously described as:

- “a relatively enduring organisation of individual beliefs about an object that predisposes his/her action” Rogers (2003, p.174-5).
- “a person’s enduring favourable or unfavourable cognitive evaluations, emotional feelings and action tendencies towards some object or idea” in Kotler (1991 , p.177) referring to Krech, Crutchfield and Ballachey (1962).
- “a cognitive and affective evaluation that predisposes a person to act in a certain way” (Daft 2005, p.513).
- a predisposition to an object, a “feeling or evaluative reaction” (Lawson et al. 1997, p.436).

- consistent and learned (Allport 1935).
- an "enduring organisation of motivational, emotional, perceptual, cognitive processes" to an object Krech and Crutchfield (1948).
- multidimensional beliefs (Fishbein 1966).

Thus, the conceptual overlap between emotion and attitude includes: connection to action, evaluation, focus on an object, and multidimensionality. What clearly distinguishes attitude from emotion is the "enduring" and learned aspect of attitude. Learning in this context means that, once an attitude is held, it endures until there is some new information to shift it. These definitions suggest attitudes stabilise, which was also evident in my data, unless affected by a shift in value through acquiring new and relevant value information. I found little evidence of attitude shift without new information. Thus, there is a close connection between emotion, attitude and value. All three concepts are evaluative, involve perceptions and judgment, result in positive or negative emotional responses of varying intensity, and are reflected in action. Where I previously saw and used the grounded concept *attitude* as an emotional store and expression of value, I now use in Figure 4 *emotion* alongside *attitude* as the result of value. Attitude is the property of emotion that endures (or expresses a value experience) until other relevant value information shifts the attitude and emotion. Thus, I see emotion and attitude as intimately linked.

Value, attitude and emotion are closely-related. However, minor differences emerge which set the concepts apart. Attitude endures once created, whereas emotional changes can be very fast (as a survival mechanism), or very slow and enduring (like grief, or dissatisfaction with a 3G telco). Value has emotional and attitude outcomes. However, value is distinct from emotion and attitude in that value has a monetary emphasis which emotion and attitude usually lack.

A simple hypothetical example of valuing will help clarify the separation between the three concepts: emotion, attitude and value. A woman holds up two scarves she is thinking of *buying*. The scarves are alike, but are two different colours: one pink, the other teal. (I discussed this example with one of my interviewees, consumer V002. She confirmed the realism of this example.) V002 agrees that if the scarves were varied in pattern, colour and texture, a value assessment of the type described here could take up to five minutes to make and involve many emotional experiences. Our woman, a fictional female consumer, holds each scarf, looking at each in turn, savouring the emotional response she makes to each, good or bad, strong or weak. She holds the scarf against herself, looking in a mirror, and considers the value of the colour for her. She has an attitude towards each colour from her past experiences, knowing what is in her wardrobe of that colour and how each scarf colour will match other items in her wardrobe. Each matching combination causes an emotional reaction (strong or weak, positive or negative). In a few seconds, she may process several matches. Connections to other memories cause emotions relating to those colours. These

emotions may be linked to comments her boyfriend and co-workers made when she previously wore those colours, and to similar colours in her home or places she visits. Some memories are precise, while others are vague and exist only as enduring attitudes towards that colour. She chooses the pink scarf which makes her feel better, an emotional response. In two minutes, she has passed through many emotions and attitudes to end with one action: *buying* a pink scarf. She smiles, happy at the pleasure of shopping and the feeling of silk on her arm, imagining her boyfriend when he sees her wearing the new scarf later that night. Emotion, attitude and value are tightly interwoven in even the simplest choice between two nearly identical products, only varying by colour. The consumer's choice reflects a value outcome (*buying*) based on emotion, attitude, and value practices (*exploring* and *comparing*). On another day, such as payday, she might have bought both scarves. This description provides a simpler example than a consumer considering a 3G mobile phone, yet shows the complexity of even the most simple valuing.

In summary, this section shows that consumer adoption action (*buying*, or *waiting*) is contingent upon reaching an emotional threshold positively expressing value (Hypothesis 1) or loss of value. The threshold is lower when it comes to loss of value (Hypothesis 1a). Emotion is used to assess, aggregate, understand and ultimately simplify conflicting value meanings (Hypothesis 2) into a simple overall attitude (Hypothesis 3) aggregating attitudes for each relevant value meaning (Hypothesis 3a). Emotion directs consumer attention (absorbing value information through the value practices) simplifying the contending information in the environment (Hypothesis 4) and is closely linked to the adoption action of *buying* or *waiting* (Hypothesis 5). These findings about consumers' innovation value experiences are visually represented in Figure 4 which shows the consumer valuing process with emotion at the core.

6.2 Other Properties of value

Now I discuss two further properties of value that inform interpretation of "The Value Model of Innovation" (Figure 4). The value model emphasises the meanings and practices of value and valuing. Value meanings and practices connect a consumer to their context which results in emotional responses. Earlier models (see Appendix 14) provide insight into the analysis steps through which value phases and affected value meanings and practices emerged. The model in Figure 4 emphasises properties of value which build from the consumer value literature, including:

1. Value is <u>social, physical, and contextual</u>. The value model emphasises the consumer valuing experience, through the consumer's ongoing practices, meanings and social constructions. Value is embedded in a rich world of consumer context and subjective meaning enabling consumers to continually construct and shift what and why they value. Social value practices in the value model include *recommending*, *observing*, *inquiring* and *comparing* (see Section 3.2). Physical (or individual) value practices include *exploring*, *comparing*, *filtering*/*closing* (see

Section 3.3). *Exploring* extracts new information from the consumer's physical context, while *recommending* brings new information from the consumer's social context. Telco advertising brings new information from the consumer's telco context into the valuing process. For the purposes of this model, I consider telco information part of the social value conversation. *Closing* and *filtering* (see Section 3.3.2) block off sources of new value information to *simplify* the consumer's experience, to save the consumer *time* and allow them to focus on what they see as *important*. Other theories of value see value as objective, such as Marx and Ricardo's labour theories of value (see Schumpeter's 1954 *History of Economic Analysis*).

2. Value is cyclical, dynamic and restless. Value is cyclical in Figure 1, as consumers process new value information in their context. Consumer action in turn creates change in consumer context, starting the cycle again. The cyclical property of value emerges from my connections analysis of the value concepts and modelling value connections. The links between context, value, value assessment, action and attitude are supported in Appendix 3. The link between action and context is implied, as documented in earlier value models (see Figures 1 and 3). I imply from these figures that consumer's actions change their environment, revealing new value information which starts the process of value again. For instance, buying a 3G mobile phone can result in post-purchase feedback to social networks in the form of *recommending*. The value model emphasises that valuing does not end at the time of purchase, but is ongoing, and social value practices such as *recommending* are an important ongoing consequence of post-purchase value assessment. The value model thus has a circular flow.

   The model indicates that value is highly dynamic. Value conversations recognise dual sources of value information. Firstly, there is individual or physical information. Secondly, there is social information from networks, and in the case of 3G consumers, there is also information that comes from talking to their telco. It is important to note that the arrows in the value model indicate associative rather than causal connection. In addition, the arrows indicate the dynamics inherent in value. Value shifts in response to new information. When new value information shifts consumers' emotions, their value moves too. When there is no new information, valuing temporarily halts until new relevant information appears. My assertion of value halting is supported in my analysis of attitude where I found attitude only shifts with new information, and not spontaneously without new information (see Section 4.1.2).

   Thus, valuing may begin at one of several places in the value model. Value may begin with a value meaning, such as consumer *need* ("my phone was getting old") intersecting with consumer context ("my phone contract had expired"). Social *recommending* or social *observing*, such as seeing a classmate using a 3G mobile phone, creates a value assessment. Value emerges from personal physical practices such as *exploring* a telco store or *comparing*

telco brochures. Loss of value, such as a 2G mobile phone breaking, is closely associated with *problem-solving*. Consumers are continuously involved in valuing, through *using, comparing, observing, recommending, exploring* and other value practices. Thus, new value information connects to a new value assessment at one of many entry points in the value model.

Several features of the value model make a contribution to innovation and consumer value literature, shown graphically in Table 9. The value theory extends consumer value and co-construction research to focus on emotion and value construction. The value theory builds from and moves beyond the consumer value literature (see Table 9) which sees value as subjective, complex and dynamic (see for instance Zeithaml 1988, Holbrook 1996). But an important aspect of valuing is not considered in this literature. A focus on emotion at the centre of valuing is important. Emotion is previously recognised as part of value. For instance, Flint, Woodruff and Gardial (2002) suggest tension management is an important ongoing driver of value. Yet, I identify an important role emotion plays in valuing. Emotion aggregates multiple conflicting value meanings into a single coherent overall attitude. Emotion summarises conflicting value assessments. Emotion links to consumer action. My emotional-centric approach to value is a new and significant contribution of this thesis because it better explains the process and consumer experience of value in a dynamic environment.

Table 9: Comparing value properties to the consumer value literature

Value Properties:	**Zeithaml 1988**	**Holbrook 1996**	**Flint et al. 2002**	**Vargo and Lusch 2004**	**This thesis 2012**
Subjective	Yes	Yes		Yes	Yes
Dynamic	Yes	Yes	Yes	Yes	Yes
Complex	Yes	Yes	Yes	Yes	Yes
Preferential	Yes	Yes	Yes	Yes	Yes
Action-oriented		Yes		Yes	Yes
Overall attitude		Yes			Yes
Goal-driven	Yes		Yes		
Emotional			Yes		Yes
Attitude / Emotion Centric					Yes

Conclusion

A grounded theory presents concepts and relationships that explain the core problem faced by the research participants (see Chapter 2). The analyst strives to produce concepts which are analytic and sensitising. An analytic concept succeeds when it breaks the complex environment of

the participant into sensible logical empirical pieces. A sensitising concept succeeds when it enables and empowers the participant and reader to be sensitive to information in their environment and how it affects the participant. The core problem participants faced was 'loss of value', as evidenced by their strong emotional reactions. Thus the concepts and relations analyse value into components (value meanings and value practices, social and individual) and the model presents the many inter-relations between these components. A grounded theory succeeds when it produces a theory which is conceptual, abstract, inductive, complex and based on diverse data (Glaser and Strauss 1967, p.113).

This chapter has presented a value theory of innovation in 3G mobile phones, developed from the grounded theory methodology in this thesis. The model offers a dynamic, contextual, and interpretive view of how consumers (at least in a 3G mobile phone context) understand value in a new technology. The model is derived from analysis of value phases and value conversations (see Appendix 13) and presented as a comprehensive model of value in Figure 4. The simple value model (Figure 2) sees value as a crucial link between consumer context, emotion and consumer action. The value dynamics within the structure arise from interaction between (1) a consumer's context, (2) their value practices (gathering and filtering value information) and (3) their assessment of the value meanings that the new value information gives rise to.

The value hypotheses I propose integrate a value theory of innovation in 3G mobile phones and are the basis for further work from this thesis. They are:

Hypothesis 1. Value is closely linked to consumer actions (*buying*, *waiting*, *using*) with new technology.

Hypothesis 1a. Losing value is more closely linked to action (*problem solving*) than gaining value.

Hypothesis 2. Value (when complex) has multiple and conflicting meanings.

Hypothesis 3. Consumers express value experiences as *attitude*.

Hypothesis 3a. Attitude occurs at two value levels: relating to a multiple specific value meanings and as a single overall attitude summarising value generally.

Hypothesis 4. *Closing* emerged as an important value practice and *simplicity* emerged as an important value meaning.

Hypothesis 5: Value is more closely linked to emotion rather than goals.

Several hypothesised properties of value emerge from my analysis, including: value is cyclical, value is emotional, value is action-oriented, and value is complex and simple.

This thesis contributes to the innovation and consumer value literature by:

- building a value theory of innovation in 3G mobile phones, showing how consumers understand value in a new technology (Hypothesis 1, 1a).

- collecting value meanings from 3G consumers, and testing those meanings against the innovation and consumer value literature (Chapter 7) and three triangulating datasets (Hypothesis 2).
- placing contesting value meanings at the centre of a value analysis (Hypothesis 2).
- suggesting a mechanism consumers use to simplify complex value assessments; a single overall attitude (Hypothesis 3).
- suggesting an under-researched value meaning, *simplicity* and value practice, *closing* (Hypothesis 4).
- suggesting an explanation for how a single overall attitude arises (Hypothesis 5) through emotion, and confirming properties of emotion in the literature, and
- opening the *black box of value* to show the concepts and relations within (Figures 2, 3 and 4).

Chapter 7: Comparing a Value Theory of Innovation in 3G Mobile Phones to the Innovation and Consumer Value Literature

This chapter assesses the usefulness, credibility and plausibility of a value theory of innovation in 3G mobile phones against alternative theoretical explanations. In this chapter, I compare my value concepts and hypotheses (see Chapters 3, 4, 5, 6) with ten major studies in the diffusion of innovation and consumer value literature. I also compare my value theory of innovation in 3G mobile phones with innovation policy documents, and closely analyse two such documents to assess whether value theory can produce useful insights about innovation policy. I find as a result of my analysis that value brings useful insights to assessing measurement innovation and encouraging new technology adoption. The purpose of comparing grounded theory results with the literature is to assess the usefulness of emerging concepts against theoretical constructs that already explain the research context, and to search for disconfirming evidence.

The ensuing innovation and consumer value literature review is driven by three questions that result from the findings of this thesis. The questions are: (1) What place does value have in the innovation literature? (2) How does the way researchers define innovation affect their focus on value? (3) How do the diffusion of innovation, consumer value, and design literatures explain consumer adoption of new technology if not by value?

7.1 Innovation literature and value

In this section, I argue that value is an important component of the innovation literature, but one that is subtle and easily overlooked. While value is not clearly defined in the innovation literature, it is found in the work of important innovation scholars such as Schumpeter, Drucker, Kim and Mauborgne, and management scholars Porter, and Hamel and Prahalad. I go on to examine two types of innovation definition that can now be understood to relate to value, and examine how diffusion of innovation scholars can be understood to use what I call value practices in their models of innovation adoption. Lastly, I analyse value compared to innovation discussions in recent important Australian and international government policy reports.

7.1.1 Key innovation authors – Schumpeter, Drucker, Porter

Several innovation authors directly mention value in their work, including Schumpeter, Drucker and more recently Kim and Mauborgne. Kim and Mauborgne's *Blue Ocean Strategy* (2005), one of the most important new innovation theories focuses on *value innovation*. Value innovation, Kim and Mauborgne argue, requires a "leap in value" (2005, p.12). Importantly, Kim and Mauborgne see value as multi-dimensional and comparative. Kim and Mauborgne recommend value should be visualised on a strategy canvas that compares a company with its competitors along multiple value dimensions (that I call value meanings).

Schumpeter emphasises value in three ways, though mainly by implication. Firstly, Schumpeter emphasises *novelty* in his five new combinations (product, method of production, market, source of supply or organisation of an industry; 1934, p.66) leading to innovation. Secondly, Schumpeter defines innovation as "useful things ... to satisfy his [consumer] needs" (p.12) and "new combinations ... are necessarily more advantageous" (p.129), implying an innovation's newness achieves a competitive advantage, produces consumer satisfaction and addresses consumer needs. Three of these elements of innovation are meanings of value: *novelty*, *needs*, and *usefulness*. If advantage is defined as the sense of overall benefits exceeding costs, then advantage too is expressed in the value theory. Advantage is found in the value theory as a positive overall attitude which aggregates and expresses the combination of attitudes by value meaning. Satisfaction, I argue, is the equivalent of a positive consumer attitude towards the value target. Thirdly, even the entrepreneur is driven by non-financial emotional value in the form of the "joy of creating, getting things done or simply of exercising one's energy and ingenuity" (p.93). Often however, Schumpeter is summarised against the first type of value, that is, innovation "creates new things" leaving the other two important aspects of value creation out. See for instance Dess et al. (2006, p.397) and their definition of innovation as newness.

Drucker, also, emphasises value creation in relation to innovation. Innovation is not about, Drucker says, maximising profit but about "exploitation of new opportunities for satisfying human wants and human needs" (2007, p.13). This view is consistent, I argue, with innovation creating consumer value. In talking about quality, Drucker says the consumer viewpoint is paramount, arguing "customers only pay for what is of use to them and gives them value. Nothing else constitutes quality" (p.206). Drucker emphasises "delivering value to the customer" and suggests marketing is a focus on finding and satisfying "what a customer values" (p.225), but that "few suppliers are willing to [find what consumers value]" (p.227). Going further, Drucker (1999) suggests "the starting point [of management] has to be what customers value" (p.85). While including utility and price, Drucker provides no definition of value but says "whatever customers buy has to fit their reality" (2007, p.225) so, value is a subjective evaluation by a consumer.

Drucker provides a devastating critique of businesses that focus on *novelty* alone rather than consumer value creation, saying:

> *[Managers] confuse novelty with innovation. The test of an innovation is that it creates value. A novelty only creates amusement. Managements decide to innovate for no other reason than they are bored doing the same thing or making the same product day in and day out. The test of an innovation - as is also the test of quality - is not 'Do we like it?' It is: 'Do customers want it and will they pay for it?'*(1999, p.85)

Porter's (1996) work on strategy, while not part of innovation literature *per se*, is important for innovation. Kim and Mauborgne build their argument for value innovation on top of Porter's alternate lowest cost or differentiation strategies. Kim and Mauborgne (2005) argue for the importance of pursuing both strategies at once to create value. There may be value with only one strategy (lowest cost or differentiation) but it will require consumers to assess that value in one of two ways. If an innovator pursues a lowest cost strategy, consumers will assess the quality of what is offered at lowest price against higher priced competitors. If an innovator differentiates but is not lowest cost, then a consumer will assess if the novelty offered is worth a higher price. When innovators pursue both strategies consumers get both the lowest price and novelty. Such a dual approach is more likely to create consumer value.

Porter (1996) explicitly mentions value creation in relation to consumers. However, his focus is more about differentiation than consumer value. Porter says superior performance comes from "establish[ing] a difference that it can preserve" (p.62). But consumer value is important and Porter says "[the strategy] <u>must deliver greater value to customers</u> or create comparable value at a lower cost or both" (p.62). If there is differentiating without delivering greater value, consumers will not purchase. Porter's message of delivering greater consumer value is diluted by his greater emphasis on differentiation. Consumer value has frequently been overlooked in Porter (1996).

Hamel and Prahalad (1994) define core competence in terms of consumer value. They say core competence is "skills to enable delivery of fundamental customer benefit ... [and has a] disproportionate contribution to customer perceived value" (p.204). If value is limited to quality versus price, there is a value definition problem. Dess et al. (2006) say that core competencies are what "enhances competitive advantage by creating superior customer value" (p.188), yet the authors equate value only with paying more for new technology. This is not high value, unless consumer are willing to pay high price. Similarly Dollinger (1995, p.15) in *Entrepreneurship* defines value as quality given for price paid (a definition echoed in early consumer value literature but not multi-dimensional approaches taken later; see Zeithaml 1988, Holbrook 1996 below). But Hamel and Prahalad (1994) are not just talking about quality, novelty and price. They are talking about why small, poorly-financed firms are outperforming large incumbents. They cite Honda versus General Motors, and Canon versus Xerox as examples. Incumbents have products competing

at all the levels of quality. Yet, value is about more than quality. Hamel and Prahalad say "the objective is to amaze customers by anticipating and fulfilling their unarticulated needs .... [through] deep insight" (p.291). This definition is one type of consumer value creation. The smaller firms changed the industry rules through better understanding consumers. These firms fulfilled their consumers' unarticulated needs to create new consumer value. Value is about more than higher prices for higher quality products. Value (and innovation) is sometimes about finding and meeting needs, sometimes about consumers getting more while paying less, and sometimes about consumers paying more to get something new.

An alternate approach to understanding innovation comes from understanding what innovation is in a services context (Gallouj and Weinstein 1997, Gallouj and Savona 2009, Gallouj 2002, Miles 2005). Building from analyses of innovation in services, such as tourism (Sundbo et al. 2007), hospitals (Djellal and Gallouj 2005) and financial services (Desai and Low 1987), Lancaster's (1966) multi-dimensional view of products has been applied to services. Gallouj and Weinstein (1997), in particular, follow Saviotti and Metcalfe's (1984) proposed model to measure innovation using multi-dimensional sets of technical and service output characteristics, and composing process input characteristics. Gallouj and Weinsten (1997) extend the model to include producer and consumer multi-dimensional competence characteristics, which interact to facilitate co-production in services. The model explains the difference between radical innovation (a new technical or service characteristic) and incremental innovation (increasing a technical or service characteristic). This approach to understanding innovation and particularly innovation in services has close similarity to the value theory (multi-dimensionality of value, adding and subtracting value dimensions, interactions with consumers) described in this thesis, and Kim and Mauborgne's *Blue Ocean Strategy* (2005) concept of 'value canvas'. Though innovation in services scholars do not explore the individual and social process of change, nor emphasise emotion's place in the process.

Kim and Mauborgne (2005) were not trying to define innovation, but they were trying to explain why some firms were such high performers. Kim and Mauborgne (2009) model how consumers experience a product or service, for example Southwest Airlines, cinemas, even entire cities (Shanghai vs Dubai), multi-dimensionally. To create a 'leap in value' Kim and Mauborgne argue for adding new dimensions, increasing others relative to the competition, but also importantly removing other unappreciated dimensions, and lowering performance where it is not required. This adding and subtracting allows value in the form of new functions to be increased, while removing unwanted features lowers costs, increasing value.

A value theory of innovation in 3G mobile phones has several similarities and differences with the Gallouj and Savona (2009) "framework to generalize a theory of innovation" (p.162).While the value theory is consumer centric and interested in how value arises from the

consumer's perspective, the Gallouj and Savona framework does not. Both approaches are however multi-dimensional analyses of innovation that explain how innovation arises. Both are empirically tested and seek to be a general (though in the grounded theory case, not a generalisable) model of innovation. The Gallouj and Savona framework does add to Lancaster's (1966) multidimensional view of value. But the extra component of producer and consumer competences which do significantly broaden the potential impact of theory, and how those competences would be empirically proven in a simple and straightforward manner is a challenge to Gallouj and Savona's promising beginning.

Innovation and management authors like Schumpeter, Drucker, Porter, Hamel and Prahalad make special mention of value in relation to innovation, yet their value message, emphasising subjective consumer value, is diluted and sometimes hidden. I argue for greater acknowledgement of the place of consumer value in understanding innovation. When innovation and consumer value are considered in this way, innovation becomes more focussed since the innovation task becomes satisfying consumers, rather than bringing new products to market.

7.2 Innovation definitions and value

In this section, I analyse innovation definitions in the technology and innovation management literature to see if value affects how innovation is defined. While examining innovation literature, in light of a value theory of innovation in 3G mobile phones, I analysed innovation definitions and found some took a narrow view while others took a wide view of innovation. I found two types dominate the innovation literature. The first of these approaches to innovation emphasises newness, one narrow view (a single value meaning) of value. The second approach extends the first to include a wider view of value (many value meanings), focussing on value creation. This perspective extends the discussion in Section 7.1 beyond senior scholars saying that value is important to focus on in an innovation context. The two approaches have implications for innovation failure and rate of adoption. I consider these two approaches to defining innovation and how they connect innovation to supranormal profits. Lastly, I look at some recent thinking on what innovation is: innovation as design, and innovation as dynamic because they both integrate further aspects of value.

A common innovation definition focuses on newness. Porter (1990), Rogers (2003, p.12), Kotler (1991, p.342), Freeman (1982), Chesbrough (2006) are representative of this approach. Tidd, Bessant and Pavitt (2005, p.66) cite Porter (1990) saying innovation is "new technologies and new ways of doing things". Such a definition harks back to Schumpeter's new combinations (1934, p.66), including new products, new services, new markets, new resources and business models, as an essential part of innovation.

A second type of innovation definition goes beyond newness and emphasises innovation success. Since I argue consumer value creation is necessary for such success, I also argue that value is an important link in these definitions between creating something new and creating something valuable for consumers and is reflected by an innovations' marketplace success. Innovation authors use various terms to express the successful outcome of innovation, such as: success, advantage, profit, reward or widely used. I interpret the collective intention of this success-related language to mean shareholder and consumer value creation. Kim and Mauborgne (2005) say explicitly, that innovation needs a "leap in value" (p.12) for consumers. Other scholars define innovation in terms of innovation success. Innovation, in this context, is defined variously as:

- "the successful exploitation of new ideas", Department of Trade and Industry (2004) in Tidd, Bessant and Pavitt (2005), p.67
- something new "to get strategic advantage" Tidd, Bessant and Pavitt (2005), p.7
- "supranormal profits are the reward for successful innovation" Nelson and Winter (1982), p.409
- "the process of turning opportunity into new ideas and of putting these into widely used practice" Tidd, Bessant and Pavitt (2005), p.67.

Within these definitions, success means sufficient adoption to cover costs and return Schumpeter's supranormal profits. I, on the other hand, argue success means value creation for consumers that is sufficient to overcome inertia, or resistance to innovation (Rogers 2003, Schumpeter 1934). The gap between bringing something new to market and success is consumer adoption of new technology. In this thesis, I argue technology adoption is also a consumer response to value. Innovation failure therefore is the result of not creating consumer value.

The problem for innovators is when the two definitions get mixed up. When innovators can find success (supranormal profits) with anything new, innovators logically charge consumers high first-mover supranormal prices. My 3G dataset shows early "obscene" data prices ($40,000 per Gb; MIC005) put consumers off, delaying adoption. Until consumers see value, high supranormal pricing is rejected (the value practice of *closing* and *waiting)*, delaying adoption. However, a value approach to innovation suggests supranormal profits arise out of supranormal value. Thus Kim and Mauborgne (2005) suggest innovators should be not only *new* (differentiated) but lowest *price* in a market to ensure (1) value creation, (2) customer satisfaction, (3) economies of scale from high volume, and (4) to prevent imitation by leaving no unserved consumers in the market. Apple's April 2010 iPad launch follows this value innovation approach, selling 7.5 million units in six months at a lower than expected price (Apple Inc. 2010). In contrast, DVD players took four years to sell the same quantity in the United States (DEG 2010, p.3). If innovation means only bringing something new to market, regardless of value (see Paladino 2007 arguing this increases profit), innovators

focus on new product differentiation, not consumer value, or consumer needs. Innovators who ignore value creation focus on being different rather than being better.

The rhetoric of innovation tells innovators that "supranormal profits are the reward for successful innovation" (Nelson and Winter 1982, p.409), and so businesses innovate to pursue Schumpeter's supranormal profits. Researchers are often focussed on the benefits of innovation, and not the more difficult consumer value creation aspect, though Fagerberg (2005) notes our innovation knowledge is incomplete, saying:

> *Because of [innovation's] desirable consequences [that is growth, and novelty], policy makers and business leaders alike are concerned with ways in which to foster innovation. Nevertheless, in spite of the large amount of research in this area during the past fifty years, we know much less about why and how innovation occurs than what it leads to.* (p.20)

Fagerberg emphasises that innovation and resulting growth is attractive to investors, entrepreneurs and governments. But, there is a gap in our knowledge of what innovation is. What is needed in our innovation knowledge is a better understanding of consumer value creation.

Two recent innovation definitions take different approaches. Verganti (2009) in *Design Driven Innovation* sees a new semantic dimension to innovation. Verganti sees innovators creating "different unexpected meaning [in a product] ... [which] makes you feel better" (p.vii). Verganti is talking about innovators as meaning-makers against a background of cultural production. But it is this creation of new meaning (and hence new value) that sets consumer value-oriented innovators apart. Examples Verganti uses are: Kodak in 1888, the Prius hybrid car and Nokia's 'connecting people' slogan. Meaning in this sense is tightly linked to value as subjective, and socially constructed, and to how consumers interpret or understand what an innovation is, or what that innovation means to them. Von Stamm (2008) similarly connects innovation, design and creativity, and defines innovation as "creativity and implementation" (p.8) or "creativity and commercialisation" (p.27). A design approach emphasises engaging with consumers in the value conversation (finding what consumers value). Design therefore takes a subjective consumer value and meaning orientation approach. Design focuses on understanding consumer needs (consumer intimacy Von Stamm 2008, p.22) through looking, listening, prototyping and finding stories ("compelling narratives"). Ultimately design creates consumer value through finding new valuable meanings, and follows a "human centred approach to problem solving" (p.22) (*Problem solving* was a value practice identified in the 3G consumer experiences). Verganti recognises the value in consumers interpreting new meanings in an innovation. Meaning, transmitted as stories, simplifies the complex value proposition of an innovation into an easily digestible form for consumers. Apple is expert in telling a story and finding new meaning in technology. For instance, the iPhone 4 FaceTime video-conferencing function targets the value of visually *connecting* by showing emotion rich newborn babies, ultrasound scans, new haircuts and graduations (see Apple Inc. 2010A).

A second new innovation definition comes from the Minnesota Innovation Research Program (Van de Ven et al. 2008 in *The Innovation Journey*). Using longitudinal research that took ten years of data collection, the authors focus on how and why innovations emerge. In contrast, they argue most innovation research pursues the "antecedents (facilitators, inhibitors) and consequences (outcomes)" (p.ix) of innovation. Using grounded theory, the research team followed the progress of many innovations (with 14 research teams, and 30 faculty and doctoral students), they say:

> *The innovation journey is a non-linear cycle of divergent and convergent activities that may repeat over time and at different organisational levels if resources are obtained to renew the cycle.* (p.16).

Innovation, according to Van de Ven et al. (2008), is "complex" (p.4), "fluid" (p.11), "dynamic" (p.5), and beset by setbacks (p.10). The authors reject a linear idea of innovation. Instead, they see innovation as dynamic along a number of dimensions, including sources of ideas and type of outcome (p.8). Van de Ven et al. use multiple dynamic concepts to describe and analyse aspects and phases of their innovation data. A few examples of innovation phases include "reinvention", "distracted players", and "indeterminate results" such as "spinoffs" and "integration" (Table 1.1, p.8). This view of innovation emphasises the non-linear, and highly contingent creation phase of innovation. Overall, Van de Ven characterises innovation in a fireworks model, rippling out from its beginning in many directions. This metaphor is useful for showing the non-linear nature of innovation. However, its weakness is its focus on innovation production rather than innovation consumption.

For consumers to deal with Van de Ven's dynamic and contingent experience of innovation, they need tools and strategies to help them manage. Dynamic constructs like consumer value are useful to explain how consumers interpret their dynamic environment. For a consumer to adopt an innovation under the increased uncertainty of a dynamic environment, consumers require a stronger incentive (value) than something merely *new*. Value theory explains some types of value that attract consumers to an innovation, beyond the *new*.

In Section 7.2, I argue that innovation can be defined as either 'something new' or 'something new that adds value [to consumers]'. Both definitions appear in the innovation literature. A value theory of innovation in 3G mobile phones explanation emphasises consumer value outcomes beyond *novelty*. Consumers may get more for less, or pay more if a leap in value is offered. Innovators seek supranormal profits, but unless they provide supranormal value, newness alone is unlikely to convince consumers to shift from their current choices (Schumpeter's inertia 1934, p.87) to accept a new technology.

7.3 Diffusion of Innovation literature and value

Now I turn to diffusion of innovation studies to assess to what extent consumer value is included in their understandings of diffusion. In this way, I will show that the value theory of innovation builds from concepts that already exist in the diffusion of innovation literature, but goes beyond them. I will examine five major diffusion works: Rogers (2003), Christensen (1997), Bijker (1995), Bass (1969) and Ryan and Gross (1943). I contrast each of these studies with a value theory of innovation to find similarities and differences. My sensitivity to and confidence in the explanatory power of value is tested by considering their approaches to modelling diffusion of innovation. Aspects of value appear in each study.

Bass (1969) is perhaps the simplest model of diffusion of innovation. Bass uses retrospective industry modelling to derive an elegant equation to predict adoption timing of a new consumer durable. Three main independent variables are used, plus time. The three variables are percentage of innovators and imitators in the market and final market size of adopters. Meade and Islam (2006) present 40 years of Bass inspired work, and suggest the percentage of innovators in the market is stable at around 3 per cent, while percentage of imitators in the market tends to average 30 per cent but with wide variation. In its simplicity, the Bass model necessarily discards the messiness and richness of everyday life. The Bass model captures Rogers (2003) early and later adopter types. Early adopters are explorers (in a value sense, the consumers are *exploring*, *observing*), while later adopters are imitators, socially influenced by *observing* and *recommending* (value practices) from the explorers. The Bass model identifies two types of valuing and two types of innovation adopters but not the micro processes that account for consumers' interactions. As a criticism, the Bass adoption prediction outcome is very dependent on the final market size, which is known after diffusion ends, but is problematic to estimate beforehand. Thus, with truly new (radical) products, market size is much more difficult to estimate than incremental improvements to products. The Bass model encompasses several important value practices through using his two types of adopters: innovators and imitators. These two types of adopters account for three important value practices (*exploring*, *observing*, *recommending*) which together are significant aspects of valuing. By simplifying the adoption model to three variables, Bass ignores other important consumer practices such as *closing* and *comparing* that emphasise the subjective nature of technology adoption. My approach sacrifices the predictability of a Bass-like mathematical innovation model, but enhances understanding of the qualities that consumers are attracted to in their 3G mobile phone: the value meanings.

Ryan and Gross (1943) are cited in Rogers (2003) as an early and classic diffusion study. Ryan and Gross's study of an agricultural innovation contains important innovation distinctions such as early and later adopters characterised by the source of important influence, either

neighbouring farmers (for later adopters) or salesmen (for early adopters). Ryan and Gross identify the important delay between knowledge and adoption of an innovation, and the close to normal distribution of knowledge and adoption timing through a population. Similar to Bass, Ryan and Gross show that social information provides significant input to adoption. I take analysis of social interaction further to identify several social valuing practices that are important: *observing*, *inquiring* and *recommending*. A difference between the hybrid seed innovation studied in Ryan and Gross and the 3G technology in this thesis is the level of variation in the products specification over time. 3G telcos shift their marketing strategy almost monthly with new features, new products and new pricing. The hybrid seed technology in contrast is largely static, and no mention of variation or reinvention is made by Ryan and Gross.

Rogers (2003) is the classic text on diffusion of innovation. Four aspects of his work are important to compare to value: firstly, the adopter categories, secondly the rate of adoption factors (relative advantage, complexity, compatibility, trialability and observability), thirdly the linear adoption process, and lastly, the elements of diffusion.

Rogers prepares the way for a value-centric understanding of innovation. Rogers defines (elements of) diffusion "as the process by which an innovation is communicated through certain channels over time among members of a social system" (2003, p.11). I recognise valuing is a similarly social process. The social aspect of valuing is expressed over time through the social value conversation where recommendations are given and received, and consumers observe and make inquiries of each other. But in the 3G dataset, the innovation is dynamic through innovators constantly experimenting with strategies to create consumer value and capture profit. Rogers's work, similar to Ryan and Gross (1943) mainly examined innovations that did not evolve quickly. Value accounts for diffusion when an innovation is rapidly evolving.

Rogers identifies five phases of adoption that he calls (1) knowledge, (2) persuasion, (3) decision, (4) implementation and (5) confirmation, with a choice of adoption or rejection (2003, p.170). I suggest in this thesis the adoption process is more complex, socially connected, dynamic and iterative. Persuasion is especially significant for value, since it is defined as the consumer forming a favourable or unfavourable attitude (2003, p.169). Thus persuasion fits in well with *attitude* as a central element of value. Further, I suggest the valuing process is a dynamic reworking of the Rogers's linear adoption model. What is also different in my valuing approach is acknowledging the ongoing process of valuing after purchase, and how this feeds back to non-adopters through social practices, such as *observing*, *inquiring*, and *recommending*. The variation in value meaning also makes adopting a more contextual and personal process. Rogers's model shows what consumers have in common when adopting, whereas a value approach shows variations that consumers may experience through different value meanings.

Rogers's adopter categories distinguish between early and later adopters, but he uses five categories, broadly following the standard deviations under a normal curve. Rogers (2003) makes 26 generalisations (pp.287-291) about difference in the socio-economics, personality and communication style of early and later adopters. I argue all consumers adopt when they see value in an innovation. The S-curve which describes adoption timing can then be explained as timing of innovator strategy which creates value for more consumers, for instance from falling prices. In the 3G data, the S-curve bent sharply upwards when competitors entered the market for the first time, multiplying efforts to encourage 3G adoption. Rosenberg (1982) confirms this jump in adoption when the price falls below that of a significant competitor, saying:

> *When in the early stages of its development, the cost of production is very high, improvements leading even to significant cost reductions may have very little effect upon the rate of adoption. When, through accumulated improvements, the costs are eventually reduced and become roughly equivalent to those prevailing under the old technology, even a small further reduction may then lead to widespread adoption ... that is to say, there is a threshold level at which the costs of the new technology become competitive with the old* (Rosenberg 1982, p.26-7).

In the case of 3G, takeoff came about when the large telcos shifted onto 3G. Telstra, the largest telco, shut down its rural 2G network forcing all rural customers to shift to its 3G network in 2008. Similarly, the 3G iPhone launched in 2008 and these two events (closing 2G, 3G iPhone launch) together saw a doubling of 3G phones to 40 per cent of total mobile phone users in Australia from the previous year. In the first four years of 3G, 20 per cent of mobile phones were 3G, while in the fifth year that number leapt to 40 per cent (see Table 1 in Section 2.1.1). While the iPhone was a leap in consumer value, shutting a network was a forced adoption, not driven by consumer value. It remains to be seen whether 3G accelerates from here in Australia, with 4G services commencing in Australia in 2011.

Rogers's final contribution to diffusion is the five factors affecting rate of technology adoption. The five factors include: relative advantage, complexity, trialability, observability and compatibility. There is a strong link between these factors and the value meanings and practices. Relative advantage is highly similar to value, involving subjective comparison, including but not limited to *price*, *function* and *time*. However, since relative advantage can be multi-dimensional, (like value), it becomes more difficult to assess when there are tradeoffs, more on one dimension, but less on another dimension. I suggest that consumers value *simplicity* and prefer to avoid or ignore where possible, difficult value assessments. A complex stream of competing value information makes it difficult for a consumer to determine relative advantage. Some consumers prefer less complexity to more (see Section 4.3.2), while some consumers prefer more functions to less. Complexity partly explains adoption delay, but I found *simplicity* is something consumers' value. Trialability and observability closely coincide with the value practices *comparing*, and *observing*. Compatibility relates to the value meaning *connecting*. *Connecting* includes shared

practices and meanings to create group identity and compatibility. Thus all Rogers's five factors affecting rate of adoption have analogues in valuing practices or meanings.

Rogers remains a touchstone for understanding diffusion. However, Rogers missed some shifts in understanding that I build from. These shifts include social constructionism (Berger and Luckmann 1967), and Kim and Mauborgne's work on value innovation (1997, 2005). Combined with grounded theory (Glaser and Strauss 1967), I build in this thesis a dynamic, complex, micro view of diffusion around value. My approach provides a deeper, richer and more grounded understanding of "the choice problem actually faced by the adopter" (Hall 2005, p.479) and fills an important gap in innovation knowledge.

Two more constructionist and dynamic approaches to understanding diffusion of innovation come from Bijker (1995) and Christensen (1997). While Bijker's work is historical, and Christensen's work relates to businesses rather than consumers, both provide dynamic models of diffusion reflecting evolution of innovations over time and shifts in value.

Bijker's (1995; Pinch and Bijker 1987) work on the social construction of technology (SCOT) takes a dynamic approach. However, since the work is an historical case study, the construction of meaning is more difficult to access and interrogate. More recent SCOT work (Shah 2000) has used contemporary datasets. Shah (2000) extends SCOT towards lead user theory (see von Hippel 2005), emphasising sources of innovation (von Hippel 1988) rather than theory building to explain technology adoption. Bijker emphasises the problems of groups of technology users (*problem solving*), as a driving force for evolving an innovation. Innovations, Bijker (1995) finds, are open to multiple interpretations as interested parties assert their preferred view. Bijker calls this phase of an innovation, 'interpretive flexibility', when problems are contested. Once problems are satisfactorily resolved, there is 'discursive closure' and stabilisation of the innovation. In this thesis, I suggest problems are often linked to a loss of value and that loss of value provides strong motivation for consumers to seek solutions (see Section 5.1 Problem solving). Thus, Bijker indirectly focuses on loss of value as a driver of technological evolution. Bijkers' view of technological evolution is profound and important. My views evolved from Bijker's view but aimed to better understand the individual's personal and social experience. The value conversations, for instance, provide a tool to analyse consumers' social and personal information gathering. Interviews allowed subjective interpretations and social actions of consumers to be accessed in relation to a contemporary technology. Thus, individual and social valuing practices were accessed and through comparing several individual experiences, I identified and analysed significant valuing practices. While accessing an individual's personal and social perspective, more depth is provided to the individual's personal and social value practices.

If Pinch and Bijker (1987) was the most significant diffusion theory of the 1980s and Kim and Mauborgne (2005) the most significant innovation theory of the 2000s, then the fifth innovation work I now compare is Christensen (1997; Bower and Christensen 1995) who was the most significant diffusion theorist of the 1990s. Christensen captures on a graph a shift in technology from an older to a disruptive technology, and how that shift impacts consumers with various needs. Christensen plots these technologies and needs on a graph showing performance against time. Performance on the graph, I argue, is a proxy for value. Christensen shows that the disruptive technology is weaker (lower value) in some ways and better (greater value) in other ways. In this thesis, I interpret Christensen as talking about a technology having multiple value meanings. In the case of Christensen's disk drive study, one value meaning (*reliability*) contrasts with a disruptive value meaning (physical *size*). Mainstream customers wanted *reliable* disks regardless of *size*. New customers (such as laptop manufacturers) wanted *small* disks but *reliability* was less important. Christensen shows that different customers construct different requirements (*needs*) from multiple value meanings. New producers, Christensen found, arose to serve the new customers, since the old producers ignored the new low price customers. I argue that value provides a new explanation and interpretation of Christensen's disruptive technology model. Christensen implies that a technology industry evolves as new value meanings emerge, which can bring new customers into the marketplace. Market leaders, by listening to their best customers, may ignore new value meanings which are not of interest to high value (high profit) customers. What is important here is that value provides a richer explanation for Christensen's disruptive innovation, and Christensen provides evidence for the stability of value as an innovation adoption explanation.

At this point it is also worth touching on the Technology Acceptance Model (TAM) from Information Systems Research (Davis 1989, Davis, Bagozzi and Warshaw 1989), and its extensions TAM2 (Venkatesh and Davis 2000) and TAM3 (Venkatesh and Bala 2008). Venkatesh and Bala (2009) note that TAM is a highly cited and mature theory of technology adoption which provides useful analysis of factors impacting employee adoption of technology. TAM predicts employee adoption of information technology within an organisation based on technology's 'perceived usefulness' and 'perceived ease of use' (Davis et al. 1989). The later TAM2 and TAM3 extend the model to include social influences, in the form of 13 variables, such as 'perceived enjoyment', 'computer anxiety' and 'objective usability' that encourage employee information technology adoption. Venkatesh and Bala (2009) further in TAM3 research suggest include investigating the impact of training, management support and user participation in system design.

TAM's primary theoretical components (usefulness, ease of use and social influence) sit easily within a wider frame of value. All three components of TAM relate easily to value dimensions; *function*, *simplicity* and *community*. TAM is however a statistical approach to

understanding employees' complex social processes of technology adoption. TAM does seek to trace employee perceptions over time, such as sampling before and at multiple intervals after technology adoption. What TAM does not do is to seek to understand and conceptualise the employee's experience with or process to understand a new technology in the way that a qualitative approach does. Given TAM's statistical positivist approach to knowledge creation, TAM results are less helpful to my research goal of producing a dynamic, experiential and socially constructed view of technology adoption. Nonetheless, TAM does provide further evidence of the usefulness of value as an explanatory concept for technology adoption, since the major TAM components are explained by value dimensions.

The review of innovation literature and the findings I make in this thesis provide two important outcomes. Firstly, the emerging concepts (the practices and meanings) of value have something useful and important to say about the innovation literature. In the first section, I searched for value in the innovation literature. Important literature from Schumpeter, Drucker, Porter and others emphasised value as a significant aspect of innovation. In the second section, I discussed two alternate ways to define innovation. One definition is oriented around novelty and the other definitions emphasises innovation success, which I interpret as relating to value creation. Thus I argue that the definition of innovation without value is a simplification of innovation with important consequences. By shifting the emphasis away from value, innovation risks a much higher failure rate than is necessary. High failure rates in new product development (Wind and Mahajan 1997) could relate to too little value emphasis, particularly from relying on "executive foresight", rather than listening to customers (p.6). Going further, I argue that a successful innovation creates value for consumers, while an innovation fails when it fails to create value for consumers.

Secondly, the major diffusion studies I examined (Rogers 2003, Bass 1969, Ryan and Gross 1943, Bijker 1995, Christensen 1997) all contain, to various degrees, elements of the value meanings and value practices that I found in the 3G mobile phone dataset. Since the value concepts are found in these varying contexts, it provides good evidence for the more widespread applicability of value, beyond the 3G context. Comparing these studies to a value theory of innovation in 3G mobile phones is part of the ongoing constant comparison process of grounded theory that requires an ongoing search for disconfirming evidence.

7.4 Government Innovation reports and value

Another source of rich innovation literature outside academic journals are government innovation reports. Four examples were very useful in testing my emerging ideas and interpretations of value. The four reports were: (1) *Innovation Measurement: Tracking the State of Innovation in the American Economy* (ACIMO 2008) by an Advisory Committee to US Secretary

of Commerce; (2) McKinsey's (2010) review of the Australian National Broadband Network design; (3) the Australian National Innovation Review, *Powering Ideas*: *An Innovation Agenda for the 21st Century* (Commonwealth of Australia 2009); and (4) the Garnaut Climate Change Review, *Issue Paper 4: R&D: Low Emissions Energy Technologies* (2008) for the Australian Government, and Foxon's (2003) *Inducing Innovation for a Low-carbon Future: Drivers, Barriers and Policies*. Together these reports highlight the problems governments face encouraging and measuring innovation. These reports provide a contrasting context to assess the usefulness of value for addressing broader innovation problems faced by government. I make some general comments about value in these reports, then look in more detail at the first two reports.

The *Innovation Measurement* report gave positive early confirmation of value's relation and importance to innovation. The *Innovation Measurement* report was written by a committee comprised of a mix of business (including CEOs from Microsoft, 3M and IBM) and academic members. The committee included value in their definition of innovation, saying innovation is "new ... [things] for the purpose of creating new value for customers and financial returns for the firm" (ACIMO 2008, p.i). The committee suggested measurement should be iterative, not static, and include "qualitative and subjective measures" (p.i). Indeed the committee suggest an "ongoing dialogue" for learning and improving (p.5). Such recommendations fit with my concept of the value conversation: an ongoing value construction process. This report gave me early confidence that value was resonating with senior business and academic leaders, and that ongoing value interaction is vital to measuring innovation.

In Australia, the *Powering Ideas* report on the national innovation system has much less of a value focus, preferring to focus on productivity. Value is touched on saying productivity growth is "getting more and more highly valued outputs from any level of inputs" (Commonwealth of Australia 2009, p.11). This report was disappointing from a consumer value-centric perspective, since the measures were significantly more push than pull oriented. Value emphasises an ongoing interaction between innovator and consumer, allowing consumer pull to become more involved in the innovation process.

The *Inducing Innovation* and *Issues Paper 4* report on climate change provided a macro perspective of innovation challenges. Specific climate change innovation challenges included market failures preventing innovation (Garnaut 2008, p.4), and the difficulty of picking winners (p.5), along with "minimising spillovers and encouraging early movers" (p.9). Innovation is modelled by Garnaut as a linear chain, from research to commercialisation to diffusion (p.7), though the Foxon (2003) supporting paper sees innovation as "systemic, dynamic and non-linear process ... including positive and negative feedbacks" (p.i), following Geels (2002). Foxon's definition is consistent with the importance of value's dynamic impact on innovation. Again, while

consumer value is absent in name, its presence is made in the standards a successful policy must reach, which contains several value meanings. Successful innovation stimulating policy, according to *Issues Paper 4*, must be *simple* allowing certainty, allow learning (*novelty*), and create options (*power*) for government. *Lock-in* by technologies and institutions, especially as a dominant design is cited in Foxon (2003, p.28) as an innovation challenge. Thus, several value meanings are drawn upon in *Issues Paper 4*, giving me further evidence of the generality of the value meanings outside the original 3G context.

Now I apply the value theory and value concepts to the first two innovation policy documents to assess the usefulness of a value theory of innovation in 3G mobile phones. The first is the US Department of Commerce policy document on *Innovation Measurement* (ACIMO 2008) and the second is the *NBN Implementation Plan* (McKinsey 2010).

7.4.1 Policy 1: Innovation Measurement

The *Innovation Measurement: Tracking the State of Innovation in the American Economy* document was prepared for the US Department of Commerce by an Advisory Committee (ACIMO 2008). This document responds to a Secretary of Commerce request to develop "new and improved measures of innovation" (Transmittal Letter, in ACIMO 2008). The Secretary is interested not only in the process of how innovation diffuses across the economy, but making this process visible by measuring innovation by sector, and the overall effect on GDP. An academic and business advisory committee was formed including CEOs from IBM, Microsoft and 3M plus five others. The committee sought advice in a public consultation process (April 2007) and reported in January 2008.

The *Innovation Measurement* report has several value-related implications that influenced my understanding of value (see Chapter 6, Section 6.4). In the report, value is used in three important ways. Firstly, value is used in defining innovation. Secondly, measuring is seen as an ongoing dialogue and process of learning, similar to the value conversation, and thirdly, the Committee emphasises "tolerance of qualitative and subjective measures" (p.i). Value is also not only related to innovation inputs, but the Committee was keen to pursue analysis at regional, industry, firm and national level. The Committee looked at measuring innovation from a practical and theoretical perspective.

Innovation is difficult to measure because at the core of innovation is value and value is difficult to measure. Value is subjective, dynamic, emotional and intangible. Yet, I argue that value can be measured by focussing on the intangible outputs of innovation, rather than traditional tangible inputs, such as research and development expenditure and level of patenting activity (see Melbourne Institute 2010, and ABS 2010). By acknowledging the inherent dynamics and soft side of innovation and value, a value theory of innovation in 3G mobile phones focuses on something

akin to consumer satisfaction. My value theory view is consonant with Sveiby (1997) on *Measuring and Managing Intangible Assets*. Sveiby argues for the need to measure relative rather than absolute values for innovation and value. This approach is also similar to Stiglitz et al.'s (2009) work that recommends capturing intangible outcomes like well-being as a replacement for more tangible measures of GDP.

I focussed on measuring the most enduring output of value, which I call attitude. *Buying* (and hence GDP) is only a contingent observable, tangible output of value, but attitude is an ongoing and highly dynamic response to value. Attitude is also useful since it operates at all levels of analysis: regional, nation, firm, and industry by tracing attitudes at those levels. A random sample can capture a cross section of attitudes toward, for example, a State Government, similar to an opinion poll, tracing movement over time. Attitude will vary with new information, so could move very fast (like the stockmarket), but quarterly reporting of attitude, alongside inflation, consumer confidence and GDP metrics, would be useful.

A value theory of innovation in 3G mobile phones provides greater guidance on measuring innovation than innovation theory such as Christensen (1997), Bass (1969) and Kim and Mauborgne (2005). Kim and Mauborgne do not define value, but acknowledge its multidimensional character. Since value is multidimensional, measuring value is not straightforward using Kim and Mauborgne's concept of value innovation. Kim and Mauborgne measure value on a strategy canvas by comparing level of performance by each strategy variable (such as price, comfort, reliability, sound proofing for cars), graphically but not numerically. Thus Mercedes could be compared strategically with Toyota qualitatively but not quantitatively. A subjective weighting to each strategy variable could be made and aggregated but this is inefficient, since to apply this nationally or to an industry, too many data points would be required for each consumer's viewpoint (see for instance Gale 1994). Overall attitude, in contrast, is a single relative overview measure of value. A consumer could give an attitude rating as a single measure towards an industry, state government or product as easily as for example to Mercedes or Toyota cars. Such an attitude could be overall, or by price, performance or other value dimension. Bass (1969) or Christensen (1997) would use sales dollars as indicators of value, or consumer adoption numbers. Bass would use percentage of market size as an indication of potential future growth. Christensen (1997) provides no metric for comparing the value of the disruptive element of a new technology to mainstream elements, using a relative performance comparison rather than absolute financial or value comparison. Thus, a value approach extends innovation theory to measure non-financial value through measuring consumer attitude.

Measuring consumer *attitude* is a complementary intangible measure of value to the tangible accounting measure of price, in the form of sales dollars. Accounting sales measure innovation to

the extent that rising sales may reflect existing customers purchasing more, or new customers making first purchases of new products. Apple's recent rise up the Fortune 500 (a ranking of businesses by sales) is an example of rising sales coinciding with innovation. Both tangible and intangible measures are reflections of value and aspects of an innovative new technology. I argue for innovators to measure both tangibles and intangibles to get a clearer view of levels of innovation and value. For instance, there may be an innovation with no change in price, when something new and valuable is provided to consumers, improving attitude, such as providing more hard drive space in a laptop for the same price. When a price remains constant, but with improved service or performance (such as dollars per Gb of hard drive) consumers may experience an increase in value and improved attitude. However in contrast, an innovator may increase prices while decreasing service, creating an increase in revenue, but a loss of consumer value. Unless both tangibles and intangibles like attitude are measured, reliance on tangible accounting information may provide an inaccurate assessment of consumer value.

In conclusion, a value theory of innovation has something important to say about measuring innovation beyond current innovation theory. I propose attitude is a complementary innovation metric besides sales dollars which captures movement in value, and hence innovation. Value metrics allow innovation scholars to see and measure innovation as a dynamic, subjective and largely intangible phenomenon.

7.4.2 Policy 2: Pricing the National Broadband Network

The second policy document relates to the Australian National Broadband Network (NBN). To achieve universal affordable broadband in Australia has been a goal of Australian broadband policy investigations since the 1990s (NBI 1999, ASTEC 1994). Yet high Australian broadband prices have made some high bandwidth applications unaffordable, postponing their use (NBI 1999, p.195). In comparison, international US-Australia broadband prices per GB fell by 50 per cent each year for five years (p.98). Australian broadband pricing has been based on cost plus margin pricing (p.129), resulting in high prices from high set up costs and low utilisation. The result is historically low usage and low Australian broadband value. A solution, called the NBN, was presented in the 2007 election. The NBN plan proposed the Government should spend $4.7 billion to build a part fibre, part copper network to bring 12 mbps broadband to 98 per cent of Australian households. Revised in 2009, after a tender process failed to produce a viable bidder, the NBN grew to become a $43 billion plan to lay fibre to the home (and exclude the copper owner, Telstra) to 93 per cent of Australian homes. Fibre would deliver 100 mbps to broadband households.

In 2007, I argued that there are two value problems with the NBN (and was invited to brief the Labor Shadow Minister on these issues). Firstly, if high NBN build costs were reflected in high consumer monthly bills (say $100 per month) and hence low value compared to products currently

in the broadband marketplace, consumer adoption would be low. Secondly, if international data traffic prices were high on top of a fast cheap local NBN, the value would be less, and result in lower adoption by consumers.

For the NBN (and any new technology) to succeed, I argue it must create consumer value. The value could come from solving problems, being cheaper, or doing more for less. Faster, better but higher priced services risk low and slow adoption and innovation failure. In 2010, McKinsey advised the Australian Government on the NBN. The McKinsey (2010) *Implementation Plan* adopted a value approach to the NBN in relation to pricing and service delivery, which I now analyse. McKinsey (2010) recommended in the *Implementation Plan*:

- a focus on consumer adoption (and hence value) rather than revenue, saying:
    - *[a pricing] bias towards [consumer] take-up rather than maximising revenue… There are two take-up considerations that should guide pricing:*
      [1] ***Stimulating greater household penetration of broadband services.*** *An affordable price for entry level products can help stimulate greater Internet penetration by bringing Internet services within the reach of a greater number of households.*
      [2] ***Stimulating take-up of higher speed services by households that already have broadband.*** *By enabling higher speeds to be delivered for similar prices as lower speed products today, the NBN should stimulate the take-up of faster broadband speeds across the country* (p.110, emphasis in original).

- affordable entry level pricing:
    - *NBN Co's prices should enable service providers to offer an entry level product to end users that is comparable in price to an entry-level DSL product but offers significantly faster speeds than the top level ADSL2+ product*. (p.110)

- "NBN Co should set prices to maximise take-up of network services" (p.259)
- "Initial price level. NBN Co. should price to maximise affordability and take-up" (p.264)
- McKinsey recommends no broadband caps on the NBN, saying
    - *usage-based wholesale pricing that replicates Australia's existing retail download caps risk constraining use of NBN services. One could legitimately question the value of superfast speeds if download caps remain* (p.259).

Usage-based pricing, such as data caps and excess fees were common in Australia (and in 3G) before the NBN. For example, a Telstra low price $30 per month broadband plan launched in 2005, gave 200Mb fast data, then priced thereafter at $0.15 per Mb. A more recent (Gans 2009) Telstra typical plan provides 60Gb for $130 then $0.15 per Mb thereafter. Current Telstra prices show improved value at $70 for 200GB (though minimum cost over two years is $50 per month extra including compulsory extras, such as phone calls) or $50 for 50Gb (minimum cost over two years $100 per month), shaped to slow speed after the cap is consumed (Telstra 2010). Consumers were surprised with high bills when an excess usage charge was in place, which Gans (2009) calls a

"stupidity tax". Telstra's approach is to produce high quality services, but charge close to world's highest prices (Berkman 2010). Such a high price approach was not recommended by McKinsey and affordability is a major value-creating benefit of the NBN. The NBN overcomes the problem of excess use charges, but at a cost of $43 billion. The excess use charges contribute to the high cost of Australian broadband, hidden in fine print which consumers ignore (*filtering*/*closing*) at the risk of a high bill.

Not all consumers value the NBN positively. Some consumers believe the $43 billion NBN will lead to high priced broadband, citing the NBN project price as several times more expensive than the $10 billion copper network, and hence expect low use. The Opposition party similarly calls the NBN a "white elephant", useless and impractical, while demanding a cost benefit analysis to seek the best value for money in broadband (see Shadow Minister Turnbull 2010). Both consumers and the opposition fear a loss of value from the NBN. High prices, low adoption and better future alternatives such as faster wireless technology may negatively affect NBN's future value. Not all value assessments align across a community, and varying value meaning emphases is natural and normal and evidenced by alternate political parties' views. What is important is that a value conversation takes place which airs alternate perspectives and resolves them.

From a value theory of innovation perspective, value involves an ongoing conversation between consumer and innovator. In the case of the NBN, the value conversation involves several parties. Firstly there is NBN Co., who is the network builder, then there is the Minister responsible, Senator Conroy, as shareholder, thirdly, other telcos as retailers of NBN's services, fourthly, the Opposition Party, fifthly, media commentators and importantly prospective consumers of the NBN. NBN Co. focus mostly on building the network, and little on communicating with prospective consumers. My inquiries of NBN Co. revealed more external communication (value conversation) is difficult since NBN Co. staffing for external media is limited to only one person.

For example, newspapers and online discussion groups are important sources of social value information. Whirlpool.net.au, an online forum, had 20,000 messages posted about the NBN in the three months after the 2010 Australian election. Debate in the forum between advocates and critics of the NBN was heated in the absence of sufficient input from (or value conversation with) NBN Co. and the Minister. From a value theory perspective, NBN Co. should provide ongoing support to consumers, even before a product exists, once consumer value practices (such as *comparing*, *inquiring*) commence. In the absence of innovator support with relevant information to value queries, consumers support each other, using tools at their disposal, such as wikis, blogs, fora, and websites to discuss and debate (see 3.2.3 Inquiring).

McKinsey have recommended a value approach rather than a revenue or profit-maximising approach. A value approach means the emphasis of policy should be on consumer value creation rather than profit maximising. The NBN is a long-term investment offering a low price (if McKinsey's recommendations are followed), high take-up strategy which will reduce revenue in the short term but boost consumer attitude based on short-term competitive pricing. But pricing is not the only type of value that consumers will take into account when assessing the outcome of the NBN. Other types of broadband related value meanings will affect consumer value assessments besides *pricing*. NBN Co. will need to convince consumers of the network's value with good *service*, high *reliability*, and acceptable *time* to build, install and activate network services. The NBN's value has multiple and sometimes conflicting meanings, which consumers assess to form value assessments. Low prices, I argue, are not the end of the NBN value assessment, but they are a very good starting point for the NBN value conversation.

Consistent with Kim and Mauborgne's (2005) value innovation, low initial pricing of the NBN will contribute to a "leap in value". A leap in value will accelerate takeup, create economies of scale and leave fewer unsatisfied consumers for competing technologies, like mobile broadband. Geels (2004) notes that superseded technology fights back when faced with a next generation technology. The owners of a technology at a technical disadvantage invest in large incremental innovation in an effort to maximise performance compared to the competing platform. Sailing ship owners as Geels (2004) discusses fought the transition to steam ships in this way. Therefore wireless, ADSL, and other competing broadband technologies may have a spurt of increased value to compete against the NBN's higher capacity and capability.

In this section, a value theory of innovation in 3G mobile phones provides a new approach to understanding innovation policy. A value approach is useful because it provides a consumer-centric and dynamic perspective from a contemporary dataset. A value theory of innovation has also proved useful in understanding two innovation policy documents on *Innovation Measurement* (ACIMO 2008) and the *NBN Implementation Plan* (McKinsey 2010). A value centric approach suggests measuring attitude is a way to measure value and hence innovation, which other innovation theory has not been in a position to suggest. The McKinsey *Implementation Plan* takes a value-centric attitude towards the NBN as a new technology, emphasising value creation (consumer adoption) rather than revenue maximising. As a result of this thesis I recommend an ongoing value conversation with consumers. This means NBN Co. (the network builder) should keep consumers informed as part of a coherent communications strategy and to address their concerns in trying to understand and value the NBN in their personal context. Recent evidence (personal communication 2011) does however suggest that NBN Co. sees its telco resellers as its main focus for communication, rather than end consumers. From a value perspective, I believe it is short-sighted

for NBN Co. to focus on telco resellers rather than the end consumers of broadband services. NBN Co. will service perhaps as many as 85 per cent of all Australians (NBN Co. 2010), according to their Corporate Plan. Failure to inform these consumers is value destructive, since the uncertainty makes the NBN less attractive. My recommendation is for NBN Co. to make a commitment to an ongoing value conversation with consumers, largely driven by social media. Social media sites, such as popular discussion forums (see for instance Whirlpool.net.au) are an important site of NBN consumer value conversations and should be a priority target of NBN Co.'s communication strategy. NBN Co. joined Whirlpool (2011) two months after my recommendation to them, attracting 1,000 comments and 11,000 views in two weeks. This NBN action, though perhaps coincidental, evidences the importance of the value conversation. Through participating in a social value conversation, NBN Co. made a good start to an ongoing value conversation. The many comments and views when NBN Co. joined Whirlpool evidences the interest in NBN Co.'s answers to consumer questions. However a value conversation is an ongoing process. Only an ongoing commitment from NBN Co. to continuing the value conversation will satisfy consumers' needs for information. Once the environment slows down or uncertainties reduce, then NBN Co. can provide less regular communication with consumers.

In this section, I have shown the presence of *value* in the government innovation literature. These reports, except for *Powering Ideas* the Australian National Innovation Policy, provided early confirmation of value as an innovation-explaining concept. These reports gave me a second innovation-related data source to add weight to the evidence for value in the 3G consumer data. I found support in these reports, particularly the use of value in defining innovation. Value meanings and the value conversation were found in the government literature. Though in the Garnaut approach, a linear perspective on innovation suggests an older more industrially-oriented understanding of innovation, more progressive dynamic understandings of innovation come from innovation policy reports such as Foxon (2003) and the *Innovation Measurement* report.

In this thesis, I acknowledge the challenges of innovation policy at a macro level. On the other hand however, the findings from this thesis document how new technology adoption, that is valuing, influences micro, consumer-level interactions and behaviour, where it is enacted on a daily basis. Facing national policy challenges and consumer challenges is assisted by getting the right value signals to consumers in place. Understanding what different parties value (alternate meanings) will broaden potential for compromise and negotiation. Difficult negotiations, for instance, over pricing carbon (such as cap and trade schemes) will unfold over the next few years. Consumers, like nations, act generally (but not always) to further their own interest, while embedded in their social and institutional context. Consumers are constrained by their social

position, just as industries (and the politicians who seek to influence them) are. Like the coal and oil industries, society faces carbon challenges requiring innovation. It takes vision to break out of the well-trodden path, which Schumpeter (1934, p.87) suggests is the important role the entrepreneur plays as a leader, discovering and guiding others down a new path. A value theory of innovation in 3G mobile phones shows early promise to better understand innovation. Value theory will help innovation policy practitioners to get incentives right to encourage innovation and build better practices to measure innovation. Value theory will encourage politicians to look beyond budget outcomes and towards value outcomes, and value's national equivalent: *well-being* (see for instance French work on extending GDP to include well-being; Stigliz, Sen and Fitoussi 2010).

7.5 Product Design and value

In this section I examine value in light of work on design. In Chapter 1, I found product design and value closely connected when I considered the design-driven innovation literature. In particular, I was drawn to Bloch's 1995 Model of Consumer Responses to Product Form. This model contains many elements that are similar to the value theory of innovation, but with some significant differences. I examine and consider both here.

The most significant differences relate to the degree of change and dynamism in Bloch's model. Bloch portrays a simple three-step model from product form to consumer psychological response (part cognitive, part emotional) and consumer behavioural response (approaching or avoiding the product). Several moderating influences interrupt the flow in the three steps including individual taste (culture, social context, personality), and situational factors. Bloch's model is driven by product goals, rather than consumer needs, and shows no feedback from consumers to designers. Many of the examples focus on the slowly changing nature of some products. Bloch uses design examples such as automobiles, Swatch watches, and the enduring success of classic designs, such as Zippo lighters, Beethoven Symphonies, and rear-engine Porsches. All these examples indicate products which have little opportunity for consumer feedback and user reconfiguration. Yet, there is much in the Bloch model that speaks to value, and indeed Bloch connects his work to value when he says

> *A good design attracts consumers to a product, communicates to them <u>and adds value</u> to the product by increasing the quality of the usage experiences associated with it* (1995, p.16).

Significant similarities exist between a value theory of innovation in 3G mobile phones and Bloch's model. I will touch on four now. Firstly, Bloch cites Gestalt theorists (Ellis 1950, Jones 1991, Katz 1950) to contrast holistic assessment and atomistic consideration of product elements. Bloch is critical of rational conjoint analysis (citing Holbrook and Moore 1981) which aggregates opinions of product elements to produce preferred feature sets. Bloch suggests qualitative research better understand comsumers' reactions to design that could help understand consumer enjoyment

of "beautiful goods". A holistic rather than atomistic approach gives support to my two attitude levels, overall and by value meaning. Secondly, Bloch argues for individual, social, cultural and contextual influences in determining consumer psychological response. This approach agrees with my social and individual value conversations approach. Thirdly, Bloch recognises positive and negative emotional responses to design. I capture this duality in my empirical concept, attitude. Though Bloch does not mention the degree of emotion strength (strong or weak), I found in my dataset. Emotion plays a strong part in Bloch's view of design with emphasis on aesthetics, pleasure and distaste, thereby going beyond the more usual emphasis on function and utility. In later work, Bloch (2011) cites hedonic and semiotic (sign and symbol value) outcomes as other important benefits of design. Fourthly, Bloch finds two kinds of behavioural response: approach and avoid. I find similarity in these responses to my empirical concepts, either positive *buying*, *exploring*, or negative *waiting*, and *filtering* / *closing*. Bloch gives a duality to consumer behaviour, attraction or repulsion, which maps to my dual potential state of overall attitudes.

Bloch (1995) provides an important signpost directing future research towards a value perspective of innovation. Bloch's linear model arises from examining products of a more static nature, rather than the fast-changing 3G mobile phones examined in this thesis. Yet Bloch's model contains four aspects of similarity with the value theory I developed in this thesis. Bloch's work shows (1) a strong emotional emphasis, linked with (2) dual levels of assessment (overall and at product element), (3) dual states of action (attract/repel) and (4) emotional response (positive and negative). All these points of similarity give me confidence in the value theory's robustness in wider areas of application. The main difference is Bloch's linear stage model compared to the value theory's dynamic approach. Bloch's lesser sensitivity to dynamics is explained through his data containing either slow changing examples, such as a rear-engined Porsche, or unchanging examples like a Beethoven Symphony. Whereas 3G mobile phones I examined are highly dynamic in use, Bloch's examples are of much more static nature, explaining his linearity of model. Bloch's model is a significant step towards a value understanding, and gives me confidence of widespread applicability of a value theory of innovation.

7.6 Considering the Consumer Value literature

In this section I contrast the value meanings and practices I developed in this thesis with the consumer value literature. Other literatures could have been used, such as the attitude literature, or literature relating to specific value meanings, such as *power*, *beauty* or *emotion*. While these literatures are significant and relevant as comparisons, I choose the innovation and consumer value literatures as the most "immediate and obvious" (Flint 1998, p.272).

Value research has a rich history. Aristotle is cited as an originator of early analyses of value, distinguishing between use value, exchange value and conspicuous consumption (Gordon

1964). Adam Smith, Marx (1865) and Ricardo (1819) took the idea of value further, and argued for labour as the source of value (Heilbroner 1980), though even Ricardo's contemporaries argued for value as subjective and output-oriented (for instance Bailey 1825). More contemporary views see value as resulting from the meanings consumers place on things (Richins 1994, Verganti 2009), or more simply the use-value emphasised by service dominant logic (SDL) literature (Vargo and Lusch 2008). Managers simplify value to costs versus benefits (Anderson and Narus 1998), or quality versus price (Zeithaml 1988). Value should also be distinguished from values (Rokeach 1968, 1973) though both are seen as constructs that influence consumer behaviour. A subjective view makes value subtle, complex and dynamic, while an objective view makes value a variable to be discovered.

I undertook a wide review of value literature in the Management, Economics and Marketing literature to develop an extended understanding of consumer value creation, and to shed further light on and find disconfirming evidence for alternatives to the value theory as presented in this thesis. While 'value' and 'creation' are highly common in business, economics and marketing literature (mentioned in over 290,000 peer-reviewed scholarly ABI Inform articles; October 2012), literature on "value creation" has over 10,000 articles, and "value theory" is much less common. I therefore narrowed my focus to value theory. Value theory covers Marxian and Ricardian value theory (Lichenstein 1989, Adams 1985, Johnson 1984) from economics, which suggests all value comes from labour invested, extreme value theory (a type of risk management practice related to insurance), Austrian (subjective) value theory, multi-attribute value theory and in number theory, extreme value theory. Multi-attribute value theory, a negotiation analysis technique, is the only directly relevant literature to consumer value. This theory connects back to Lancaster's (1966) work on products as multi-dimensional constructs and consumers relations to products as multi-faceted and complex, rather than uni-dimensional and simple. See reference to innovation in services and Lancaster's work in Section 7.1.1

Value itself in the wider economics, marketing and management literature means many things. Common topics for discussing value in this literature include option value (Bishop 1982), land value, value of information (Willinger 1989), value of time (Dowd 1990, Chavas et al. 1989, Carter 1985), value of human life (Tucker 1993), value of networks (Christensen and Rosenbloom 1995), value of natural resources (Polasky 1992), shareholder value, earned value in project management (Brown 1985), along with connections to pricing and decision analysis. What these value topics have in common is the subjective nature of the value of the object. Land, information, time, human life, shares, and natural resources are all useful, important, when exchanged measured, but the value of these items, like beauty are subjective and in the 'eye of the beholder'.

I used Microsoft Academic Search (MAS 2012) to further explore 'value creation' in the Economics and Marketing literature. MAS provides analysis by journal, and keywords for articles including abstracts. MAS shows 1,760 articles in 342 Journals with keywords 'Value Creation'. I examined the top five Journals in Economics and Marketing; *Industrial Marketing Management* (34 articles), *Journal of the Academy of Marketing Science* (10), *International Journal of Production Economics* (9), *Journal of Financial Economics* (6) and *Journal of Marketing* (4). I also expanded the marketing literature search with the 20 most cited 'consumer value' papers found in Google Scholar. *The Journal of Financial Economics* dealt with value only as shareholder value, so did not add to understanding consumer value (Alburquerque and Schroth 2010, Inderst and Müller 2004, Gillian, Kensinger and Martin 2000). *The International Journal of Production Economics* showed a wider perspective on value, including co-creation (Zhang and Chen 2008), hedonic value, economics of quality (Karipidis 2011), customer delight (Ishii, Ichimura, Ikeda, Tsuchiya and Nakano 2009), customisation (Chen and Tseng (2010), personalisation (Zhang and Chen 2008), yet did not provide a value theory nor disconfirming evidence for nor alternatives to the value theory presented in this thesis.

The 'value creation' literature in the three marketing journals showed a large number of perspectives on and concepts related to value creation, especially given the official redefinition of Marketing in 2007 by the American Marketing Association (2012) as "the activity, set of institutions and processes for creating… offerings that have value for customers, clients, partners and society at large." While this definition likely draws heavily from Vargo and Lusch (2004) on value co-creation and value offerings, the value creation literature follows a diverse and still largely firm and inter-firm centric approach (Grönroos 2011), even when using grounded theory (Ulaga 2003). However with these journals value is largely devoid of connection to value co-creation, though with a few exceptions (Vargo and Lusch 2011, Chan and Lam 2010, Korkman, Storbacka and Harald 2010). Clusters of literature form around competence (for instance, Möller 2006, Golfetto and Gibbert 2006) and capabilities (Eggert, Ulaga and Schultz 2006, Ulaga 2003, Blois and Ramirez 2006) to produce value. Networks and relationships are seen as important sources of value, and thus marketing scholars investigate the relationship life-cycle (Ulaga 2003, Kothandaraman and Wilson 2001), industrial networks (Möller and Rajala 2008, Matthyssens, Vandenbempt and Weyns 2009, Simpson, Sigaw and Baker 2001) through for instance social exchange theory (Hald, Cordŏn and Vollmann 2009). Several types of value meanings were found in this marketing literature, including hedonic (Babin, Darden and Griffin 1994), aesthetics and play (Mathwick, Malhotra and Rigdon 2001), materialism (Richins and Dawson 1991), but did not add significantly to the consumer value meanings noted. Interesting postmodern approaches were noted (Rinallo and Golfetto 2006, Thompson and Troester 2002). Overall, the value creation literature

from a marketing perspective was too firm centric to greatly add to the understanding of consumer value creation, beyond further investigation of value co-creation and service dominant logic, I examine below. However, further investigation of value is possible at MAS through related topics on customer value and perceived value.

In recent management literature, value has a variety of applications. Value is used in relation to value proposition (Maglio and Spohrer 2008), creating value propositions (Rindova and Petkova 2007), value add (Munson and Spivey 2008), tastes and values (Verloop 2006), value leadership (Wallman 2009), societal value (Tebo 2005), and value innovation tools (Balsano et al. 2008, Goodrich and Aiman-Smith 2007). My focus is primarily on consumer value. The recent management literature on consumer value is largely static (Kennedy, Lassk and Goolsby 2002; Srinivasan et al. 2009, Slater and Narver 2000), case based (Adner 2006, Shelton 2009, Tebo 2005) or theoretical rather than empirical (Rindova and Petkova 2007, Ballantyne and Varey 2008, Maglio and Spohrer 2008), with little dynamic emphasis (exceptions are Lenfle and Midler 2009 and Payne, Storbacks and Frow 2008). Recent grounded theory exponents have linked innovation and value but in a business to business procurement rather than consumer context (Flint, Woodruff and Gardial 2002, Flint et al. 2005). Nevertheless, Flint and Woodruff argue for research to shift beyond static typologies of value, and to focus on understanding the processes that create value (2006). Flint and Woodruff's (2006) call to research the process of creating value coincides with the rise of a value emphasis in marketing's SDL literature.

SDL emphasises the importance of value by taking a subjective approach to consumer value. SDL focuses on service (subjective) value over product (objective) value. Service focus allows consumers' experiences to be analysed as unique and contextual in a way that a product emphasis does not. The value approach taken in this thesis similarly emphasises the subjective view of consumers' experiences as a point of departure from the innovation literature. Value is entrenched in the Vargo and Lusch (2008) foundational premises (FP):

FP6: Customer is always a co-creator of value.
FP7: Enterprise cannot deliver value, but only offer value propositions.
FP10: Value is uniquely and phenomenologically determined by the beneficiary.

Flint (2006) overviews the consumer value literature, citing two themes, the value of consumers to the firm, and the value assessment consumers make when buying. Flint emphasises that the value literature has focussed mostly on types of value (for instance Holbrook 1996, Zeithaml 1988, Woodruff 1997, Richins 1994, Flint, Woodruff and Gardial 2002), citing six notions that consumers make when valuing: (2006, p.355)

1. *value as a trade-off (e.g. quality at a given price)*
2. *value as a hierarchical means-end chain*
3. *value as interaction between product, use situation and goals/core values*

4. value as categorised by functional, social and relational benefits coupled with monetary and non-monetary sacrifices
5. value as experiential and hedonic, and
6. value as comparative.

The evidence of the 3G dataset supports most but not all of these notions. Two of Flint's notions are not supported by the 3G dataset. Flint (1996), Woodruff (1997), and Zeithaml (1988) are exponents of the means-end model, which draws a causal link from consumer goals to product attributes and consequences. Similarly, decisions in Rogers (2003) adoption model mark a central point for consumers in transition from pre to post purchase. The means-end model assumes rational action, but I argue consumer valuing practices are much more emotionally charged. I find no support for a means-end approach to value in my 3G dataset (Flint's point 2), nor as value arising from consumer goals (Flint's Point 3; see Hypothesis 5 in Chapter 6). I will now examine five major consumer value studies to see how they compare to the value meanings and practices that I argue explain consumers' adoption of the 3G mobile phone.

7.7 Consumer Value literature and value

In this section I compare five major consumer value studies (Zeithaml 1988, Richins 1994, Holbrook 1996, Woodruff 1997, and Flint, Woodruff and Gardial 2002) to the value meanings and practices I have presented as results in this thesis. These studies include important, highly cited empirical and theoretical analyses of consumer value, including a grounded theory study of business to business value change. These studies test my value assumptions, value meanings and practices (through constant comparison). These consumer value studies were important to my understanding of value both during and after my analysis and helped me to interpret my results and design my research.

The first and oldest consumer value study I consider is Zeithaml (1988). Zeithaml (1988) identifies several properties of value, including:

1. Value is "highly personal and idiosyncratic" (p.13), therefore subjective
2. Value is not "carefully calculated" and has a "variety of meanings" (p.17)
3. Value is dynamic in nature, since "quality perception changes over time with new information" (p.18) and has multiple components
4. Value is "low price", or "quality I get for what I pay" or "whatever I want in a product" or "what I get for what I give" (p.13)
5. Value is the "consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (p.14), so value is an assessment, balancing competing meanings.

Zeithaml's conclusions are consistent with the interpretations I make in this thesis. However, Zeithaml does not find the complexity of the many value meanings that I found in the 3G

mobile phone dataset. Zeithaml's investigation related to mothers testing fruit juices, tomato juices and fruit flavoured children's drinks. Social construction between mothers and children was not emphasised though this is likely to have occurred and would be predicted by my view of value. Zeithaml's sample was focussed on females aged 25 to 49 with a child under 10, where the 3G study sought to maximise variation in accordance with grounded theory's theoretical sampling approach. The wider variety of value meanings I found in this thesis is likely and expected, given the theoretical sampling approach I take.

The second consumer value study I analyse is Holbrook (1996). Holbrook (1996) provides a typology of eight value meanings. Holbrook developed the meanings through examining the "rather extensive but neglected literature found in the philosophical field of Axiology or the Theory of Value" (p.138). Holbrook defines value as an "interactive relativistic preference experience" (p.138). Thus value is a relationship between a valuer and something valued. This relationship involves *comparing*, is contextual, and so is personal and subjective. Holbrook suggests value is the "standards or criteria" (p.138) on which value preferences emerge resulting in a positive or negative result, consistent with overall attitude identified in my study of 3G consumers' value experiences. Lastly, value is experienced through consumption as an experience, not at just a point like the moment of purchase. Holbrook's three value dimensions are intrinsic or extrinsic, self or other-oriented and active or reactive. Each combination produces a value type: play, efficiency, quality, beauty, status, ethics, esteem and spirituality. Multiple examples are provided for some value types, such as justice, virtue or morality for ethics. The Holbrook typology provides contrast and new value examples to those found in the 3G consumer context. Thus while justice and ethics is not found in the 3G dataset, those types of value can be constructed from combining 3G value meanings, such as *connection*, *duty* and *power*.

Consistent with Holbrook I suggest value is a subjective, contextual assessment. The self or other dimension corresponds to individual and social value practices. Emotion is significant in its absence from Holbrook's typology, especially given its centrality in understanding value in this thesis. The four other-oriented value examples (status, ethics, esteem and spirituality) are connected to a combination of social value meanings. For instance, ethics relates to *power*, *duty*, and *community* value meanings. *Time*, *beauty*, *convenience* and *fun* are all important value meanings consistent with Holbrook and this thesis. The active reactive dimension is not closely matched to the value meanings found in this thesis, nor the intrinsic extrinsic dimension, but this is less critical given no additional value meanings emerge from Holbrook's typology. Importantly, in this thesis I attempt to wrap a process around valuing practices, and to suggest how value might shift over time, which presents an alternative value construction approach to that proposed by Holbrook.

The third consumer value study I compare with the value theory is Woodruff (1997). Woodruff (1997) provides a theoretical overview of consumer value, and advises organisations to better understand consumer value. Woodruff sees the consumer value literature as "quite fragmented ... with ... no widely accepted way of pulling all the views together" (p.142). Woodruff proposes a means-end framework of consumer goals, consequences and product attributes to tie value together in a hierarchy (consistent with Zeithaml 1988). Woodruff argues for ongoing consumer interaction to sense shifts in value (see Chapter 8), but says "we need richer customer value theory that delves deeply into the customer's world of product use in their situations ... [to] help us understand how customers form preferences that reflect desired value" (p.150). Woodruff wants to know how value changes over time, and in different contexts. In this thesis I respond to Woodruff's call and build a consumer value theory to better understand the processes of consumer value. Goals as an explanatory concept were not found in the 3G consumer data except for an implied goal to seek and protect value. Recent empirical work testing Woodruff's framework found only weak support for goal-seeking at least in the case of digital goods (Kim, Gupta and Koh 2011). Many aspects of Woodruff (1997) are found in the 3G consumer value meanings and practices, such as including both pre- and post-purchase activity, a focus on perception and consumer experience, and multi-attributes of products. Woodruff's research about what consumers value is a foundation of this thesis. Woodruff's work is continued through his former PhD student, Flint, discussed later in this section (Flint, Woodruff and Gardial 2002).

The fourth consumer value comparison study is Richins (1994). Richins (1994) researches value meanings, covering both public and private meanings. This first study collected stories (private meanings) of important possessions. Respondents wrote why valued things were important, and how and when they were acquired. Four types of value emerged: sentimental, practical, recreational and aesthetic. In the second study, respondents clustered the possessions from study one together (to generate public meanings) and three new dimensions of value emerged. Possessions were personal (such as photos) or practical (a sewing machine), high (such as a mink coat) or low status (a pet), and necessities (such as a house, or clothing) or pleasures (musical instruments, or sporting equipment). Richins dimensions provide contrast to the 3G value meanings, but are equivalent to *need*, *emotion*, *fun*, *community/connection*, and *beauty* value meanings. Public and private value meanings relate easily to social and individual value conversations.

Richins approach informed and confirmed in four ways the benefit of a grounded approach to better understanding value. Firstly, Richins' work helped make me more sensitive to what consumers valued by providing wider examples of types of things valued, and the private and public meaning of those things. The private and public categories helped me to formulate my thinking around value conversations. Secondly, Richins' work suggests the same object may be

valued in different ways depending on a consumer's context and personal experience with an object, such as a wedding photo. The importance of context informs my subjective approach to understanding value. Thirdly, Richins argues for greater "richness or complexity of meaning obtainable through phenomenological or other interpretive approaches" (p.518). In this thesis, I take up Richins' suggestion and apply an interpretive approach to understand consumer value meanings. Thus I suggest in this thesis a variety of value meanings. The value process allows new meanings to also arise (*novelty* and *connecting*; see Section 6.1). Fourthly, emotion is emphasised by Richins in the types of objects valued, and encouraged me to look beyond rational explanations for valuing behaviour. Richins contained no value meanings beyond those I found in the 3G dataset, but several 3G value meanings were not in Richins' analysis: *service*, *reliability*, *time*, *novelty*, *power*, *duty*. Richins focus on tangible possessions, explaining missing intangible aspects of value, like *service*.

The last consumer value study I compare to this thesis is Flint, Woodruff and Gardial's (2002) grounded theory of what the authors call 'customer value change' in auto industry purchasing departments. Time, cost, quality, performance and newness appear as value meanings in the auto industry study which drive value change. Tension management emerged as a key driver of behaviour as employees act to reduce tension placed upon them in their purchasing departments. All the value meanings identified in my 3G dataset relate well to Flint et al. value experiences except *beauty* and *simplicity*. It seems reasonable that these two value meanings are not emphasised in an administrative office environment. For example, *power* was found in influencing suppliers as "demanding suppliers comply" (p.111), *connecting* was found in "relationship building" (p.111) and *duty* was found in using guilt to motivate suppliers.

In reflecting on the value meanings that emerged from the 3G dataset, tension management seems closely linked to *emotion* and *attitude* as a consumer behavioural driver. Tension was further analysed in relation to properties of context, magnitude and volatility. Magnitude is equivalent to the strong or weak dimension of attitude. Volatility is equivalent to the shifting of attitude over time, though the 3G consumer dataset did not emphasise variation in timing of attitudes. All attitudes arose quickly. Context was relevant to shifts in value with new information and related impacts on emotion and attitude. Some concepts, such as locating and coordinating suppliers were specific to the auto context rather than general, though locating is similar to *exploring*.

Flint, Woodruff and Gardial (2002) in examining value in a business-to-business context, show considerable overlap with the consumer social value practices I found in my data. The supply chain does to some extent mirror the consumers' social network. The practices used to hold these auto business networks in place and deal with the shifting environment are reflected in the balancing of competing priorities and are enabled by ongoing value conversations. While the concepts Flint et al. found use different terms to describe constructs, the underlying message is

largely consistent. Consumers and auto purchasing department workers both deal with a shifting world and manage through ongoing value conversations, in patterns of *duty* and *power*.

In this section, I compared the value theory with the value creation and consumer value literature, and showed how this thesis builds from and responds to the consumer value literature. Five major consumer value studies were compared, some theoretical and some empirical. The consumer value literature gives me confidence in the foundations of value, as a subjective, interactive preference with multiple meanings. In this thesis, I extend understanding value beyond these consumer value studies into a dynamic consumer context. In this thesis, I build a dynamic perspective of the value process which explains consumers actions and their main concern: responding to loss of value. My value meanings were found in these consumer value studies and parallels in the business to business context. Value meanings were largely consistent with the consumer value literature, except for Holbrook's active / reactive, and intrinsic / extrinsic dimensions. Value practices, while evident in the innovation literature were largely absent in the consumer value literature. The 3G data does not support means-end theory, where goals (except value) drive consumer behaviour. Emotion emerged in this thesis as a more salient driving force.

Two further consumer studies outside the Consumer Value literature are worth touching on here. These studies also discuss important value related concepts, not included in the five studies above. In the first study Zaltman and Zaltman (2008) analyse over 16,000 interviews to identify seven deep metaphors with which to better understand consumers. Emotion, the authors say, is also an essential step in understanding consumers, though the authors follow goal-oriented means-end assumptions, similar to Woodruff (1997) and Zeithaml (1988). Four of Zaltman and Zaltman's deep metaphors relate easily to the value meanings: balance (contesting value meanings), connection, resource (*price*) and control (*power*). Two further metaphors (journey and transformation) are equivalent to the ongoing value conversations, the learning from pursuing positive emotional value outcomes (see Hypothesis 5 on emotion) and *exploring* for *new* value. The last deep metaphor, container, brings to mind the work of Green (2009) who suggests that consumers' abilities to compartmentalise their value assessments, allows them to make different value assessments based on their context, and therefore remain unconcerned by their inconsistent valuing. For instance, behavioural economists test consumers' decision-making under the influence of alcohol and drugs, or other emotional stimulus (Ariely 2009). I note from my own experience that consumers shop and value differently when looking for a birthday or Christmas presents compared to everyday shopping. Even the order in which consumers are presented with prices changes how they value an object of interest (Cialdini 2001, Smith and Nagle 1995). Compartmentalising allows consumers to follow multiple value standards in different situations. Compartmentalising leads to complex contextual behaviour. The concept 'container' accounts for consumers' abilities to value differently

in different situations. A container recognises the boundaries we socially construct around similar contexts for appropriate behaviour. What is appropriate in one context is inappropriate in another context because consumers follow different social and valuing practices.

A final consumer study comes from Mick and Fournier's (1998) grounded theory work on paradoxes of innovation. The authors found consumer meanings and perspectives of technology as well as coping strategies. Mick and Fournier found many contesting meanings including control, freedom, new, competence, creates needs, assimilation and engaging, along with their opposites, such as engaging or disengaging. These meanings fit well with the value meanings: *connection*, *power*, *needs*, and *new*. Coping strategies identified include ignore, refuse and delay fit easily as *closing* strategies. These last two studies show that many of the value meanings I found in this thesis are consistent with other grounded and consumer-oriented research.

Conclusion

This chapter seeks disconfirming evidence for and assesses the usefulness of a value theory of innovation in 3G mobile phones with relevant literature. I compared innovation and consumer value literature to the understanding of value concepts which emerged from my analysis, and sought disconfirming evidence in wider economics and marketing literature on value creation. I argued when revisiting the innovation literature, that a value emphasis emerged from significant innovation authors, such as Schumpeter, Porter and Drucker. Secondly, I argued that value is a useful analytical concept because it allows two themes to emerge in defining what innovation is. Innovation can mean simply doing something new, or innovation can mean doing something new to create or add to consumers' value. The literature contains both interpretations of innovation and a value-centric perspective allows the second interpretation to appear. Thirdly, close examination of five major diffusion of innovation studies showed value practices and meanings within current understanding of how innovation diffuses. Fourthly, innovation policy documents also provide confirmation of value beyond my consumer datasets and provided a site to assess the usefulness of a value theory of innovation in 3G mobile phones. Lastly, design literature also showed strong connection with value theory, confirming several aspects of my value hypotheses.

In the last part of the chapter, I compared the consumer value literature with value concepts in this thesis. I showed how my interpretations derive from and extend previous understandings of consumer value. Previous consumer value literature focussed mostly on typologies, definitions or properties of value, rather than a process understanding of value, except in a business-to-business context. One point of contention emerged. Consumer value literature sees consumer goals rather than emotion as a driver of consumers to action (see further in Hypothesis 5; Chapter 6). In other respects, the literature supported value meanings and value practices.

Chapter 8: Conclusion, Limitations, Recommendations

8.1 Conclusion

The value theory I developed in this thesis is a step towards a new and useful tool to understand innovation in 3G mobile phones from a consumer-centric perspective. Since 1962, Rogers has been the intellectual leader of innovation theory on consumer technology adoption with his theory of early and later adopters. Rogers's theory of early adopters (2003) generalises that consumers are driven by socio-economic (income) and personality (high empathy, high social connectedness) variables. In this thesis, following calls from the literature (Van de Ven and Rogers 1980, Rogers 2003, p.xxi, p.127), I sought to build the basis for an alternate explanation, based on constructionist (Berger and Luckmann 1967) and dynamic approaches, using grounded theory (Glaser and Strauss 1967; see Chapter 2). Previous explanations from Bass (1969) and Ryan and Gross (1943) seek to understand innovation adoption through statistics. Only recently did a focus on meaning (Christensen 1997; Verganti 2009) and value appear (Kim and Mauborgne 1997, 1999, 2005; Drucker 1999). Over-adherence to Schumpeter's (1934) view of innovation that focuses on new products, services, methods and raw materials and on innovator's supranormal profits (Nelson and Winter 1982) has constrained delivering technology-driven price falls in some industries, reducing value to consumers, limiting market growth and innovation success (see for instance Fletcher 2009 on high broadband prices in Australia; Section 7.4.2).

I have built a grounded consumer value theory of innovation in 3G mobile phones, arguing from the literature and my data on consumers' experiences for a new dynamic explanation for consumer adoption of 3G mobile phones. I argue that consumer value creation is the essence of consumer-related innovation, and emotion is the core of consumer value. Going further, in this thesis, I analyse value into two major new and useful components; value meanings and value practices of an individual consumer. Value dynamics emerge from new value information, either socially received (for instance, *observing* and *recommending*), or individually perceived (for instance, *exploring* and *comparing*). Emotion is closely connected to value dynamics, balancing

contesting value meanings, and simplifying responses to multiple individually perceived or social inputs. I argue that emotion is an important and novel driver of consumer value assessment and related action. I base this claim on my 3G mobile phone data and through supporting findings in the innovation, consumer value, design, emotion and attitude literature. Rarely has emotion taken centre stage in an innovation theory (though this is consistent with Rogers's persuasion phase of innovation adoption; 2003, p.174). Of course, emotion was the end point of my investigation, not the starting point, so further work to analyse emotion, its dynamics, components and significance in value construction is required.

In this thesis, I link innovation, value, grounded theory and consumers together by analysing how consumers buy 3G mobile phones. Insights drawn from a 3G consumer dataset has guided an alternative value approach to opening the *black box of value* in innovation. To assess the usefulness of the grounded theory, I applied (in Chapter 7) the value theory of innovation in 3G mobile phones to two innovation policy challenges:

(1) Innovation Measurement: A value theory of innovation proposes that innovation measures need to develop a greater focus on intangibles, using measures of, for example, consumer attitudes (an emotional expression of value). In this way, these measures will enable policy-makers to assess consumer value alongside more tangible innovator financial output measures, to better measure value creation. When business is managed only through tangible financial outcomes like sales and profit, de-emphasising consumers' emotional outcomes, then the summary of firm performance is less complete. The emotional alongside the financial impacts of innovation provide a new measurement opportunity.

(2) NBN new technology pricing: A value theory of innovation suggests a value-maximising rather than a revenue-maximising approach will encourage new technology adoption and success.

8.2 Aims of this thesis

In this thesis, I set out to present a dynamic, consumer-centric grounded theory of innovation adoption in 3G mobile phones. I call this a value theory of innovation adoption in 3G mobile phones. The aim was to produce an enhanced understanding of (1) innovation and (2) how and why consumers adopt new technology. From a value perspective, during the course of the thesis I broadened my view of what innovation is. I shifted my view of innovation as simply novelty to a focus on value creation and the adoption process (Drucker 1999, Vargo and Lusch 2004, Prahalad and Ramaswamy 2004, Kim and Mauborgne 2005). I undertook to define what value might be (the value meanings: Chapters 3, 4) by examining how consumers understand value (the value practices: Chapters 3, 4, 5). My view of value emerged through the properties of value found from analysing consumers' 3G mobile phone experiences. The theory of value I developed integrated my understanding of the value meanings and practices I found and lead me to five value hypotheses. In

Chapter 7, I assessed the plausibility and credibility of the value concepts by comparing the value meanings and practices, I found, to the innovation and consumer value literature, and two innovation policy documents in Chapter 7. In this way, I answered my research question: *how do consumers understand value in a new technology?*

My analysis of value provides a dynamic, consumer-centric explanation of innovation adoption. I analyse value into value meanings, value practices, attitude, and other non-core concepts. Value meanings explain value's complexity, and potential for paradox, such as calling a 3G telco a 'necessary evil'. Value practices suggest why and how value is dynamic, through accepting or rejecting new information which shifts value. Attitude, I define as: (1) what remains emotionally after consumers value, (2) an emotional indicator of value, and (3) how a value assessment endures (see Section 4.1.2 Attitude). In summary, value is: (1) a consumer's complex, dynamic understanding of their social and perceptual environment, expressed as two types of attitude; (2) firstly, a collection of attitudes relating to particular value meanings, which through a consumer's emotion is resolved into secondly, a single overall attitude; (3) oriented towards a value target (like a 3G mobile phone); and (4) reflected as an emotion with strength (strong or weak) and direction (positive or negative). Attitudes capture the enduring aspect of the emotion. The meanings of value, emotion and attitude are compared in Chapter 6. Value is expressed as remedial action (*problem solving*) if negative enough, *buying* or *using* if positive enough, or *waiting* if in between. Value-related actions occur when emotional thresholds are exceeded. Strong attitudes stimulate *recommending*, both positive and negative. I analysed value through pre- (Chapter 3) and post-purchase (Chapter 4) phases and through the actions stimulated by value (Chapter 5). I analysed value as it emerged from three value conversations: between the consumer and the telco, with the consumer's social network of peers, and individually from the consumer's personal perception and investigation of the technology. Value has provided an enhanced reinterpretation of innovation from an empirical consumer and theoretical investigation.

Below, I consider future consumer value research, the thesis limits, strengths and weaknesses of the value theory, and I assess the usefulness of a value theory by making recommendations for consumers, innovators and policy makers.

The value theory of innovation in 3G mobile phones engages with innovation literature and provides reinterpretations to several major theories of innovation adoption:

- Enriches Christensen's (1997) uni-dimensional 'performance' variable as a proxy for value's multiple meanings (disruptive technology theory).
- Enhances understanding of innovations multiple value meanings (Schumpeter's 1934 *new*, Porter's 1980 *different*) and individual adoption value practices (Bass's 1969 *recommending*,

observing), through identifying further meanings (*simplicity, duty, beauty, power*) and practices (*comparing*, *filtering/closing*).

- Magnifies Bijker's (1995) understanding of group problems co-constructing new technology to propose a process of individual level adoption value practices (social construction of technology theory).
- Extends Bijker's (1995) and Ryan and Gross (1943) historical analysis of innovation adoption to a contemporary innovation setting, to access through interviews consumer adopters' living experience, interpretations and understandings.
- Extends Kim and Mauborgne's (2005) value innovation concept, to develop an in-depth understanding of the black box of value and its connection to innovation.
- Treats adopters as unique individual's rather than Rogers's (2003) generalisable, adopter category members. Value theory is a dynamic and constructionist reworking of Rogers's linear adoption model, while building from key diffusion components, such as social process and adopter process (knowledge to persuasion to decision) (diffusion of innovation theory).

8.3 Further work on the value theory of innovation in 3G mobile phones is required

This thesis examined innovation, value and emotion particularly in the context of 3G mobiles phones to develop a value theory of innovation in 3G mobile phones. To further test the boundaries of applicability for the value theory, more work is required. I therefore suggest further research of the value hypotheses which include:

- Hypothesis 1. Value is closely linked to consumer action with new technology.

The value model has been derived in the 3G mobile phone context and compared with results in fruit juice and drinks consumer market (Zeithaml 1988) and business to business automotive industry (Flint, Woodruff and Gardial 2002). Preliminary testing of the 12 value meanings in three other consumer contexts (described in Chapter 2) beyond 3G mobile phones found no new value meanings, but did not test Hypothesis 1. Therefore further research is needed to assess the robustness and generality of Hypothesis 1 (consumer value as a driver of adoption) with more technologies, such as fixed broadband (the NBN), and electric vehicles. I foresee the need for research to test the hypothesis in a number of industries, following the Christensen (1997) template. Such testing in other contexts would assist in expanding the generality of the value model. Suggested contexts are non-communication products, like electric vehicles, high service and fast consumption products like wine, and meaning-heavy products like fine arts.

- Hypothesis 2. Value (when complex) has multiple and conflicting meanings.

While value's multi-dimensional nature is well documented (for instance Kim and Mauborgne 2005), research to confirm exhaustively what value meanings exist would be useful. A study

comparing my value meanings with other value typologies would be a good place to start. A complete list of value meanings would provide a value vocabulary for innovation research and practice. Other value typologies in the consumer value literature not included in Chapter 7 could be compared, such as Rokeach (1973), Lai (1995), Holbrook (2006) and Rindova and Petkova (2007). Further investigation of the link between value and values is justified to definitively analyse similarities and differences, especially given comprehensive lists of values (see humanityquest.com).

- A broad examination of how value meanings contest with one another is important to further understand the micro-sociological process at the core of value. Further investigation into the links between attitudes at value meaning level (specific attitudes) and how they aggregate (overall attitude) is warranted to further extend knowledge of the core process of value. An investigation of the NBN (the Australian high speed National Broadband Network) could be an interesting contextual site for such a study because of the highly emotional responses to NBN debate, and the wide range of arguments tabled in the debate both for and against the NBN. Consumer discussions on product review webpages, and forum websites (see www.whirlpool.net.au) could also provide interesting contexts for NBN value meaning contention and are therefore worth further analysing. Tools to provide real-time analysis of value (co-construction) would provide timely, useful and valuable feedback to innovators and consumers alike.
- An historical macro overview of shifts in consumer value over time could be useful to contrast with standard historical accounts of value development. Such a project would trace the evolution and change in value meanings of innovation from the ancients (such as Aristotle), to early economists (Smith, Ricardo, Marx, and Bailey) through to modern day, co-construction of value (Vargo and Lusch 2004, Grönroos 2000) and consumer value literature (Woodruff 1997, Rokeach 1968, Zeithaml 1988, Flint, Woodruff and Gardial 2002). Value meanings continue to evolve, including recent greater emphasis on valuing human activity's impact on the environment, such as climate change. Significant historical value shifts are associated with the abolition of slavery, equal rights for African Americans, and voting rights for women. Future value shifts could include extending legal rights to plants (see Stone 1972) and minority law making (Reich 2008), both trialled in Switzerland.
- Hypothesis 3. Consumers express value experiences as *attitude*.

Hypothesis 3a. *Attitude* occurs at two value levels: as multiple attitudes linked to specific value meanings and as a single overall attitude summarising value generally.

Longitudinal measurement of consumer attitudes towards several value targets could be traced. Attitudes towards a vendor like Apple could be compared to attitudes towards individual

products such as the iPad, and iPhone. A detailed analysis of value information that shifts attitude could be traced through consumer diarising or other self-reporting. Of particular interest is whether attitudes can shift without new value information, such as forgetting your opinion (see Section 4.1.2).

- Hypothesis 4. *Closing* emerged as an important value practice and *simplicity* emerged as an important value meaning.

Further investigation into the significance to consumers of *filtering* and *closing* value practices and the *simplicity* value meaning in comparison to other value meanings is warranted. Apple consumers are a good early research site for simplicity research as Apple puts heavy emphasis on design-oriented *simplicity*. The research would aim to better understand what *simplicity* is (opening the black box of simplicity), explore what other concepts *simplicity* is related to in consumer's minds and how Apple's consumers respond to *simplicity*.

- Hypothesis 5. Value is more closely linked to emotion than goals.

Greater understanding of emotion dynamics would further explain the process of value, resulting attitudes and impact on innovation. Such research would open the black box of emotion. Emotion could be further investigated through a similar grounded theory methodology to the one I used in this thesis. The objective of such a study would be to develop a dynamic theory of emotion, rather than to use the modular or taxonomic approaches common in the emotion literature (de Souza 1987, Charland 1995 in de Souza 2010). Questions to answer include: what is emotion? How do people express their experience of emotions? How do people cope with emotions? A sample site for such research could relate to a complex technology decision strongly affected by emotion. Questions such as how did you come to your decision? How do you find your decision now? Is there anything that you would change about your situation now? A similar study could be made into the value meaning I call *need*, perhaps connecting literature on addiction to brand loyalty. An examination for instance of Apple versus Samsung 3G mobile consumers would further enhance understanding of variation in meaning consumers give when they say 'I *need* it', more closely examining the attraction of an innovation.

- Extending the work on emotions could include comparing a grounded theory of emotion and related literature on goal-seeking. I suspect that similarities may appear between these two concepts (emotions and goal-seeking), with emotion operating on a very fast time scale (less than a second) while goal-seeking arises on a much slower time scale, perhaps measured more in days, months or years. Linking these two concepts builds the bridge between value and the highly cited means-end analysis, found in consumer value literature (see for instance Zeithaml 1988). If emotion is a learning feedback cycle then goal-seeking similarly responds to how

consumers learn based on emotion. The connection between consumer learning and emotional experiences is worth investigating. Connecting research on emotion, goal-seeking, empathy (Decety and Ickes 2011, Davis 1996), and individuals with low emotional intelligence such as corporate psychopaths (Boddy 2006, Boddy, Ladyshewsky and Galvin 2010) is also recommended. Such research will provide evidence of whether emotion and goal-seeking (and related concepts) are similar phenomena operating on different time scales through different mechanisms or dissimilar phenomona, derived from similar conceptual components.

8.4 Limitations

Several limitations arise in this thesis as a result of my choice of a grounded theory methodology. The limits of grounded theory include that grounded theory:

- is not always generalisable. (Grounded theory seeks generality, rather than statistical generalisability, through processes to extend domains of applicability, which I outlined in Section 2.6.3, such as comparing results with innovation, consumer value, emotion and design literature, innovation policy documents, and further consumer triangulating datasets.)
- is not able to measure strength of relationships, or certainty of model fit to data.
- is not able to prove cause and effect between the developed concepts.
- is not numerically predictive (though it is circumstantially predictive).

Further to the generality of a value theory of innovation in 3G mobile phones, grounded theory seeks to discover concepts from micro-sociological and literature analysis, that is useful to explain consumers' experiences of their world, and in this case, valuing a new technology. A theoretical tension arises between gathering local descriptions of consumer's experiences and asserting the analysis results in generally useful concepts worth applying in other situations. Grounded theory, in the pragmatist tradition, resolves this local versus general tension by emphasising the usefulness of general concepts in future action, rather than seeking and finding 'truth'. Glaser, as mentioned in Section 2.5.1.4, suggests a grounded theory is "abstract of time, people and place" (2001, p.11). The concepts, developed in a grounded theory, aim to be used in other contexts where the same basic problem occurs. While the local problem with 3G phones, was loss of value, such as high bills, poor network coverage, and post-purchase reality not living up to pre-purchase information, the value concept could be usefully applied in other complex choice decisions with dynamic and incomplete information, changing value meanings, shifting context, and time pressure to pursue action. In Chapter 2, I suggested other situations that meet these criteria could include how students decide which university to attend or course to study, why consumers decide to smoke, why couples decide to marry, and at a group level, why nations go to war. The conceptual tools of value meanings,

value practices and hypothesised properties of value are useful to consumers as they evaluate and act in these situations.

In a wider sense, will the conceptual tools of this thesis still be useful and meaningful in another generation, or in traditional tribes in New Guinea, or if used in ancient Greece or Rome? Such questions push the limits of the generality of a grounded theory. No theory will work in any possible circumstances. Some examples of where a value theory would break down would include in a situation where there was no money or means of exchange, where there is abundance and no need to apportion scarce resources, and when there is no choice available, such as a slave society or the military. Notwithstanding these extreme contexts, a grounded theory is a step forward with new concepts, new analysis, and new ways of understanding complex social situations, opening up the possibility of new consumer responses to 3G mobile phone purchasing opportunities. Value practices, value meanings and value properties, which open the black box of value, are a set of useful new tools to inform consumers.

My work in this thesis could be extended in reference to research and literature in communication, knowledge management, consumer behaviour, marketing, new product development, economics (especially behavioural economics), psychology, and gender studies. In analytical terms, discourse analysis, and Actor Network Theory may extend understanding of consumer value creation processes. In this thesis, I only interviewed current consumers of 3G mobile phones. Non-consumers could also be interviewed to provide a wider dataset, pursuing differences between consumers and non-consumers. Variation in the answer to the research question by consumers and non-consumers may further explain why some consumers reject 3G technology.

Ethical clearance prevented data collection from certain at-risk groups that could have assisted in making the theory more general. Such groups included children and homeless people who could add variation in understanding alternative perspectives of value. Also blue collar and specific religious groups, though targeted for interview, were not interviewed, and may provide alternate perspectives to the results.

8.5 Recommendations

A value theory provides new tools and language for consumers, innovators and policy makers to judge innovation. Value places a greater emphasis on emotional responses, as attitude, ongoing sensing of these attitudes (value management) for innovators to better understand consumer's needs, to measure these attitudes for policy makers, and for consumers to understand their dynamics. A value theory emphasises consumer's subjective, dynamic experience (value meanings) and processes (value practices) in dealing with innovations such as 3G mobile phones.

8.5.1 Innovation Policy Makers: value means innovation is a dynamic and emotional phenomenon

The results from applying a value theory of innovation in 3G mobile phones to two innovation policy documents (see Section 7.4) emphasise the need to consider innovation as a dynamic rather than a linear phenomenon. Emotions at the core of consumer innovation adoption are important for two reasons. Firstly, value (and hence consumer attitude, and emotions) could be monitored to understand the level of innovation in the economy, alongside tangible measures of innovation, such as growth in sales and profits (see Section 7.4), rather than traditional measures like levels of patent activity. Secondly, value maximising rather than revenue or profit maximising may encourage consumer adoption of new technology. Policies that encourage greater understanding of consumer value by innovators both during and after product development are important. Sensing shifts in consumer value (and hence innovation) will require ongoing dialogue between policy makers, innovators and consumers. I call such a dialogue **the value conversation**. Tools such as online forums to collect continuous feedback for government programs are useful examples of value conversations and highly recommended. However, too many government forums will confuse consumers. Therefore, to encourage simplicity, I recommend a single consumer-centric My Government (mygov.gov.au) portal. Such a portal would collate feedback from each consumer to all levels of government (State, Federal and Local). Every voter would have a personalised My Government webpage which collects their government interaction. Simple versions of this approach already exist as an iPhone app to provide feedback to local government allowing consumers to report potholes in roads. Once connected together consumers could assist one another with information and answering each other's queries, similar to online support discussions.

Two further recommendations relate to measuring innovation and encouraging consumers to adopt new technology, such as the Australian NBN. To measure innovation, policy makers might usefully seek to measure value. This approach focuses on the intangible outputs of innovation rather than the more usual tangible inputs of innovation. I recommend policy makers measure consumer attitude towards aspects of the economy and innovation in particular. For instance, consumers can report which products, companies, industries and regions are improving through innovation. A government mobile phone app could simply and easily facilitate such data capture. Consumer views of innovative products, services, industries, and organisations would be reflected in their improving attitudes towards various value targets. Conversely, decreasing value can also be traced through falling attitude towards various value targets, for instance through price rises, time consuming administration, or complexity of process. While consumer attitude will move with new information, quarterly measurement will provide adequate timely reporting. To enable comparison over time, the same consumers should be the focus of attitude data collection.

To encourage consumer adoption of new technology, policy makers might usefully engage in a value conversation with consumers and innovators. Policy makers need to engage with consumers and other stakeholders to sense and respond to changes in value. Rather than only investing in research and development, policy makers could encourage innovators to seek, understand and meet consumer needs. For instance, innovators should aim for electric cars to reach a comparable price to petrol cars, and the same safety standards, so as to become attractive to consumers. I recommend investment in the form of output-oriented rewards (following Ferrers 2008A) rather than input-oriented grants. The benefit of this approach is the market chooses the best technology, based on the best value to consumers, rather than the government choosing the best technology based on the best written grant proposal. To encourage development of, for instance, low carbon energy technology, policy makers could rather than investing in a variety of alternative power types (solar, wind, geothermal), instead reward the technology which gives consumers the best value. Best value could mean cheapest and cleanest energy and clean vehicles produced, or it could mean bringing jobs to where they are scarce, or quickest to market rather than cheapest. Value's multiple dimensions means there are many possibilities, but the degree and type of impact on consumers is a high priority as is finding out what consumers value. In Australia, raising the goods and services tax (GST) could fund clean energy and clean vehicle output to attract innovators into the market. For instance a 2 per cent increase in GST could raise $2 billion per month for a Green Energy Fund to pay clean energy and clean vehicle makers a reward for clean innovation. Insufficient production claims on the Green Energy Fund should lead to non-technology clean energy strategies, such as planting trees.

8.5.2 Consumers: value is gathering and balancing competing meanings

Consumers will likely benefit from understanding what value is and the importance of emotion in value assessment, construction and creation. Concepts I developed in this thesis will assist consumers to understand their own behaviour. I foresee consumers learning about value through future publications, and through educating innovators to focus on value creation. Value is multi-dimensional for consumers (arising from multiple meanings) and reflects the consumer as more than just rational. Consumers actions are strongly connected to their emotional, social (including *duties* as parents, partners or family members) and sensual physical influences (such as emotion and attitude). Consumers assess and balance value constantly as new, relevant information becomes available, emotionally *filtering* out the unimportant and *closing* off the irrelevant. Value is highly dynamic and sensitive to new value information. Value practices are physical (*exploring*, *comparing*) or social (getting or giving *recommendations*). Value, while complex, is expressed simply (as overall attitude; "my phone is the world to me", "there is no value for me") and

emotionally as attitudes (strong or weak, positive or negative). My 3G consumers could describe typically 20 and up to as many as 35 value types arising from their 3G mobile phones.

Value as a driver for consumer action is also complex. The strongest indicator of consumer action (in the 3G dataset) was not finding new value, as expected. Most consumers instead were driven into action by a loss in value, such as an unexpected high phone bill, or a product failure. The third strongest indicator of consumer action was a recommendation. All three indicators are aspects of value.

Since value is based on emotion (and highly dynamic and contextual), consumers use *waiting* as a coping strategy to assess new information. Only when consumers reach an emotional threshold does new information show strong links to consumer action. Consumers greater sensitivity to their emotional state and attempts to manipulate that state, will likely benefit them. For instance, 3G telcos manipulate consumers in several ways. It was apparent in the 3G data that telcos influence consumers' emotions linking to purchase with free calls, free phones, and hide complex commitments in extensive fine print (see example in Appendix 11). Loss of value can occur and consumers may suffer when contractual lock-in combines with overall assessment of poor value, and consumers are prevented contractually from acting to remedy their value loss.

One practical solution, to alleviate contractual burdens arising from emotional manipulation is an extension to misleading and deceptive conduct laws. Quasi-judicial power might be given to Justice of the Peace (JP) officers. Such power would extend and build on the Telco Ombudsman's role. The JP could provide relief, such as waiving a payment from a consumer's contractual duties where they have been inappropriately coerced into contracts they did not understand. A JP, on application, might provide relief (such as limiting liability, or ending contracts early) to high invoices on the basis of misleading and deceptive conduct, up to for instance a $10,000 limit. A consumer would show evidence of (1) misunderstanding telco terms, (2) an extreme and excessive bill, such as $5,000, or (3) that there was no indication of fees over advertised headline price (for instance $49 per month phone contract attracting a $230 bill; see MIC021). Telcos could appeal to the Magistrates Court to review JP decisions. Cheap, quick and easy contractual relief for consumers to misunderstood contractual detail will encourage telcos to simplify and better explain contractual terms, and shift more power back to consumers. Such remedies are a practical impact of value on consumer protection policy.

8.5.3 Managers: value means understanding consumers with Value Management

In this thesis, I focussed on innovation policy rather than the impact of value on innovators, so comments here are brief. Managers could maintain an ongoing dialogue with consumers to sense shifts in value (the value conversation). I call this process Value Management and suggest it should become as important a focus for managers as Innovation Management (creating and getting new

products to market).

Value Management is a process to better deliver value to consumers, and lessen the risk of innovation failure. Value Management means managers take responsibility for consumers' value, seeking to increase consumer value, alongside shareholder value (see Porter and Kramer's 2011 *shared value*). In this way, consumers become value participants, rather than value competitors with shareholders. Managers, by understanding consumer value, can ensure their decisions are consumer value-enhancing rather than value-destroying. Value is a shared outcome between shareholders and consumers. So managers' actions may decrease consumer value by increasing shareholder value and vice versa. Price rises without an offsetting benefit are a common example. Value Management is a new way for managers to interact with their stakeholders, seeking to enhance value for all, rather than capture value for shareholders.

Value Management includes three tools for Managers:

1. **The value conversation**. Managers if they develop better business processes for getting close to consumers to discover consumer value will likely sense how and when value changes. Apple Inc. (2010B) is a leader in providing consumer support discussion tools to enable consumers to solve each other's technical queries. I also encourage extending this function into a consumer portal (similar to Section 8.5.1 My Government) to include tracing consumer needs and attitudes over time (such as rating service, and retail outlets).
2. **The value trajectory**. Consumers do not act immediately on shifts in value, though their attitudes can be affected immediately. Consumers make ongoing value assessments, and as they receive more value-related information, a threshold is crossed closely connecting to: action, reporting to their social peers, seeking alternatives or changing their purchasing behaviour. Value could usefully be traced by innovators through close monitoring and conversation with consumers in a simple, cheap and un-intrusive way. In Chapter 7, I recommended NBN Co., the builders of Australia's NBN interact with consumers on the Whirlpool broadband discussion forum, as a step towards value management. Future tools, such as real-time diagnostics of consumer discussion will give managers the ability to sense changes in what consumers value (see, for instance, real-time Twitter sentiment analysis tools: tweetfeel.com, smm.steamcrab.com, www.sentiment140.com).
3. **Simple (or complex) pricing**. Simple pricing will make it easier for a consumer to adopt a new technology with a simpler value assessment. Complex pricing reduces risk for innovators but passes complexity onto consumers, impacting their value. Greater technology pricing complexity makes new technology less attractive to consumers and therefore less valuable. Innovators need to find a balance between consumer pricing complexity and innovator risk, and between simple and complex pricing. Pricing is a subject for an ongoing value conversation between innovators and consumers. An example of a simple broadband price is $40 per month for best available speed. An example of a

complex 3G mobile data price is $40 per month for 12Gb, then $30 per Gb thereafter. What is complex is for the consumer to estimate the monthly ongoing data usage, especially when the ongoing price is much higher than the within-plan price.

A contrast to Value Management is Value Leadership. Value Leadership is delivering new products to consumers based on an innovators' perception of what is best for the consumer. The innovator is taking a leadership role in delivering new value to a consumer. The innovator believes they can better understand what consumers will value and pay for than the consumers themselves. Value Leadership takes account of Apple's claim that they use no focus groups to understand their consumers' needs, because Apple believe the strong novelty of their new products means consumers will be unable to accurately assess the value of those products. If Value Management is listening to consumers and giving them what they want (most likely incremental innovation), then Value Leadership is not listening to consumers, and giving them what they need (most likely disruptive innovation). Value Leadership goes beyond Value Management. The ultimate test of Value Leadership is that the consumer buys an innovator's products. Recent examples of Value Leadership include the iPad, Australia's Carbon Tax, and NBN.

8.6 What are the strengths and weaknesses of a value theory of innovation in 3G mobile phones?

The main strengths of this thesis are that it suggests a dynamic, consumer-centric and process view of value (Woodruff and Flint 2006, Grönroos 2011, Arvidsson 2011), and provisionally opens *the black box of value*. I take an interpretive and constructionist perspective, which puts emotion and consumer experience and resulting meanings and practices at the forefront of the investigation. I also build a bridge between the innovation and marketing literature.

Table 10: Strengths and weaknesses of a value theory of innovation in 3G mobile phones.

Strengths	Weaknesses
Model is close to reality. Reality is complex, so the model is complex, dynamic, subjective, and contextual. Model shows value enduring as single and multiple attitudes, explaining paradoxes of technology value (Mick and Fournier 1998). Model emphasises loss of value as strongest connection to consumer action, and combines value meanings and practices to show value dynamics. Model is analytic and sensitising, consistent with grounded theory, seeing consumer action in a new light. Model empowers consumers to understand their actions and attitudes in light of	Model is very complex, with many components: 12 value meanings, 8 value practices, four loss of value practices, and several structural dimensions, so can't be shown easily on one diagram, so is shown on separate diagrams (Figures 2 and, 4; Appendix 14). Model is not generalisable, since developed from interpretive grounded theory. However, the model was tested in other consumer contexts to improve generality. Value meanings confirmed in comparing the consumer value literature (Zeithaml 1988, Richins 1994, Holbrook 1996; see Chapter 7), and especially business to business grounded theory on value change (Flint, Woodruff and Gardial 2002).

Strengths	Weaknesses
choosing to emphasise alternate value meanings. Model fills gap in the literature by developing a process model of value (Woodruff and Flint 2006, Grönroos 2011, Arvidsson 2011). Model suggests innovation fails, if innovation fails to create good value. Model implies the difficulty innovators have to create value for consumers, since value is subjective, complex and dynamic. Model suggests innovators use value management to sense changes in value. Model combines many elements of innovation models, such as Bass (1969) imitator's *observing*, and innovator's *exploring*, Bijker's (1995*) problem solving*, Christensen's (1997) dynamic consumer *needs* and Rogers (2003) linear model of adoption, including *attitude* forming. See more in Chapter 7.	The model is compared positively to innovation and consumer value literature in Chapter 7. However, value was found in my data to be inconsistent with goal-oriented assumptions in the literature (Zeithaml 1988, Woodruff 1997, Flint, Woodruff and Gardial 2002). This contradiction with the literature casts some doubt on the value model, and as such is a weakness. Consumers in the 3G dataset do not talk about goals. Nevertheless, the model is derived from consumer interviews, and the value story is compelling. The model was assessed against innovation policy documents for usefulness in Chapter 7. Note: Model in this table means a value theory of innovation in 3G mobile phones.

The main weaknesses of this thesis are that (1) the value theory of innovation in 3G mobile phones is complex (see Figure 4), (2) the results do not show causation and are not generalisable in the traditional sense, and (3) many relevant literatures are not considered (see Section 8.4). The world of the consumer is complex, and the model (Figures 3, 4) reflects that complexity. The model shows the variety of value information that a consumer deals with over time. The model is an aggregate of all the practices and meanings of all the consumer participants. At the same time, the model is beyond the behaviour of any single consumer. Thus no single consumer expressed all the value meanings (see Appendix 7 showing value meanings by consumer, for instance MIC020 did not mention *beauty* or *duty*), and consumers rarely expressed all the value practices (see Appendix 5 showing value practices by consumer, for instance V006 did no *exploring* and V015 did no *comparing*). Thus consumers express simpler behaviour than the entire value model. The value model is a superset of all the consumers' experiences. However, the model is a beginning for further work, rather than an ending. As the model is further discussed and published, it will be tested against more theoretical perspectives and needs.

Grounded theory seeks generality, rather than generalisability. Generality aims to provide useful conceptual tools to understand behaviour outside the research setting. Several generality approaches I use are outlined in Section 2.6.3. They include using three consumer triangulating datasets to seek further value meanings, seeking disconfirming evidence for the model in innovation and consumer value literature, and through comparing the value theory with innovation policy challenges in Chapter 7. Further testing of the value model in other technology contexts will clarify the model's generality.

The constructionist and interpretive approach means causation and generalisability are sacrificed to focus on individual consumer dynamics. While this tradeoff may not satisfy all readers, my emphasis on understanding the moving ebbs and flows of how consumers experience their world proposes a new but speculative view of innovation, centred on the consumers' experience. Grounded theory not only pursues dynamics, but also allows freedom to approach a problem without the constraints of academic literature boundaries. In this thesis, I put the consumer's experience at the centre of research, and this approach allows me, the researcher, to discover and focus on the literature most relevant to the consumer's concerns. Thus consumer value literature was used in addition to innovation literature.

Overall, I have taken steps forward in this thesis in understanding how consumers understand new technology and value. I build from consumers' experiences and the innovation and consumer value literature to build the beginnings of a value theory of innovation in 3G mobile phones. Many questions are still to be answered. But I seek to open a new line of thinking about how innovation in the form of new technology appears in the market and is dealt with from the consumers' perspective. In this thesis, I open the door for new consumer-centric tools to be built to help innovators understand consumers' changing needs. In the past, consumers have been on the outside of the innovation process, with corporations developing innovations, periodically gathering consumer feedback. In the future, I would like innovators to see consumers as part of the product development and innovation value conversation, and therefore an essential part of an agile innovation process. I would like to see consumers closely involved in an ongoing personal dialogue that keeps the innovator informed of shifts in consumers' needs and requirements. This approach goes beyond lead users (von Hippel 1988, 2005), to maintain an ongoing value conversation with all innovation-affected consumers. It is an ongoing conversation that goes beyond snapshot market surveys for new products, particularly in the context of a dynamic consumer environment, and dynamic consumer meaning-making.

8.7 Final remarks

President Obama (2011), in his *State of the Union* speech, recognises the importance of innovation to nations, when he said:

The first step in winning the future is encouraging American innovation.

When we innovate, the community not only derives growth, jobs, and maintains standards of living, but also contributes to solving international problems such as climate change. President Obama's quote subscribes to the importance of innovation. However, defining innovation without consumer value creation can lead to a step backward rather than forward. To encourage innovation without considering, understanding and focussing on consumer value is to shoot an arrow without a target. Value defines and innovation delivers what could be important to consumers. Value tells

innovators what consumers are seeking, and value traces how those pursuits change over time.

In this thesis, I argue a value theory of innovation in 3G mobile phones provides enhanced insights to extend and enhance knowledge of innovation, how consumers value and adopt new technology, and the implications of value for innovators, policy makers and consumers. A consumer *value* theory of innovation in 3G mobile phones might helpfully inform the innovation policy debate. A value theory approach suggests emotion as consumer attitudes should be included in macro innovation measures. A value theory approach says government may potentially invest less in new technology research and development, and instead encourage innovators to focus on consumer value creation.

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Table of Appendices

Appendix 1 – the emerging complex Value model
These models were derived from the grounded theory coding of the 3G interview dataset.

High level Concept (indicate strength*)	**Related strategies / dimensions / meanings**	**Examples**
Value (55%)	**Universal Meanings**: Time Function Price Service/Reliability **Social Meanings**: Power Duty Community/Connection Need **Individual Meanings**: Beauty Emotion Simplicity Newness / Learning	Chapter 3, 4
Value assessment (11%)	**Expanding practices**: Exploring Comparing **Contracting practices**: Filtering Closing	Chapter 3
Social Network (6%)	Recommending Observing Inquiring	Chapter 3, 4
Attitude (6%)	**Dimensions**: Strong / Weak Positive / Negative	Chapter 4
Consumer strategy (4%)	Doubting / trusting Minimising	Not discussed in results.
Innovator strategy (6%)	Lock in	Chapter 4
Action (5%)		Chapter 5
Context (6%)		Not discussed specifically in results.

Table A1-1: Concepts emerging from grounded theory process, explaining 99% of core interview dataset. Percentages* indicate frequency in core interview dataset (N=2000 data points).

Two versions of the complex Value Model in motion exist. A multi-cycle model (Figure A1-1), and a non-directional model (Figure A1-2). Earlier models are shown for contrast.

The complex value model, I consider too complex and voluminous to prove and justify within the scope of PhD. The eight high level concepts and 25 related strategies or dimensions, along with the 15 top level connections, and around 100 total connections are too rich to present in the context and within the limits of a PhD. The concepts and model are presented here for illustration and completeness only.

Early drafts of the results chapters justified and evidenced the 12 value meanings, and the eight value concepts, including high level connections, but that presentation took up more than 50,000 words (or over 60% of my thesis). The results chapter is now the most simplified model of value that captures the core problems of the consumers, and the core process in the value system. The complex value model will need to be tested and justified in future over the course of years.

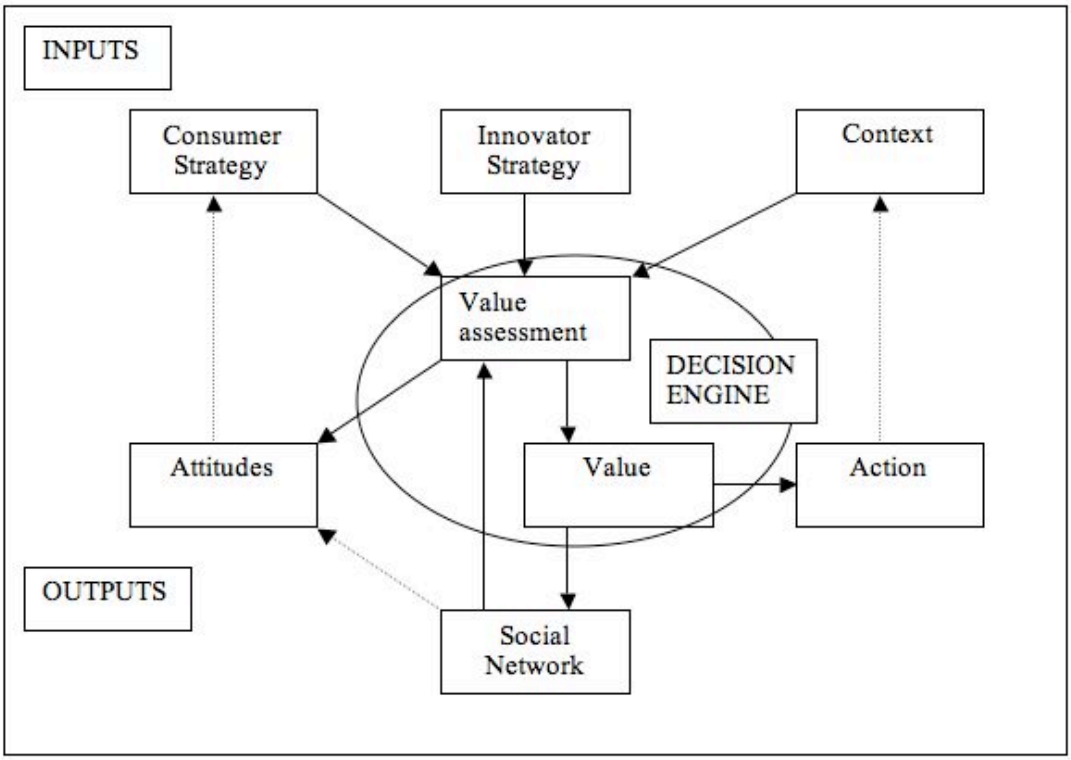

Figure A1- 1: Complex Value Model: hypothesised connections between value concepts (before empirical connections analysis). Dotted lines indicate implied connections. This model I reported to DRUID Innovation and Industrial Dynamics conference 2008: *Toward a value theory of innovation*, Copenhagen Business School, and was judged by reviewers to be too complex.

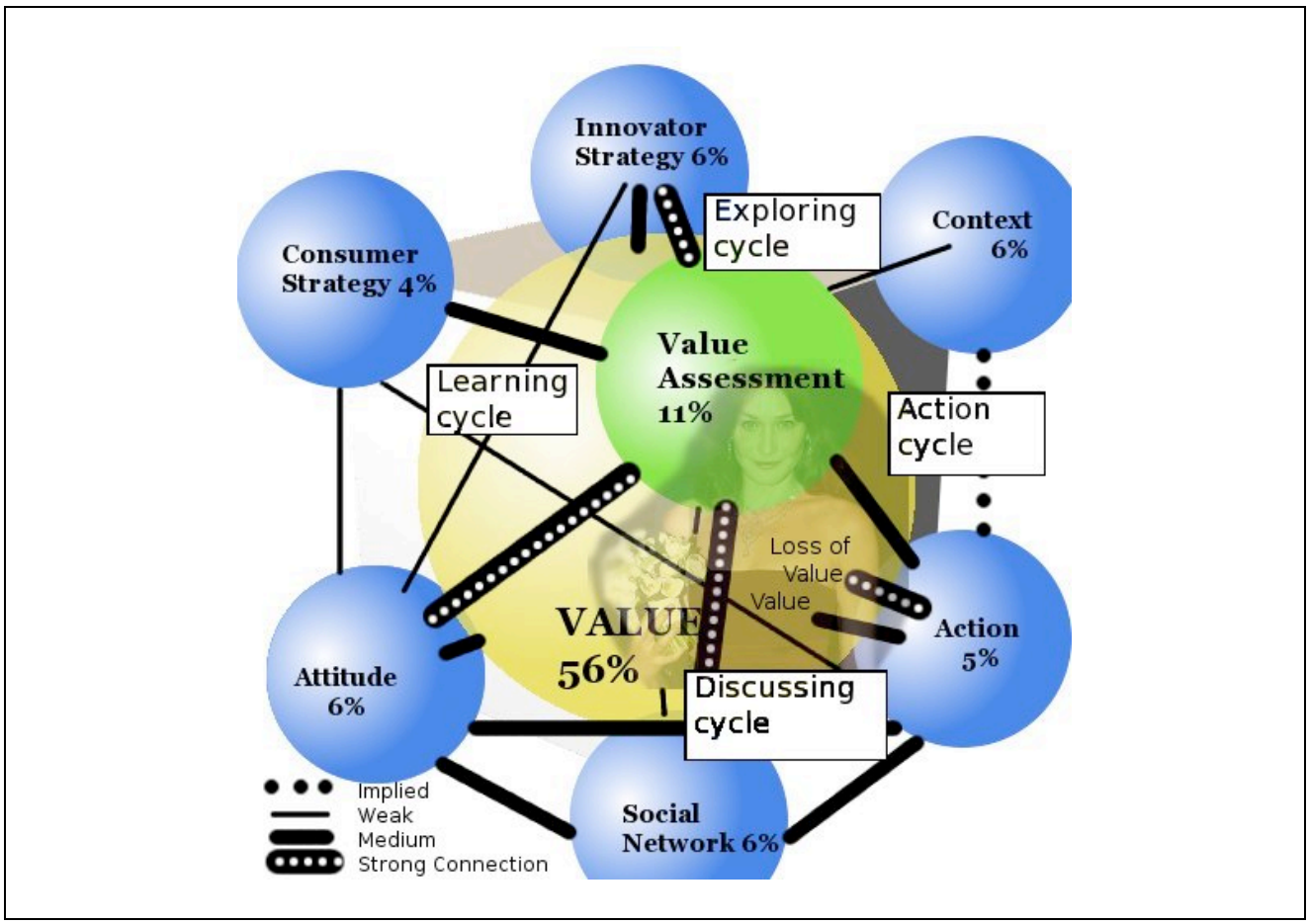

Figure A1-2: Non-directional complex value model showing strength of main connections between value concepts (after empirical connections analysis). Percentages indicate frequency of concepts in main interview dataset. Relationships between the value concepts are empirically complex, though broadly similar to the cycles proposed in Figure A1-1.

Frequencies are included, unusual for a qualitative study, since I felt that the weakness of Figure A1-1 was that all concepts are represented as equal, though value is implied to be more important through its centrality in the model. However, I interpreted the weight of the concept frequency as significant and important, with value not only central but weighty, with the other concepts playing small but when combined an important supporting role to value. The percentages and concept sizes seek to indicate one aspect of the relative importance of the value concepts.

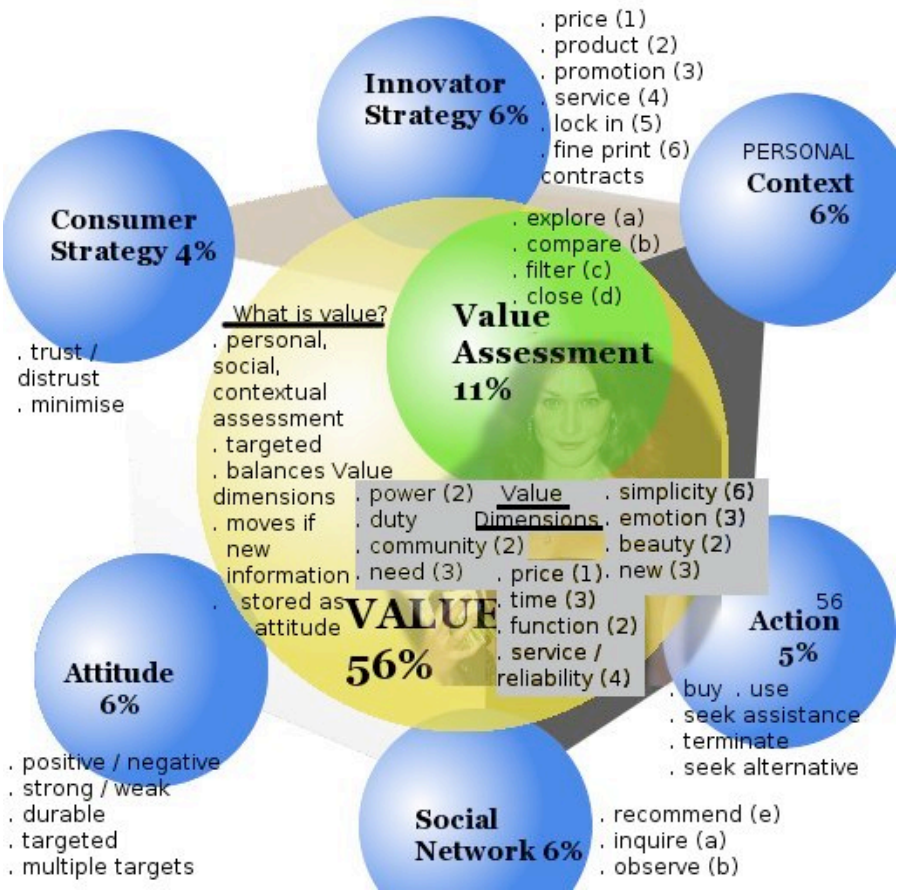

Figure A1-3: Properties of Value concepts in overview. Percentages indicate frequency of concepts in main interview dataset. The volume of the concept balls is proportional to the concept percentage and the volume of the cube represents 100%. The numbers and letters in brackets indicate specific logical connections between concepts.

Note: the presence of the person's image (Madam Sarkozy) serves to remind the reader that these concepts represent and interpret the world of real people (the interviewees), and how they deal with their world.

Figures A1-1 and A1-2 were revised into Chapter 6 as a reponse to peer review (comments from examiners).

Earlier Value Models

- mid 2005 – after first interviews, first three coded (Figure A1-4)
- early 2007 – after eight interviews coded (Figure A1-5)
  – no value dimensions
- late 2007 (non-directional value model) – saturated (Figure A1-2)
- mid 2010 – interlocking value conversations (Chapter 6)

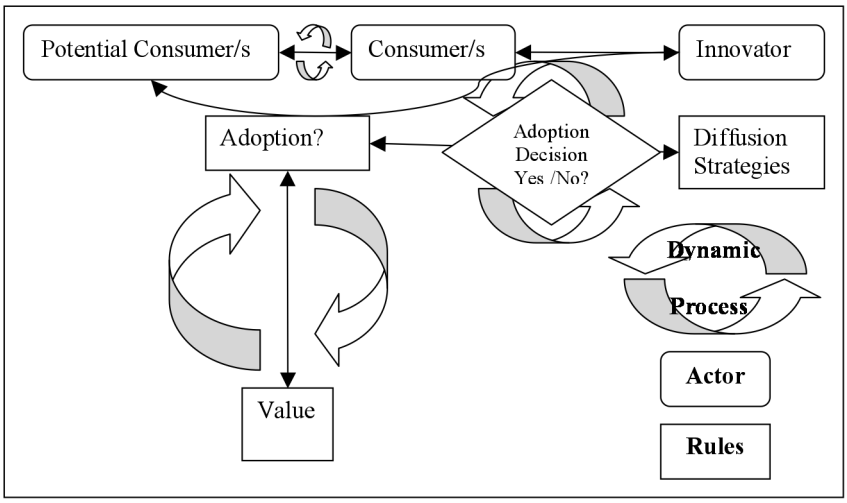

Figure A1-4: Value Model mid 2005 working paper.

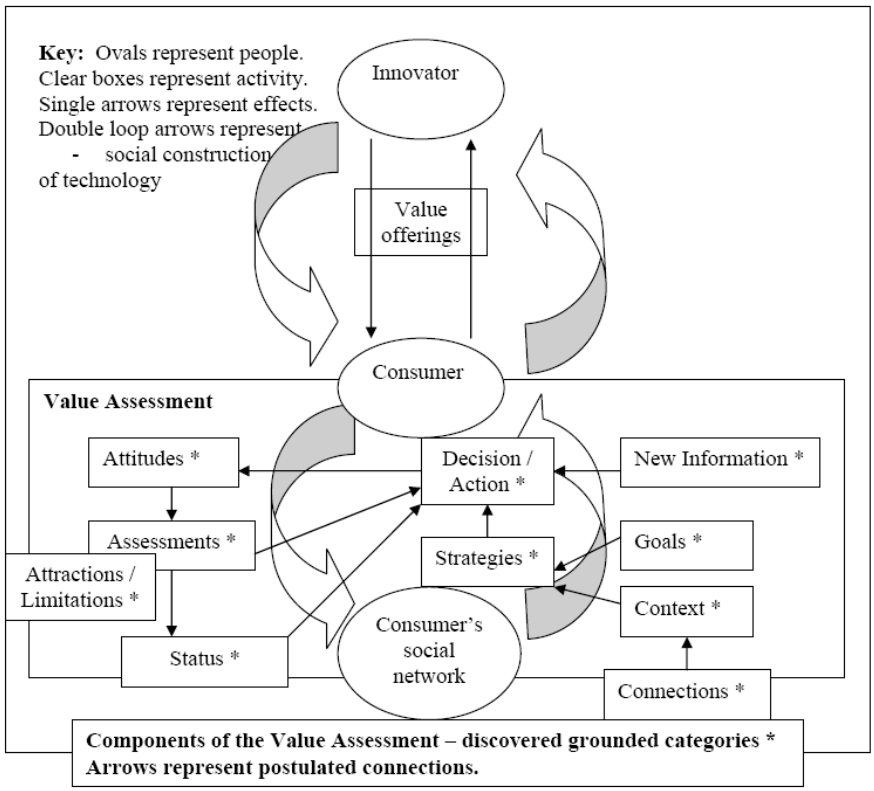

Figure 3: Micro conceptual framework – in development, showing Micro level activity of Consumer value assessment - grounded categories appearing from open coding of the interview transcripts.

Figure A1-5: Value Model early 2007, PhD confirmation document.

Appendix 2 – Value Meanings and Value Elements in 3G dataset, and Literature

Part 1. Value Meanings in 3G Dataset

Value Meaning	%	Opposition	Other Value Elements	Example
1.Function	100	Fun Play	Accessories* Archive Potential* Tool Use	"I can put [phone nos.] in the [phone] memory like the name of my friend and 3 to 4 telephone numbers" MIC020 /page 4 /line 29 "it [3G phone] did all the nice stuff you could video phone which you could use but we never do it" V010 / 3 / 4 "phone as a very useful tool" MIC019 / 3 / 34 "[keep] photographs… sentimental messages" V014 / 3 / 36 "[fun] silly call signs [ringtones]" V014 / 3 / 28
2.Price	100	Expensive Pay more	Bonus Free Pay later Pay less Something for nothing Tax Deduction*	"it is still worth me joining up because I am going to be paying less than I was paying before" V002 p.2 line 36 "little 3G bonus thingies" V002 / 2 / 38 "extra to access internet" MIC019 / 2 / 7 "I don't [] because have to pay" MIC019 / 2 / 4 "phone tax deductible as a PDA" MIC019 / 2 / 23 "I got the [new] phone for free" V002 / 3 / 39
3.Time / Convenience	94	Delay	Convenient Quick Timely	"[lack of time is] reason I haven't explored all the settings yet" V014 / 3 / 11 "[repair was] too long, I wasn't happy" MIC019 / 2 / 7
4.Service / Reliability	94	Problem Trouble	Personalise* Solution Standard Warranty	"they [helpdesk] help you with everything" V002 / 1 / 43 "I had trouble accessing email straight away" V002 / 2 / 42 "warranty service – happy from that point of view" MIC019 / 3 / 6
5.Learning / New	67	Known Old Past	Different Interest* Important* Potential* Relevant*	"phone as hacker stuff MIC019 / 3 / 43 "I'm interested in news, weather" MIC019 / 2 / 30 "very blind to internet advertising it is just visual noise to me" V016 / 1 / 26
6.Emotion	67	Reason Logic	Exciting Less stress Love Surprise Trust	"[videocall] different ring… strange ring… have to select [it] in a different way it's all very exciting" V017 / 4 / 31 "so we figured it would all make sense to be part of the same network" V016 / 1 / 12
7.Need	61	Pleasure Don't need	Necessity Necessary evil	"10% of the settings …to get by" V014 / 2 / 37
8.Simple	56	Complex Doubt* Uncertainty*	Bundle* Certainty* Easy Clarity*	"as it is J [son] has a whole lot of things [on his phone] that I don't need" V015 / 3 / 34 "prefer fixed price for general internet rather than $/kb" MIC019 / 3 / 28
9.Duty	56	Interest Choice	Commitment* Parental*	"I felt a little ha ha obliged" V002 / 2 / 46
10.Power	44	Powerless Limits	Control Flexible Freedom Mystique* Secure* Unlimited	"unlimited email use" V002 / 2 / 38 "it does stuff a lot of which I don't know how to use it but that somehow increases its mystique" V002 / 5 / 44

Value Meaning	%	Opposition	Other Value Elements	Example
11.Connection / Community	44	Disconnection Privacy	Brand* Status symbol*	"phone is a point of connection… you can carry any everywhere" MIC020 / 4 / 25 "he told me [NEC[was a really good brand" MIC020 / 1 / 22
12.Beauty / Aesthetics	33		Complete* Size* Style	"liked the look of their phone" V002 / 1 / 35 "it [phone] was the right size, not too big, not too heavy" MIC019 / 1 / 29 "I waited until a decent small size phone came into the market …. NEC the flip phone" MIC010 / 1 / 20

Table A2-1: Value Dimensions – an emerging concept from the data. Key: * indicates element linked to tentative or multiple dimensions. Percentage indicates consumers reporting dimension.

Part 2. Value Meanings and Value Practices in Literature

2.1 Value Meanings

Value Meanings found in 3G interviews	Value Meanings found in Consumer Value Literature (see Section 7.6)
Beauty	Holbrook 1996: beauty Richins 1994: aesthetic Bloch 1995: "beautiful goods" Christensen 1995: size as disruptive meaning for disk drives
Connection/Community	Holbrook 1996 (other oriented): Ethics, spirituality, status, esteem Richin 1994: high or low status, such as a mink coat or a pet Flint, Woodruff and Gardial 2002: relationship building Zaltman and Zaltman 2008: connection Mick and Fournier 1998: assimilation and engaging Bloch 1995: social, cultural influences, semiotic outcomes
Duty	Holbrook 1996: Ethics, such as justice, virtue, morality Flint, Woodruff and Gardial 2002: guilt to motivate suppliers Mick and Fournier 1998: freedom
Emotion	Richins 1994: sentimental things, pleasures such as musical or sporting equipment, personal things, such as photos Flint, Woodruff and Gardial 2002: tension management Zaltman and Zaltman 2008: emotion an essential step to understand consumers Bloch 1995: psychological response part cognitive, part emotional, pleasure and distaste, hedonic outcomes
Function/Fun	Zeithaml 1988: overall assessment of utility Holbrook 1996: play, efficiency Richins 1994: recreational, practical such as a sewing machine Flint, Woodruff and Gardial 2002: performance
Needs/Necessities	Richins 1994: necessities, such as a house or clothing Mick and Fournier 1998: creates needs
New	Consumer Value: Flint, Woodruff and Gardial 2002: newness Mick and Fournier 1998: new Also in Innovation literature: Schumpeter 1934: new products, services, markets, Kim and Mauborgne 2005: differentiation, Porter 1980: differentiation.
Power	Holbrook 1996: Ethics, such as justice

Value Meanings found in 3G interviews	Value Meanings found in Consumer Value Literature (see Section 7.6)
	Flint, Woodruff and Gardial 2002: demanding suppliers comply Zaltman and Zaltman 2008: control Mick and Fournier 1998: control
Price	Zeithaml 1988: "low price" Flint, Woodruff and Gardial 2002: cost Zaltman and Zaltman 2008: resource
Service/Reliability	Zuboff and Maxmin 2002: highly tailored services needed to support consumers Service Dominant Logic, Vargo and Lusch (2004) Zeithaml 1988: "quality I get for what I pay", Holbrook 1996: quality Flint, Woodruff and Gardial 2002: quality
Simplicity	** Section 4.3.2 Complexity found in Rogers (2003) five factors affecting rate of technology adoption.
Time/Convenience	Holbrook 1996: efficiency Flint, Woodruff and Gardial 2002: time

Table A2-2: Value meanings found in the Consumer Value literature.
NB**: Simplicity not noted in the Consumer Value literature.

2.2 Value Practices

Value Practices found in 3G interviews	Value Practices noted in Innovation Literature (see Section 7.3)
Exploring	Rogers 2003: early adopters are explorers (Section 3.3.1)
Comparing	Rogers 2003: trialability, observability affects rate of adoption Section 3.3.3, Section 4.2.2
Filtering/Closing	** Section 3.3.2
Recommending	Bass 1969, Rogers 2003: later adopters are imitators Ryan and Gross 1943: social interaction (Section 3.2.1) Kotler 1991 (Section 4.2.1)
Buying/Using/Waiting	Rogers 2003: buying and using is adopting new technology Chapter 5
Observing	Rogers 2003: later adopters are imitators, trialability, observability affects rate of adoption Ryan and Gross 1943: social interaction (Section 3.2.2)
Inquiring	Ryan and Gross 1943: social interaction (Section 3.2.3)
Problem Solving	Bijker 1995: solving problems is part of the process of social construction of technology (Section 4.1.3) Moore 1991: early adopters face problems, Christensen 1997 – disruptive products begin with low performance

Table A2-3: Value Practices noted in the Innovation literature.
NB**: Closing not noted in the Innovation literature

Appendix 3 - Connections Map

List of common connections by interview (showing number of instances therein). Strongest connections shaded.

Connection Description	A	B	C	D	E	F	G	H	I	J	K	L*	M	N	P	Q	R	TOTAL	NUM
action -> va										2		2					1	5	4
action -> va -> att							2					6					1	9	4
att -> action						2	5		2	1		3		1	1			15	8
att -> c.strat												1	1	1				3	3
att -> inaction					1					1	1	1						4	4
att -> soc.net		2					1		1									4	3
c.strat -> action						1	1		1									3	3
c.strat -> va									2	X				X		1		3	4
Context -> va				X				X	2	X						2	X	4	6
Context -> va -> action				1						1							1	3	3
dv -> action	6	1	X	3	1	3	4	1	2	7			X	1	3	1	4	37	15
dv -> att	3	4	1	3		3	17		6	5				9	1		9	61	11
dv -> att -> action						1	4		1						1			7	4
dv -> c.strat				1			6		X					X				7	4
dv -> inaction		1		1			1									1	1	5	5
I.strat -> att						2	1		3	1						2		9	5
I.strat -> dv						2	1		1	3	X			X		X		7	7
I.strat -> dv -> att							2		2	7				1		1		13	5
I.strat -> v						X			1	1				X				2	4
I.strat -> va				X		2	X		5	3	2	1	X			2		15	9
I.strat -> va -> action				1		1	1		2	1	X	1	1		X			8	9
I.strat -> va -> att	3	1		2	1	6	3	3	9	6	6	24	14		5	4	3	90	16
I.strat -> va -> c.strat									1			2				1		4	4
soc.net -> action			2			1	1			2				2	1			9	6
soc.net -> att		1		1					X	8					4			14	5
soc.net -> dv				1					1	X					X			2	4
soc.net -> va	2	1	1	3		6	3	1	8	5	2	7	X	X	1	1	1	42	17
soc.net -> va -> action		1	1				1			X	1		1	1				6	7
soc.net -> va -> att										1		1			4			6	3
v -> action	3		1			1			2	2		1	1	1		1		13	9
v -> att	2		2	2	1	5	1		2	1		3		4	2	1		26	13
v -> soc.net	2					1										X		3	3
va -> action		1		1	2		1		1	1	2	4	2			3		18	10
va -> action -> att							1			1		1						3	3
va -> att						2	3		5	5	2	21			1		1	40	9
va -> c.strat				1	X	1			2							1		5	5
va -> soc.net				1			X				1	3	X			1		6	6
	21	13	10	31	9	44	67	6	81	76	20	89	24	26	29	26	26	598	

* - husband and wife interview combined.

X - marks additional interviews with same connection, from info connections.

dv -> action -> c.strat			1										1					2	INFO
dv -> c.strat -> action									1					1				2	INFO
I.strat -> dv -> action											1							1	INFO
I.strat -> v -> att									1					1				2	INFO
I.strat -> va -> att ->action											1				2			3	INFO
I.strat -> va -> v						1												1	INFO
soc.net -> att -> va									2									2	INFO
soc.net -> dv -> att															1			1	INFO

Connection Description	A	B	C	D	E	F	G	H	I	J	K	L*	M	N	P	Q	R	TOTAL	NUM
soc.net -> dv -> inaction										1								1	INFO
soc.net -> va -> att -> action										1								1	INFO
v -> soc.net -> att																1		1	INFO
va -> c.strat -> action					1													1	INFO
va -> soc.net -> action							1						1					2	INFO

Table A3-1 – Connections between concept, analysed by interviewee. Strong connections shaded.

Key: A mic005, B mic010, C mic014, D mic018, E mic019, F mic020, G mic021, H mic022, I v002, J v004, K v006, L v010, M v012, N v014, P v015, Q v016, R v017.

Key Concepts: **action**, **att** – attitude, **c.strat** – consumer strategy, **context**, **dv** – loss of value, **i.strat** – innovator strategy, **v** – value, **va** – value assessment (now value practice).

This Connections Map data was used to construct the value models in Appendix 1. These models were presented at DRUID Innovation Conference in Copenhagen (Ferrers 2008B). Peer review suggested the value models were too complex. These models and this connections data is presented in Appendices for completeness.

The connections map provides empirical evidence for the importance of:

Proposition 1: Value leads to consumer action (VA -> Action)

Proposition 1a: Loss of value leads to consumer action (DV -> Action)

Proposition 3: Consumers express value experiences as attitude (V, VA -> Att)
VA -> Att is a subset of the common I.strat -> VA -> Att connection.

Appendix 4 – Ethical Clearance documents, including Interviewee Information Sheet, and Interview Guidelines

See attached.

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

UQ Business School

HEAD OF SCHOOL
Professor Tim Brailsford

The University of Queensland
Brisbane Qld 4072 Australia
Telephone (07)3365 6283
(International +617 3365 6283)
Facsimile (07) 3365 6988
Email enquiries@business.uq.edu.au
Internet www.business.uq.edu.au
CRICOS No. 00025B

RESEARCH PROJECT INFORMATION SHEET

Diffusion Acceleration Project – adoption of radical technology (Aust.)
Hutchison Telecommunications (Australia) Limited, 3G, their users, and potential users

Aim: to develop new understandings of (1) innovator and consumer attitudes to each other, and (2) the role of pricing strategies on the diffusion (the spread) of an advanced (consumer) technology, called 3G. The intention is to find strategies to accelerate the spread of the technology, for the benefit of users and thereby increase the profits for the benefit of the innovator.

Assumption: The employees of the innovator and individual users are assumed to each have a unique perspective of the 3G technology, its uses, benefits, price and value. Interviews are intended to capture this diversity.

Method: Interviews (refer questions attached) will be conducted with the innovator, Hutchison Telecommunications, and users and potential users of their 3G technology. These interviews will be conducted with the innovator, in conjunction with half yearly profit announcements, and the Annual General Meeting, commencing in February 2005, for two years. Consumer interviews will be conducted periodically over the same period.

To extend these interviews, public documents, such as Annual Reports, media reports, and other authorised company archives will be reviewed. Where necessary, further information may be sought from academics, brokers, competitors, financiers, government policy-makers, industry commentators, journalists, shareholders, and other similarly knowledgeable groups, to assess the pricing strategy of the innovator, and the relationship between the innovator and the users and potential users of the 3G technology.

Analysis: The interviews will be recorded (subject to your consent), transcribed and analysed to shed light on the relationship between the innovator and user, with a special focus on pricing.

Privacy and Confidentiality: All interviews will be securely and privately collected, stored and accessed. All recordings, and analysis will be de-identified, to protect the identity and ensure the anonymity of the information providers. A consent form (refer attached) will be required before any and all collection of research data. Participants can withdraw at any time, and their data will be destroyed and not used in the study.

Principal Investigator: Richard Ferrers CA LLB MTM (Tech Mgmt)
Contact: r.ferrers@business.uq.edu.au , or 0422 368 061

Supervisor: Dr David Rooney, Senior Lecturer, University of Queensland
Contact: d.rooney@business.uq.edu.au , or 07 3381 1042

Further and fuller details can be found at the study home page: http://www.thejoie.com.au/phd
This research is completed in fulfillment of the conditions of the degree of Doctor of Philosophy.

UQ BUSINESS SCHOOL

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

Diffusion Acceleration Project – adoption of radical technology (Aust.)
investigating Hutchison Telecommunication's 3G, their users, and potential users

PROJECT INTERVIEW CONSENT FORM

Research Student Name: Richard Ferrers……

Degree course: Doctor of Philosophy……

Project description: Refer the attached Information Sheet……...……..
…….
…….
…….
…….

I confirm that the above named research student from the UQ Business School, The University of Queensland, may collect interview data from me, the undersigned, within the restrictions described below.

Special restrictions and considerations:

☐ I agree to the recording of my interview…….……
……...…….……
…….……
…….……
(Please tick if you agree, or cross if you disagree; please use separate sheet if necessary)

The study will adhere to the ethical guidelines of the ethical review process of The University of Queensland. You are welcome to discuss your participation in this study with the student/s or their academic advisor/s, or to impose conditions, or withdraw from the study at any time. If you would like to speak to an officer of the University not involved in the study, you may contact the Chair of the UQ Business School Ethical Review Committee [currently Associate Professor Bob Westwood, 3365-6667, b.westwood@business.uq.edu.au].

Signature: ……. Date: ……..…….
Name ……...…..….
Position …….…..

Please return this completed form to the research student named above.(fax 07 3365-6988)

Created 14/7/03
Last updated 22/1/04

Diffusion acceleration project – adoption of radical technology (Aust.)

Question guidelines for semi-structured interview

Innovator	(Potential) User / Consumer
• Position at Hutchison Describe your role and responsibility. **Product / Service** • What does '3' represent to you? • How do you perceive your product? • What part of your product makes the $? • Why will people buy your product? –why will they not buy? **Environment** • Are you different from other company's? How? • Who do you compete with? **Stakeholders** • Who has input to consumer, product and pricing strategy? How? • What goals to they set for you? • Describe your relation and contact with your stakeholders **Customers** • What kind of consumers do you want? Eg max profit/consumer, or max consumers at adequate return –any that you don't want? • How do you attract consumers? Who will be the greatest influence on your consumer's purchase decision? • Are your consumers alike or different? –what do they have in common? –what differences? • Do you trust your consumers? • How long do you expect to keep your consumers? **Internal Finance** • What is your target return on investment? – how many consumers to earn the return? Ie % market – who are they? – what do they spend/month? • What is your projected lifetime for the business, before it is superseded?	• Age / Sex / Location / Income / Other **Purchase / Contact** • Story -of purchase –of '3' contact (if potential user) • Your impression of: - company? –product? –service? • Value vs price – do they offer good value? • Compelling reason to buy – main – other/s **Innovator** • Do you consider '3' to be the same as: -other phone companies? –any other business? • How do you characterise your relationship with '3'? • Do you trust '3'? **Competitor** • $/mth spent -now -before **Pricing** • what do you think of HTA prices? –overall –calls –data services • would you make any changes? –any to pricing? What? –any to product? What?

UQ BUSINESS SCHOOL

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

Diffusion Acceleration Project – adoption of radical technology (Aust.)
investigating Hutchison Telecommunication's 3G, their users, and potential users

PROJECT CONSENT FORM

Student Name: Richard Ferrers……

Degree course: Doctor of Philosophy……

Project description: Refer the attached Information Sheet……..
……
……
……
……

I confirm that the above named student from the UQ Business School, The University of Queensland, may undertake project work in this organization within the restrictions described below.

Special restrictions and considerations:

……
……
……
……
……
(please use separate sheet if necessary)

The study will adhere to the ethical guidelines of the ethical review process of The University of Queensland. You are welcome to discuss your participation in this study with the student/s or their academic advisor/s, or to impose conditions, or withdraw from the study at any time. If you would like to speak to an officer of the University not involved in the study, you may contact the Chair of the UQ Business School Ethical Review Committee [currently Associate Professor Bob Westwood, 3365-6667, b.westwood@business.uq.edu.au].

Signature: ……. Date: ……..…….
Name ……...…..….
Position …….…..

Please return this completed form to the student/s named above.

Created 14/7/03
Last updated 22/1/04

CLEARANCE NOº (office use only)

THE UNIVERSITY OF QUEENSLAND

Application Form for Ethical Clearance for Research Involving Human Participants

For review by: **Medical Research Ethics Committee (MREC)**
Behavioural & Social Sciences Ethical Review Committee (BSSERC)
For Staff and Student Research
Refer to last page for website and other information

Please tick boxes:

MREC		BSSERC	X

Full Review		Expedited Review	

Project Title: **The Diffusion Acceleration Project – adoption of radical technology (Aust.)**
Thesis Title: The social construction of diffusion - consumer attitudes to monopoly pricing - monopolist attitudes to consumer adoption

Principal Investigator:	RICHARD FERRERS
Student Nº: (cross out if not relevant)	30549458

Co Investigator/s:	N/A
Project Co-ordinator (or authorised contact)	

Supervisor/s: (if applicable)	Dr DAVID ROONEY

Schools/Departments:	UQ BUSINESS

	Telephone	**Fax**	**Email**
Contact details of Principal Investigator	**0422 368 061**		**r.ferrers@business.uq.edu.au**
Contact details of Project Co-ordinator or authorised contact			

Degree Enrolled (if student):	PhD
Funding Body:	N/A
If Project Funded - What year? **- Reference no. if available**	N/A

Project Location:	Australia: Brisbane, Sydney	**Project Duration:**	3 years

A. Is this submission identical or very similar to a previously approved protocol? **NO** (circle)

If **YES**, please provide clearance nº **and** indicate whether identical or very similar)_____

B. Does this submission hold other ethical clearance? **NO** (circle)

Note: Copies from other **AHEC** fully registered ethics committees must be attached.

C. Are you applying for Expedited Review? **YES** (circle)

Note: Please see UQ Guidelines page 9 for the conditions necessary to qualify for Expedited Review.

PLEASE ANSWER ALL OF THE FOLLOWING QUESTIONS:

1) Who are the participants or informants?: e.g., Children, University students, or other persons.
Note: Details of approximate **number**, age range, and male/female ratios are required.

Target company: Directors, managers, shareholders, brokers, customers, potential customers

Number: 60 (30 relating to company, 30 relating to customers) Gender: Male 60% Female 40% (est.)

Age: 18 – 80

2) Vulnerable Groups

The NHMRC has identified certain social groups as vulnerable and requires all researchers to take special care to protect the interests of these groups if they are in any way involved in the project. Those groups include: **children** (Section 4); **intellectually disabled** (Section 5); **those people highly dependent on medical care** (Section 6); **those people in dependent relationships** (Section 7); and **collectivities with their own social structures linked by a common identity and or common customs** (Part 8). Separate guidelines have been developed for **Aboriginal and Torres Strait Islander Peoples** (Part 9).

In preparing your research project and application for ethical clearance, you should investigate thoroughly, through consultation with supervisors, colleagues in your school and other professional groups/organizations, how these vulnerable groups may or may not be represented in your research.

Note: If participation of vulnerable groups is a focus of the research, the protocol can not qualify for expedited review (unless other current HREC clearance is held and a copy provided).

2a) Aboriginal and Torres Strait Islanders Group

Specify how this proposal accommodates / addresses the needs and interests of any Indigenous Australians who may be involved (as part of a sample, as volunteers or as the specific focus of the research). [For further assistance on indigenous cultural issues, please contact the UQ Aboriginal and Torres Strait Islander Studies Unit.]

no participation likely	some participation likely	a focus of the research
X□	□	□

Provide a careful and considered rationale for your response: [Reasoning for the exclusion or inclusion of strategies to focus on this group must be clearly stated in your application for ethical clearance. All three possible responses require a considered statement, detailing your rationale]

No focus on race is undertaken in this study.

2b) Other Vulnerable Groups

Specify how this proposal accommodates / addresses the needs and interests of any of the above groups that may be involved (as part of a sample, as volunteers, or as the specific focus of the research). – Specify the groups.

no participation likely	some participation likely	a focus of the research
X□	□	□

Provide a careful and considered rationale for your response: [Reasoning for the exclusion or inclusion of strategies to focus on any of these groups must be clearly stated in your application for ethical clearance. All three possible responses require a considered statement, detailing your rationale]

No children (or any marginalised groups) are to be included in this study.

3) Participant recruitment details: Please provide exact details of contact.

Company employees, shareholders (including institutional investors), existing consumers and potential consumers are the groups that will be interviewed for this study. Additional data will be obtained from relevant documentary sources including media reports, internet based materials, official and private correspondence, and company archives. Other knowledgeable and interested groups will also be interviewed, as required, including academics, brokers, competitors, financiers, government policy-makers, industry commentators and journalists to improve the quality of the data.

The Director, Content, Sales and Marketing will be written to, to request access to board members, senior managers, and significant shareholders. Commencement of data collection will coincide with attendance at the 2004 Results announcement meeting 15 February 2005, Sydney, and will continue from there using a snowballing technique

Current and potential customers will be found using a snowballing technique and drawn from the associates of the researcher.

4) In "every-day" or "lay language" please provide a summary of the project – including aims and benefit:

Aim: to develop new understandings of the role of pricing strategies on the diffusion and adoption of advanced (consumer) technologies. Particular emphasis will be given to understanding the effects of high prices on the diffusion of advanced consumer technologies, focussing on a particular mobile technology called 3G, provided currently in Australia solely by Hutchison Telecommunications. This research questions, from a broad social perspective, the assumption that innovators should earn economic rents and that it is necessarily in their interests to do so.

Benefits: Through greater understanding of innovator and consumer attitudes to each other, innovators may earn greater profits, and consumers can benefit by earlier acceptance of new technology, in the form of lower prices, and greater suitability to their needs.

5) Give details of the research plan:

Note: The committee needs sufficient information to put into context the ethical considerations listed in later questions.

Several data collection cycles will be pursued to follow an expanding understanding of the innovator / adopter relationship.

Innovator interviews – The initial point of contact is with the Director, Content, Sales and Marketing. Interviews are aimed at decision makers who drive consumer, product and pricing strategy, and so may also include CEO, Chairman, major shareholders, and financiers. The decision makers' attitudes to customers and meeting stakeholder requirements will be explored in semi-structured interviews. Refer question guidelines attached.
The study may be expanded beyond decision makers to staff who make contact with adopters and potential adopters to contrast their role as implementers, in understanding of the consumers with that of the decision makers. The decision to pursue this extension will depend on the initial findings, and permission from senior management. Refer gatekeeper consent form attached.

Adopter interviews – Semi-structured interviews to explore adopter and potential adopter attitudes to the innovator will be undertaken. Review question guidelines attached.

Other interviews - Third parties with an interest in the innovator / adopter relationship, including academics, brokers, competitors, financiers, government policy-makers, industry commentators, and journalists will be interviewed to expand the breadth of perspective.

All text will be rendered in digital form and will be analysed using the Leximancer computer aided text analysis application (both quantitatively (content analysis) and qualitatively (discourse analysis)). This data collection will also be compared and contrasted with economic, financial and accounting data about for instance, prices, profits, and sales (units and dollars).

6) Give details of the ethical considerations attached to the proposed project:

While the subject matter of the data collection interviews has low risk for participants, express consent will be sought for the recording of the interviews.

7) How will informed consent be obtained from participants or informants?
Information sheet and consent form.

8) Provide details of procedures for establishing confidentiality and protecting privacy of participants or informants:
Individuals will be de-identified using a coding scheme.

9) Provide details of data security and storage: Refer to the NHMRC National Statement, Section 14.
Data files will be stored in a password protected area on the UQBS network. Written notes will be locked in UQBS offices; in a locked filing cabinet. Participant feedback will be provided by password controlled access to the web server.

10) In what form will the data be <u>collected</u>: voice recorded interviews and field notes Note: Tick the most appropriate box:		
(i) Identified ☐	**(ii) Potentially Identifiable** ☐	**(iii) De-Identified** X☐

11) In what form will the data be <u>stored and/or accessed</u>: field notes and audio files Note: Tick the most appropriate box:

(i) Identified ☐	(ii) Potentially Identifiable ☐	(iii) De-Identified X ☐

12) Give details of how feedback will be available to participants or informants:
A copy of participant data will be emailed or mailed to the participant.

13) Does the project involve any of the following possibilities? If YES, Give Details

a) The use of drugs.

No

b) Any invasive procedures (eg blood sampling)

No

c) The possibility of physical stress/distress, discomfort

No

d) The possibility of psychological/mental stress/distress, discomfort

No.

e) Deception of/or withholding information from, participant at **ANY** stage of the project

No

f) Access to data held by a Commonwealth Department or Agency (Please also specify the number of records to be accessed)

No

g) Access to data by bodies or people other than the investigators (eg. Medical Records)

No

14) Please Indicate What You Think Is The Level Of Risk For Prospective Participants Against The Scale Below: *Tick the most appropriate box. (Refer to the UQ Guidelines)*

- ☐ **Extreme Risk**
- ☐ **High Risk**
- ☐ **Some Risk**
- ☐ **Minimal Risk**
- X **No Foreseeable Added Risk Above the Risks of Everyday Living**

15) Please provide details to assist the committee as to why you indicated the level of risk to prospective participants or informants in the question above (Question 14):

There are no medically, culturally or legally contentious activities here. The study is largely interested in peoples' opinions of and assumptions about mobile phone pricing and the effects that pricing has on consumer and producer behaviour. The study will require asking people to discuss topics that are part of every day conversation. Most documents will be in the public domain, but if not will be provided with the informed consent of the owner.

16) How has the possibility of withdrawal from the project been addressed?: **Note:** Ensure that details and effects of withdrawal without prejudice AT ANY TIME have been considered and explained. Refer to the NHMRC National Statement section 1.7.
Participants can withdraw at any time and their data will be destroyed (and not used in the study).

Please note that this section (Question 17) must be completed for funded research or the application will not be processed.

17 a) Is this project receiving financial support to conduct the research?	**NO** (circle)
17 b) If Yes, from what source(s)?	
N/A	
17 c) Who will be administering the budget?	
N/A	
17 d) Please provide details of the budget distribution. (Or attach a copy of the budget statement.)	
N/A	
17 e) Provide details of any other "in kind" support for the project or direct or indirect payment to any investigator:	
N/A	

17 f) Please provide details of participant reimbursement for their involvement in the Project, if any: **Note:** This could be cash payment, food vouchers, free services, or movie passes, etc.
N/A

18) In undertaking this research do any "conflict of interest" issues arise? **If YES, please provide details.** **Note:** Conflict of Interest may arise, for example, because a researcher, or someone close to the researcher, stands to benefit financially from the research or the carrying out of the project or because inconsistent or incompatible obligations exist. Refer to Sections 2.20-2.21, & 12.5-12.6 of the NHMRC National Statement:
No

19) Is the project a multi-centre or site project? If YES, provide the name of the principal ethics committee. Please provide copies of any conditions or requirements placed by other AHEC registered Human Ethics Committees: **Note:** The Principal Ethics Committee is the Institutional Ethics Committee where the budget is to be administered.
No

20a) Some projects may involve permits from National Parks & Wildlife in relation to collection of data and Native Title issues. How have you addressed this issue?: (Refer to the UQ Guidelines)	
N/A	
20b) Does the project require biosafety clearance?	**NO** (circle)

ATTACHMENTS:

1) Participant Consent Form **Yes**

Note: for examples of what should be included in a consent form, please consult page 12 of the UQ Guidelines for Ethical Review of Research Involving Humans. Also refer to "checklist" from our website.

2) Participant Information Sheet **Yes**

Note: for External Use - forms should be released on letterhead and contain University Ethical Paragraph.
Refer to UQ Guidelines and Ethics website, and "checklist" from our website.

3) Questionnaire (if applicable) **Yes**

Note: please attach ONLY those developed or adapted specifically for this project.

4) Indemnity agreement (primarily for clinical trials and contract work) **No**

5) CTN (Clinical Trial Notification Form) (primarily for clinical trials) **No**

6) Gatekeepers or Permission-Givers **Yes**

Note: A 'gatekeeper' or 'permission-giver' is a person authorised to write a letter of Authority and Recognition from an organisation of any type involved with the research, which gives permission to the researcher for access to the population under the gatekeeper's or 'permission-giver's' authority.

7) Bibliographic references **No**

8) Other - please specify_____

_____

_____

_____

DECLARATION

We/I, the undersigned researcher(s) have read the University of Queensland's Guidelines for Ethical Review of Research Involving Humans - 2000 and agree to abide by them in the conduct of this research. It is understood that this includes the reporting and monitoring roles associated with the approval by the University of Queensland.

Signature of Principal Investigator:_____**RF**_____
RICHARD FERRERS

Date: / /

Signature of Supervisor (if applicable)**:**_____
DR. DAVID ROONEY

Date: / /

An Original and 12 copies should be submitted to the:

Ethics Officer
The Office of Research and Postgraduate Studies
Cumbrae-Stewart Bldg (72)
The University of Queensland QLD 4072

Ph: (07) 3365 3924
Fax: (07) 3365 4455

Email: humanethics@research.uq.edu.au

ADDITIONAL INFORMATION

Application information, including the UQ Guidelines, can be found on our website:
http://www.uq.edu.au/research/orps/?id=5064

The NHMRC National Statement can be found on the following website:
http://www.health.gov.au/nhmrc/publications/synopses/e35syn.htm

Information regarding biosafety can be found on the following website:
http://www.uq.edu.au/research/orps/?id=5257&pid=5256

Aboriginal and Torres Strait Islander Studies Unit website: http://www.uq.edu.au/atsis/ (which includes links to sites including the Australian Institute of Aboriginal and Torres Strait Islander Studies Unit under Cool Sites). Enquiries to the Aboriginal and Torres Strait Islander Studies Unit can be made on: 3365 6714 (ext 56714).

Full Review of applications may take a minimum of eight weeks from the time of submission. Expedited Review and Amendments may take a minimum of three weeks.

NHMRC: National Health and Medical Research Council

AHEC: Australian Human Ethics Committee

HREC: Human Research Ethics Committee and, for the purposes of this application, means an AHEC registered committee

Applications to MREC

a. Please note that medical research includes epidemiological research (Privacy Act 1988).

Last Update 20/12/04

Appendix 5 – Theoretical Saturation by Consumer Interviews

The next diagram shows that the concepts emerged after a small number of interviews.

- **Value meanings** – All value meanings appeared after six interviews.
- **Value practices** – All strategies appeared after three interviews.
- **Value theory components (non-core)** – All other concepts appeared after two interviews.

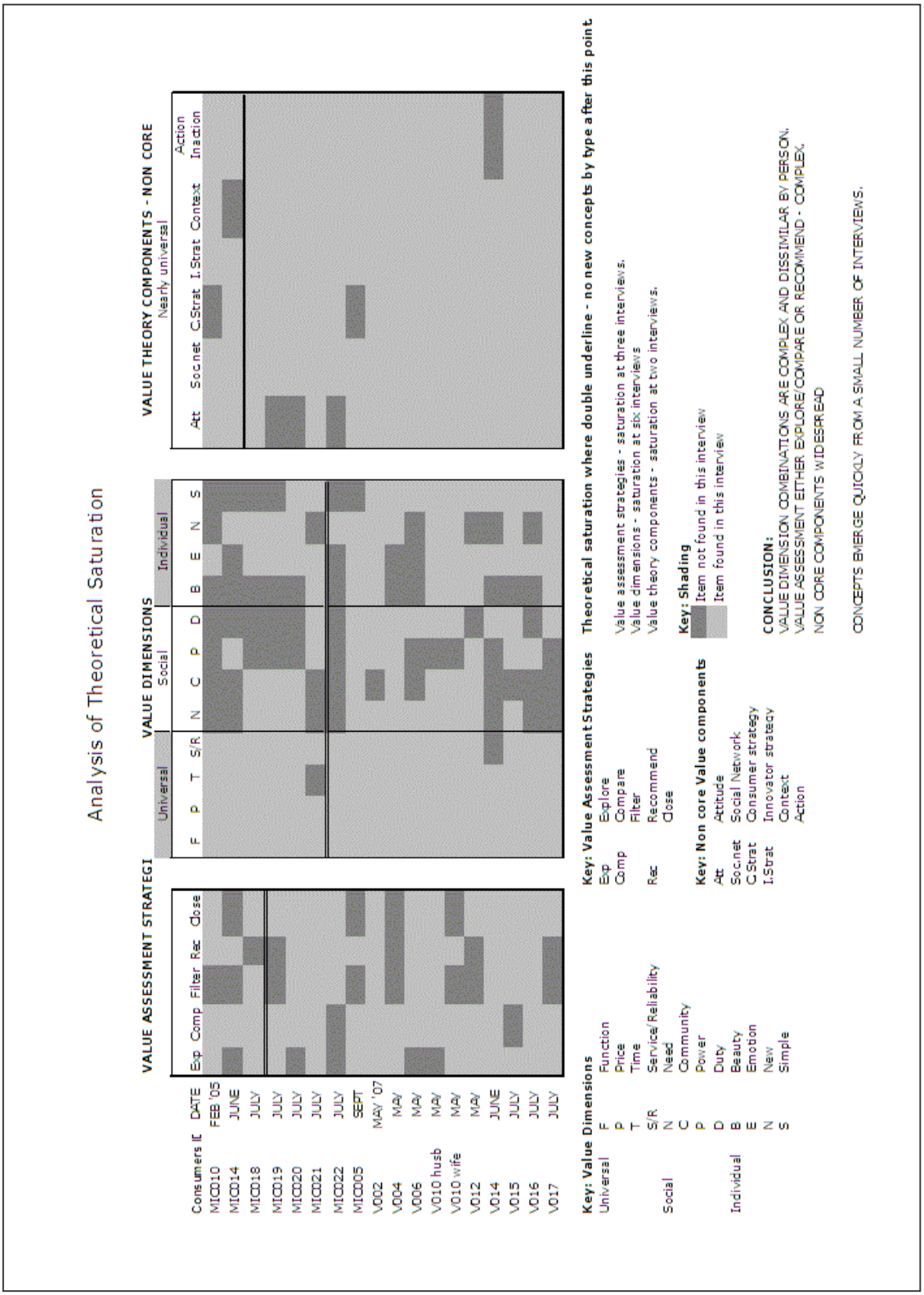

Figure A5-1: Analysis of Theoretical Saturation by Consumer Interview. In this earlier review Value Meanings were called Value Dimensions, and Value Practices were called Value Assessment Strategies.

Appendix 6 – Coding

Coding is the conversion of phenomenological, real world sensory data, into conceptual data. The conceptual data summarises, and interprets the real world data, while emphasising certain aspects and diminishing others, connected to the research question. Glaser and Strauss say two essential properties of developed codes are that they are sensitising and analytic (1967, p.38). Sensitising means that the codes promotes the readers understanding of the data, while analytic means the codes lets the readers see properties of the data at a higher conceptual level, which enables comparison of events or action data. Through constant comparison and coding, data is compared for similarities and differences which lead to properties and dimensions of the codes. Other properties of coding names are grab (Glaser 2001, p.19) and Locke's (2001, p.71) fit and imagery.

Over time, codes developed from first round of coding to stabilised codes. Following Browning, Beyer and Shetler (1995), I show below how codes moved from early to final coding.

Early codes	Example	Later codes
Innovator strategy	They are very good in selling (mic010/1/30) (Interview mic010, page 1, line 30)	Innovator strategy
Connections	Friends tell me about free calls, but not about network (mic010/2/30)	Social network
Assessment – value, service, price, network, product	But the 925 [3G phone] was just too big (mic005/1/21)	Value Assessment, Value meanings, such as service, price, network, product
Hygiene (as in negative assessment)	I didn't have a camera to take picture (mic020/4/36)	Devalue (loss of value)
Status (dis/satisfaction)	Minimum monthly bill is like $200 for me (mic021/2/50)	Context / Attitude
Decision/Action	Only use [3G] for phone calls (mic014/2/12)	Action
Consequences	If they ask me if [3G] is good I tell them it is not good (mic010/2/27)	Value assessment → Attitude → Soc.net

Table A6-1: Development of codes from first coding to stabilised form

The earliest codes were difficult without much comparison and as more data to compare, there was overload looking at possible connections between the codes in one transcript and the codes in another transcript. Initially I tried to code each transcript afresh, trying to forget previous used codes, and just to create new codes as the transcript suggested, data point by data point. Tables of the first eight codes helped me to compare, along with tables of the main points made in the first interviews. These tables helped me keep the content of the interviews in my mind, until the

concepts allowed me to remember, understand and analyse the transcripts, satisfying the sensitising and analytic (Glaser and Strauss 1967) properties of concepts.

Eight interviews were conducted in the first group, from March 2005. The last seven interviews in only ten weeks, from late June to early September 2005. By the third interview, coded by August 2005, the key value concepts of context, attitude, social network, and assessment were found. The remainder of the first data collection were not finally coded until late 2006, when writing the confirmation document.

For comparison, the second interview data collection (ten interviews) took place from May to July 2007, with the last interview data collection (ten interviews) took place mainly from August to December 2008, with a few earlier in the year. Exhaustive coding and analysis of the second data collection took place in late 2007, and was written up for the DRUID innovation conference submission date of the end February 2008. But it was not until after the third data collection phase and subsequent documentary analysis, that I could feel comfortable of reaching theoretical saturation. The limitations section still shows there are some categories of interviewee that can still hold potentially new dimensions and properties, such as the extremely wealthy, religious, poor, or others under the influence of drugs, addiction or other strong mood affecting emotion. But within the context of the existing interview stories, the current concepts are saturated.

Key early concepts from the first three interviews were satisfaction / dissatisfaction, attractors and limitations, connections, assessment, consequences and actions. Already the key concepts are in play with different names, and the key positive/negative dimension of value is identified. Satisfaction evolved into the more the more neutral concept 'attitude,' which has a positive and negative dimension. Connections evolved to the concept 'social network', and assessment which had many subcategories (such as price, product, network) was renamed 'value assessment' and the subcategories developed into 'value' dimensions. Value dimensions were later renamed value meanings, and value assessment strategies were later named value practices.

This evolution of understanding is also visible in the integrating diagrams (Appendix VM1), which show the evolution of the concepts and the connections between them.

- mid 2005 – after first interviews, first three coded
- early 2007 – after eight interviews coded
  – no value meanings
- late 2007 (final value model) – saturated
- mid 2010 – interlocking value conversations

I will now provide an example of transcript coding from my coding process to demonstrate my process and understanding of coding. The process happens through several stages. First, the transcript is broken up into data points. This makes more convenient and focussed the point of analysis. Second, each data point is interrogated with the questions – what is going on here? Through comparing with adjacent data points greater context is found. Individual words are paid attention to, especially if there is some unusual usage, or other indicator such as tone that a word is important. Coding is repeated more than once, especially in the early stages when there are many possible explanations for what is said. In later transcripts when the concepts which emerged are more stable, there is more focussed coding, looking for contrasts from the concepts which have already emerged. Third, the concept is noted next to the data point. Sometimes more than one concept is noted. Fourthly, at a later time the same data points are interrogated for connections between concepts.

An example from a later transcript (V016) is provided lines 10 – 30, page 1. The interviewee is a 39 year old male, living in the inner city, income $50,000, self employed.

Q: and the first question and really the main question is just to talk about get the story of how you came to have your 3G phone (yes) what happened

A: The main thing that I was looking for was a um network. Well um myself my partner D and my brother were. All our previous contracts had expired at around the same time. And what I was looking for was a network where our inter network calls would be as cheap as possible. Because they were the two people that I spoke to most often. And I was the person that they spoke to most often. So we figured it would all make sense to be part of the same network. No you know we I think we were on three different networks actually at that stage. But um we were all in a position where we could move to a new network you know. We were out of contract with our existing providers so I started looking around for networks that had very good deals for you know intra network communication. And at the time 3 was by far the cheapest. The 3 plans allowed several hours each month of free calls to other 3 users. [Started looking] I guess so. And it was probably a 3 advertisement that made me aware of it. And um um when 3 advertised that they had ah ah generous plans. It was something like ten hours a month of free calls to other 3 users other 3 numbers. [Media] probably tv (tv) um or print at a guess. I am very blind to internet advertising. It is just visual noise to me. So you know no doubt there were pop ups in different places and so on. (266 words)

The transcript is now broken up into data points, with identifying line numbers, and a few connecting words deleted. The 28 interviews resulted in around 74,000 words of transcript, which were coded in this way (about 300 times more than this example). Coding was done manually to maximise the researcher sensitivity to interviewee nuance. While this was helpful in the beginning before the coding stabilised, it became more time consuming later to search for all the instances of a certain code, and gather them together to compare them. If I was to code this dataset again, I would code initially by hand, until the concepts stabilised and then recode the data, with a software tool, to allow for easy searching. The words on paper do seem to give me greater connection to them than the words on the screen, which do seem a little more distant and abstract.

(1/10) The main thing that I was looking for was a um network Well um myself my partner D and my brother were

(1/11) All our previous contracts had expired at around the same time

(1/12) what I was looking for was a network where our inter network calls would be as cheap as possible Because they were the two people that I spoke to most often And I was the person that they spoke to most often So we figured it would all make sense to be part of the same network

(1/16) I think we were on three different networks actually at that stage But um we were all in a position where we could move to a new network

(1/18) We were out of contract with our existing providers so I started looking around for networks that had very good deals for you know intra network communication

(1/20) at the time 3 was by far the cheapest

(1/20) The 3 plans allowed several hours each month of free calls to other 3 users

(1/22) it was probably a 3 advertisement that made me aware of it

(1/23) when 3 advertised that they had ah ah generous plans It was something like ten hours a month of free calls to other 3 users other 3 numbers

(1/26) [Media] probably tv (tv) um or print at a guess I am very blind to internet advertising It is just visual noise to me So you know no doubt there were pop ups in different places and so on

These data points are now coded, first into concepts, and later into connections between concepts. Codes are distinguished between high level and low level codes. High level codes are indicated by single brackets - <soc.net>. Lower level codes are indicated by double brackets - <<brother>>. Lower level codes are less abstract and closer to the data. Connections between concepts are indicated by an arrow →. Sub categories are also indicated by a colon - <v : logic>. The sub category on the right, the higher level category on the left. Abbreviations are used to save time, naming the concepts. Key abbreviations include v – value, dv – devalue (or loss of value), va – value assessment, soc.net – social network, i.strat – innovator strategy, c.strat – consumer strategy. Underlining is used to indicate attention to particular words in a data point, to connect a concept to. Sometimes concepts apply to a whole data point, while other times a concept connects to an underlined passage or even a single word. Where concepts apply to the whole data point, they are placed on the side, and when they relate to more specific text, they are placed near that text, or linked with a line to indicate the connection.

The coding is not exhaustive. Not every possible relevant code is put against every data point. This would be necessary if the codes were counted and indicating strength. I am trying to understand the whole dataset through creating a small number of concepts, which are analytic and sensitising. I am trying to understand variation in the dataset, and the dynamics. The coding process is intuitive and I let my analytical instincts guide me to the appropriate code. I try not to let my critical voice interfere and comment on which codes to enter, or if there is a missing code, unless it is a new and important code. Missing known codes are of no importance.

The data points are now shown with the first coding pass indicated.

V016 Interview transcript	**Coding**
(1/10) I was <u>looking for</u> was a um network Well um <u>myself</u> my <u>partner</u> D and my <u>brother</u> were **<va: exploring>**	<soc.net> <<brother>> <<partner>>
(1/11) All our previous contracts had expired at around the same time	<context>
(1/12) what I was looking for was a network where our inter network calls would be <u>as cheap as possible</u> <u>Because</u> they were the two people that I spoke to most often And I was the person that they spoke to most often <u>So</u> <u>we figured</u> it would all <u>make sense to be</u> part of the same network **<soc.net> → <v.logic> <va : concluding> = <va : closing>**	<c.strat> <<minimum>>
(1/16) I think <u>we were on three different networks</u> actually at that stage But um we were all in a position where <u>we could move</u> to a new network	Not coded in error, should be <context>
(1/18) We were <u>out of contract</u> with our existing providers so I started <u>looking around</u> for networks that had very good deals for you know intra network communication	<va : exploring>

V016 Interview transcript	Coding
(1/20) at the time 3 was by far the cheapest	<va : comparing> <attitude>
(1/20) The 3 plans allowed several hours each month of free calls to other 3 users	<i.strategy>
(1/22) it was probably a 3 advertisement that made me aware of it	<i.strategy>
(1/23) when 3 advertised that they had ah ah generous plans It was something like ten hours a month of free calls to other 3 users other 3 numbers **<v: bonus>**	
(1/26) [Media] probably tv (tv) um or print at a guess I am very blind to internet advertising It is just visual noise to me So you know no doubt there were pop ups in different places and so on **<dv: order/chaos, relevance>**	<va: filtering>

Table A6-2: Coding an interview

The dataset shown here is now recoded, looking for connections between the concepts, such as <V> → <action> value leads to action. This connection does not necessarily mean causation, but co-occurrence. Grounded theory takes causation as not a simple linear event. Causation is complex, and multi-dimensional and non-linear. However by connecting the concepts, I hoped to build up by looking at the connections together to see if there was some greater pattern to be perceived. Ultimately a complex pattern emerged, but I was able to see strong, medium and weak connections. But when I was doing connections coding, I did not know what I would find.

Connections were not also just a simple linear connection between two concepts. Sometimes there were chains of up to five concepts or more commonly fewer. Connections were not found in every data point.

V016 Interview transcript	Connections Coding
(1/10) I was looking for was a um network Well um myself my partner D and my brother were	Nil
(1/11) All our previous contracts had expired at around the same time	Nil
(1/12) what I was looking for was a network where our inter network calls would be as cheap as possible Because they were the two people that I spoke to most often And I was the person that they spoke to most often So we figured it would all make sense to be part of the same network	Context → va Soc.net→ va
(1/16) I think we were on three different networks actually at that stage But um we were all in a position where we could move to a new network	Nil
(1/18) We were out of contract with our existing	Context → va

V016 Interview transcript	Connections Coding
providers so I started looking around for networks that had very good deals for you know intra network communication	
(1/20) at the time 3 was by far the cheapest	Nil
(1/20) The 3 plans allowed several hours each month of free calls to other 3 users	Nil
(1/22) it was probably a 3 advertisement that made me aware of it	i.strat → att i.strat → va → att
(1/23) when 3 advertised that they had ah ah generous plans It was something like ten hours a month of free calls to other 3 users other 3 numbers	Nil
(1/26) [Media] probably tv (tv) um or print at a guess I am very blind to internet advertising It is just visual noise to me So you know no doubt there were pop ups in different places and so on	Nil

Table A6-3 Connections coding an interview

After this coding, the next step is to compare one person against the next for the main concepts value and value assessment, and for connections to look at the dataset as a whole. What this showed is that some value concepts were strong and some were weak. What the overall connections analysis showed was some interesting contrasts between the high level cycles that I imagined were taking place were not always found in the coding. Logical connections are not always coded, and that complex rather than simple connections were found. The central cycle of concepts were densely connected, especially between value assessment (later value practices), attitude, social network and action, with each of them connected to every other, and not following the simple one directional flow of a linear model.

Conclusion

Coding has allowed a dynamic, complex explanation of the actions, and behaviour of the concerns of the participants to emerge from their interview transcripts. Through eight concepts, and their connected subconcepts a complex moving world of consumers interacting with innovators and their social and phenomenological environment emerges. The next step is to weave the story back into the data, justifying the concepts, and their relations with each other, while comparing the concepts with those that are used to explain similar issues in the innovation and consumer value literature. Through these comparison, and story development a new, powerful, yet simple story emerges linking the phenomenological and conceptual world. This story we call a grounded theory.

Appendix 7 – Value Meanings found by interviewee

See attached.

VALUE ELEMENTS BY VALUE DIMENSIONS BY INTERVIEWEE

Count of Type		Interviewee																	
Name	Value	mic005	mic010	mic014	mic018	mic019	mic020	mic021	mic022	v002	v004	v006	v012	v014	v015	v016	V017	v010h	v010w	Grand Total
Beauty	accessories										1									1
	aesthetic									1			1				1			3
	beauty							1										1		2
	size	1	1			1					1				1		1	1	1	8
	style									1							1	1	1	4
Beauty Total		1	1			1		1		2	2		1		1		3	3	2	18
Community	brand						1											1	1	3
	community	1			1	1							1					1	1	6
	connection	1					1				1		1							4
	different				1												1			2
	personalise						1							1						2
	privacy				1									1	1		1			4
	secure													1						1
	status symbol	1															1			2
Community Total		3			3	1	3				1		2	3	1		3	2	2	24
Duty	commitment														1					1
	duty	1						1		1	1	1		2	1		1	1	1	11
	parental													1						1
Duty Total		1						1		1	1	1		3	2		1	1	1	13
Function	archive						1						1							2
	fun	1				1							1	1			1			5
	function	1	2		1	1		1		1	1	1	1	1	1	1	1	1	1	16
	play					1														1
Function Total		2	2		1	3	1	1		1	1	1	3	2	1	1	2	1	1	24
Know	important					1			1										1	3
	info														1					1
	interest		1		1	2				1			1		1		1	1		9
	learning	1				1					1				1		1			5
	new			1	1	1	1		1	1	1						1	1	1	10
	past						1			1					1		2	1		6
	relevance									1				1	1	1				4
Know Total		1	1	1	2	5	2		2	4	2		1	1	5	1	5	3	2	38
Need	necessary evil													1						1
	necessity	1				1					1		1		1					5
	need				1		1			1	1	1	1		1			1	1	9
Need Total		1			1	1	1			1	2	1	2	1	2			1	1	15
Power	control												1							1
	flexible										1									1
	freedom	1									1				1					3
	limits	1						1							1					3
	mystique									1										1
	potential				1	1				1	1		1	1	2	1	2	1		12
	power			1																1
	powerless									1						1				2
Power Total		2		1	1	1		1		3	3		2	1	4	2	2	1		24
Price	bonus	1			1	1					1					1	1			6
	expensive	1				1	1	1				1						1	1	7
	free		1	1	1		1	1		1		1	1					1	1	10
	high price												1							1
	pay later	1				1														2
	pay less	1			1					1				1		1		1		6
	pay more						1													1
	price		1	1				1	1						1			1	1	7
	something 4 nothing	1					1								1					3
	tax deduction	1				1														2
Price Total		6	2	2	3	4	4	3	1	2	1	2	2	1	2	2	1	4	3	45
Reliability	problem	1	1		1		1			1					1					6
	reliability	1	1	1	1	1	1	1	1	1	1	1	1			1	1		1	15
	service	1	1	1	1	1	1	1	1	2	1	1	1		1	1	1	1		17
	solution																1			1
	standard					1														1
Reliability Total		3	3	2	3	3	3	2	2	4	2	2	2		2	2	3	1	1	40
Simple	bundle																1			1
	certainty					1	1				1						1	1		5
	clarity										1									1
	complete					1					1									2
	complex									1	1	1	1	1	1		1	1	1	9
	doubt				1			1		1										3
	easy							1			1									2
	simple						1	1			1		1		1		1	1	1	8
Simple Total					1	2	2	3		2	6	1	2	1	2		4	3	2	31
Time	convenient	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	17
	delay			1		1	1								1		1			5
	quick																1			1
	timely									1	1		1	1			1			5
Time Total		1	1	2	1	2	2		1	2	2	1	2	2	2	1	4	1	1	28
UNK	sexy																1			1
	cool																	1		1
UNK Total																	1	1		2
Emotion	exciting																1	1	1	3
	less stress					1								1						2
	logic															1				1
	love																1			1
	surprise																1			1
	emotion	1	1		1			1					1				1	1	1	8
Emotion Total		1	1		1	1		1					1	1		1	4	2	2	16
Grand Total		22	11	8	17	24	18	13	6	22	23	9	20	16	24	10	33	24	18	318

Appendix 8 – All grounded theory codes.

See Attached.

Cards 28

Paradigm	Category	Conditions	Strategies	Properties	Consequences	Interactions	Source	Page	Line
Conditions	Attitudes	Mismatch							
Consequences	Attitudes				A -> no action				
Consequences	Attitudes				intensity				
Consequences	Attitudes				repetition				
Consequences	Attitudes				longevity				
Consequences	Attitudes				recommend -> socnet				
Properties	Attitudes			+ve / -ve					
Properties	Attitudes			satisfied / not					
Properties	Attitudes			trust / mistrust					
Properties	Attitudes			constant / intermittent					
Properties	Attitudes			powerful / powerless					
Properties	Attitudes			duty / gift					
Properties	Attitudes			expected / not					
Properties	Attitudes			good / bad					
Properties	Attitudes			single / multiple source					
Properties	Attitudes			threshold: trigger					
Properties	Attitudes			intesity					
Properties	Attitudes			repetition					
Properties	Attitudes			longevity					
Properties	Consumer Strategy			Boundary					
Properties	Consumer Strategy			Rational / Emotional					
Strategies	Consumer Strategy		Cost reduction						
Strategies	Consumer Strategy		Search						
Strategies	Consumer Strategy		Detail avoidance (filter)						
Strategies	Consumer Strategy		Minimum / max						
Strategies	Consumer Strategy		Filter						
Strategies	Consumer Strategy		Location sensitive						
Strategies	Consumer Strategy		trust						
Strategies	Consumer Strategy		defer						
Strategies	Consumer Strategy		story						
Properties	Context			temporarily					
Properties	Context			alternatives					
Conditions	Social Network	problem							
Conditions	Social Network	story							
Consequences	Social Network				Trust				
Properties	Social Network			Wife					
Properties	Social Network			Daughter					

Cards 28

Paradigm	Category	Conditions	Strategies	Properties	Consequences	Interactions	Source	Page	Line
Properties	Social Network			Children					
Properties	Social Network			People					
Properties	Social Network			Students					
Properties	Social Network			Work Colleagues					
Properties	Social Network			Duration					
Properties	Social Network			Impact					
Properties	Social Network			Co-located					
Properties	Social Network			Contact timing					
Properties	Social Network			Contact intensity					
Properties	Social Network			Strong / weak tie					
Properties	Social Network			Friend					
Strategies	Social Network		annoy						
Strategies	Social Network		compare						
Strategies	Social Network		recommend						
Strategies	Social Network		demonstrate						
Conditions	Value	Context							
Conditions	Value	Late							
Conditions	Value	oveseas							
Conditions	Value	Action							
Conditions	Value	Right price							
Conditions	Value	Hyp: Doubt + context (att) -> lower V							
Conditions	Value	Hyp: VA + Doubt + Contxt + I Strat							
Consequences	Value				Frustration				
Consequences	Value				Fear /Joy				
Consequences	Value				Duty				
Consequences	Value				Responsibility				
Consequences	Value				Action / Inaction				
Consequences	Value				I Strat				
Consequences	Value				Hyp: Devalue -> action				
Properties	Value			Quick					
Properties	Value			Reliable					
Properties	Value			Convenient					
Properties	Value			Need					
Properties	Value			Time(ly)					
Properties	Value			Function / Use (5) / Tool (23)					
Properties	Value			Important					
Properties	Value			Stress (less)					

Cards 28

Paradigm	Category	Conditions	Strategies	Properties	Consequences	Interactions	Source	Page	Line
Properties	Value			Fun / toy (5) / play (23)					
Properties	Value			Service					
Properties	Value			Threshold -> action					
Properties	Value			Decision (VA?)					
Properties	Value			Paying less / later					
Properties	Value			Personalisation					
Properties	Value			Constant surveillance					
Properties	Value			Necessary Evil / Necessity					
Properties	Value			Parental tool					
Properties	Value			Potential / learning					
Properties	Value			Aesthetic					
Properties	Value			Bonus .. Free					
Properties	Value			Unlimited / limits / freedom / powerless					
Properties	Value			Duty / freedom					
Properties	Value			Value for money					
Properties	Value			Something for nothing					
Properties	Value			New					
Properties	Value			Mystique					
Properties	Value			Problem / trouble D					
Properties	Value			On time D					
Properties	Value			Pay extra D					
Properties	Value			delay D					
Properties	Value			standard D					
Properties	Value			failure / success / solution D					
Properties	Value			Size					
Properties	Value			Interested					
Properties	Value			Curious					
Properties	Value			Tool					
Properties	Value			Play					
Properties	Value			warranty					
Properties	Value			tool					
Properties	Value			certainty					
Properties	Value			learning					
Properties	Value			community					
Properties	Value			brand					
Properties	Value			trust					
Properties	Value			improvement					

Cards 28

Paradigm	Category	Conditions	Strategies	Properties	Consequences	Interactions	Source	Page	Line
Properties	Value			connection					
Properties	Value			expensive					
Properties	Value			archive					
Properties	Value			status symbol					
Properties	Value			reason/logic					
Properties	Value			relevance					
Properties	Value			expectation					
Strategies	Value		Minimise D (devalue)						
Strategies	Value		Rationalise						
Strategies	Value		Emphasise						
Conditions	Value Assessment	context							
Conditions	Value Assessment	value							
Conditions	Value Assessment	Social Network							
Conditions	Value Assessment	C Strategy							
Consequences	Value Assessment				Action				
Consequences	Value Assessment				Closing				
Consequences	Value Assessment				Waiting				
Consequences	Value Assessment				Action -> recommend				
Consequences	Value Assessment				Opinion				
Consequences	Value Assessment				Inaction = powerless				
Properties	Value Assessment			Interactive					
Properties	Value Assessment			Actual / Potential					
Properties	Value Assessment			Success / Failure					
Properties	Value Assessment			failure -Hyp: -> socnet					
Properties	Value Assessment			Decision +ve / -ve -> Action					
Properties	Value Assessment			Potential ?					
Strategies	Value Assessment		Balancing pros/cons						
Strategies	Value Assessment		Exploring						
Strategies	Value Assessment		Filtering						
Strategies	Value Assessment		Closing						
Strategies	Value Assessment		Waiting						
Strategies	Value Assessment		Aggregating						
Strategies	Value Assessment		Comparing						
Strategies	Value Assessment		Contrasting						
Strategies	Value Assessment		Forecasting						
Strategies	Value Assessment		Estimating						

Appendix 9 – Sample transcript (V012).

See Attached.

Copy 1

FEMALE 18 YO, MELBOURNE, $650pw Income (Entered: 28.08.07, 137 data points)

- (page 1/ line14) my family that live in Perth I need to videocall them <context> <V: need>
- (1/15) I can videocall my brother for free <V: free>
- (1/15) they [3] were cheap they were affordable <V: V4$>
- (1/17) they [3G phones] are very very easy to use <V: simple>
- (1/22) I just think it is the best phone for me to videocall my little brother back in Perth <Va: aggregating>
- (1/23) with a Telstra phone it [bills] is so much more expensive with next generation [NextG] <dV: V4$>
- (1/29) it is just so easy for me to videocall my brother because I live so far away <V. simple> <context>
- (1/30) I am only 18 this is the first time I have been away from home so it is really really easy for me to videocall my family so I still feel like I'm still at home <V.simple> <V. connection> <V. emo> <context>
- (1/32) 3 is the only way for me to get that coverage around the next generation phone <V: function>
- (1/33) I have also got a Telstra next generation phone and that is better for me when I am in the country um and I've got no signal <V: function>
- (1/34) because it [Telstra NextG] is exactly like a CDMA phone I've got a signal everywhere with a next generation phone [NextG] <V: function>
- (1/37) with Telstra it [use] is so much more expensive for me <Va: closing> → <attitude>
- (1/38) so I've got two phones running one is just for incoming calls and messages <C. strat>

1. strat → va → att → c. strat

- (1/39) i've got my 3 phone which is for my videocalling and calling because it is on a plan so it is a lot more cheaper for me to call <V: V4$>
- (1/44) I used to live in Perth <context>
- (1/44) I used to um always travel to the country for my grandparents <context: location>
- (1/45) my 3 phone would never ever work in the country so I thought I might as well get a next generation phone that is actually going to work in the country <dV: reliability> → <action>

dV → action → c. strat

- (1/47) because as I am 18 I can't live without my phone <V: emo>
- (1/47) my phone is my life <V: emo>
- (2/1) it's just if I go out of coverage I am just panicking because I can't get hold of anybody um I'm lonely I've got no friends to contact and that is why I thought I would get a next generation phone (yes) because it is exactly like a CDMA phone better for the countrywise <V: connection> → <action>

va → action

- (2/4) when I come back to being in Perth in the country I mean city I've got my 3 phone which is cheaper for me <C. strat. minimise>

31/8/08

<va : expires>

- (2/9) I used to work with Telstra so I used to know everything about the mobiles what kind of area range they can get <v : reliability>

va → action

- (2/11) um everything about mobiles I used to know so I just went to an ordinary Telstra shop picked out which phone would be better for me <action> <va : exploring>
- (2/12) [picked] what the camera was like <v : function>
- (2/13) [picked] what the videocalling was like messaging <v : function>
- (2/13) how much it [memory] can save in the phone <v : potential>
- (2/14) ??how much?? Was affordable for me so I can just use it ongoing to the country <v : v4$>

va → soc.net → action

- (2/15) with the 3 phones because I've been with 3 my little brother has exactly the same phone as me but the lower model <v> → <soc.net. bro>
  community
- (2/17) I've got the Nokia 6288 with the 3G
- (2/17) with the Telstra phone I've got the Samsung a50 A515 or something
- (2/20) I just thought it [white Nokia 6288] looked good <v : aesthetic>

soc.net → va → action

- (2/20) it's easy to use because my little brother has got one so I thought I would get the ??higher?? one on a plan <va : contract>
- (2/21) because it is just a hell of a lot cheaper for me than I spend roughly on the Telstra phone <va : compare>
- (2/22) um prepaid I spend $30 $30 a week (yes) so that is like $120 a month and I only get to use $120 worth of calls <action> <dv : v4$>
- (2/24) but with this I am on a $69 cap which gives me $760 worth of calls <v : v4$> <va : compare>
- (2/24) so it is a hell of a lot cheaper for me in the long run <v : v4$>

i.strat → va → att

- (2/25) with 3 you can check up on the internet which is free browsing how much you spent how much you can still use (yes) which is a lot more efficient as well <v : free> <v : convenient>
- (2/27) because some children who are 18 they go way over the limit with plans and stuff like that <dv : high price>
- (2/28) that is why 3 can do that [free checking of your prepaid balance online] for you <attitude>
- (2/31) you just ask a lot of questions when you go there [at a phone shop] and you want to buy a phone you just ask what they can do <va : exploring>
- (2/32) plus I've also worked for Telstra <content>

i.strat → va → action

- (2/33) so there is a lot of ins and outs with phones and you've got to ask the right questions to get the right answers <dv : complexity>
- (2/35) you just ask wherever you go say you went to an ordinary 3 shop you can ask what it [3G phone] can do if you can do this on the internet what does it cost everything <v : use> <va : aggregating>
- (2/37) because 3 is so (yes) ??efficient/sufficient?? In using it [check balance]

i.strat → va → att

- (2/37) it is so much easier for children no for teenagers to use the phone because it is free downloading you get free [check prepaid balance]

<v : simple> <v : function> <v : free>

istrat → va → att
- (2/39) if you only pay $1.50 for a lot of stuff it's just really cheap and easy for teenagers to use and not rack up the bill <V: V4$> <V: simple> <V: use>

- (2/44) I use email for all my friends and family in New Zealand and perth <V: connection>

istrat → va → att
- (2/45) [email] that is really really easy and its free as well <V: simple> <V: free>

- (2/45) like bluetooth it's free <V/free>

- (2/45) it costs you $5 a month for the web pack email which means you get unlimited emails to any phone that has an email address <V/unlimited>

- (2/47) you can email to computers as well so its like hotmail or MSN messenger yahoo <V/potential> <V/connection>

- (3/1) I use that quite often messenger yes MSN messenger

- (3/2) I use that [messenger] really really regularly <V/timely>

- (3/3) you don't have to pay for that [messenger] separately

- (3/4) what it [web pack email] is is It is like a starter pack thing that you have to purchase every month that's $5 for the whole month <V/V4$>

- (3/5) so that just comes out of your prepaid credit <i. strategy>

- (3/6) what you do its got unlimited emails like MSN messenger it's unlimited you can use as much as you like <V: unlimited>

istrat → va → att
- (3/7) so it [3G] is cheaper than using messages normally <va: comparing>

- (3/10) I bought this new phone um yesterday <action>

- (3/11) but I've been with 3 using the same plan (yes) everything else for about three years now <va: history>

- (3/13) I joined up to 3 as soon as they signed on they were 3 in Perth <context>

- (3/15) I did have an Orange phone <context: history>

- (3/15) soon as they [Orange] changed their name I upgraded to a new phone <V: time>

- (3/18) I did have to go into a shop and tell them I just wanted to upgrade my sim <action>

- (3/19) I got the same number <V: convenience>

- (3/19) it took approximately about five minutes for them to do all the work <V: timely>

- (3/20) they cancelled my old sim and put all my numbers from my Orange sim onto my 3 sim <V: service>

- (3/21) [they] just changed my number from my Orange sim to my 3 sim <V: service>

istrat → va → att
- (3/25) I really really enjoy the [3] company <V: service>

istrat → va → att
- (3/25) um it is a hell of a lot better I have to say than Telstra or Optus or anyone like that because you've got so much more money for little for what little you pay <V: V4$>

- (3/27) for instance prepaid you pay say $50 per fortnight you get $100 credit you get 150 free messages and 150 free minutes 3 to 3 <V: V4$>

[3] <V: v4$>

i.strat → va → att

- (3/29) that is really affordable for people who for teenagers mainly that can't afford $50 a week or can't afford that much money a week with other providers (yes) considering they are probably not working full time like I am <context>

- (3/31) they [teenagers] are probably going to school full time and working part time so they have got that not much money to spend on phones (yes) <context>

- (3/37) my boyfriend um he is with Optus (yes) on a $49 plan that only gives him $300 worth of calls and that's it (yes) <soc.net> <va: comparing> <<partner>> /socnet

- (3/38) with 3 I am on a $69 plan and I get $710 worth of calls for free and internet usage messaging all that other kind of stuff for $760 all I pay a month is $69 <va: comparing>

- (3/42) that [3G plan] includes browsing the net it does not include buying um products and music and stuff like that it just includes browsing the net <i.strategy>

- (3/43) if you want to buy it [web pack] just comes out of the $760 <i strategy>

- (3/45) if you want to buy like a music track (yes) it's only going to cost you like $1.50 <i strategy>

- (3/46) then that is going to come out of the $250 you use for ??3/free?? on 3 (ok) <i.strategy>

- (3/47) then you have got $550 worth of calls and internet browsing and messaging and all that other kind of stuff <i.strategy>

i strat → va → att

- (4/2) it [web prepay pack] lets you do 10 megabytes a day that's enough that is plenty for me um <i.strategy>

- (4/3) but I've got a memory chip in my card that is 1 gig[abyte] (yes) so I use 1 gig of memory a dayon my internet browser yes so I can do emails and stuff like <v: potential>

- (4/7) I've got a lot of photos of my family in Perth and NEW ZEALAND ON my phone <V: archive>

- (4/8) like unstoppable files [necessary] <V: necessity>

V → action

- (4/9) I like my music so I like to take it with me everywhere I go <V: convenience> <V: intuitiv>

- (4/9) so I download all my music onto my phone which stores up a lot of memory

- (4/10) and like videos when you are having momentarily fun times and you are just sitting there and you want to video record something <V: fun> <V: potential>

- (4/12) it [video recording] just does take up a hell of a lot of video memory to do that so so it is easier getting the one gig memory <V: potential>

- (4/13) I've got probably about 600 megabytes already used up [on 1G memory card] <context>

- (4/14) I've got a one gig thing [memory card] so I've still got 400 [Mb] left to go <context>

- (4/16) you can buy a higher model [memory stick] like 2 gig or 4 gig <V: potential>

- (4/16) you can just take the chip out of the bottom of the memory stick and put it in the other memory [device] <V: potential>

- (4/18) but I got this cheap memory stick for free because I am with 3 <v: free>
- (4/19) but if you bought the phone outright and if you decided to get a memory stick on day after you got the phone then it is going to cost you about $49 FOR 1 gig memory chip <i. strat>
- (4/21) that is a bit expensive for people who don't have that much money <dv: v4$>

i.strat → va → att

- (4/25) I think the prices with 3 are very very cheap <v: v4$> <attitude>
- (4/25) messaging is the usual 25 cents <i. strat>
- (4/26) but with 3 you get free calls <v: free>
- (4/26) a lot more people these days are with 3 because of that factor [free calls 3 to 3] <soc. net. observe>

i.strat → va → att

- (4/27) the video calls and the voice calls to other carriers is so much cheaper than everywhere else because it is only 50 cents for one minute plus the flagfall which is only 25 cents <va: compare>
- (4/29) so it [video and voicecalls] is a lot cheaper than any other provider <va: compare>
- (4/30) my Telstra phone is 50 cents for 30 seconds plus a 35 cent flagfall (uh so) so that's 85 cents for 30 seconds and that is way too expensive um (ok) <va: compare>
- (4/33) It [data service use] depends what you decide that you like basically <v: interest>
- (4/34) there is a lot of different [data service] packs <i. strat>
- (4/35) they've got sports [packs] <i. strat>
- (4/35) they have got entertainment packs <i. strat>
- (4/36) at the moment I use the entertainment pack <v: use>
- (4/37) I use the mms [photo messages] power pack which means you use umlimited mms 3 to 3 plus 20 free mms to any other network that costs only $3 per month <v: use>
- (4/38) I've got the games pack <v: fun>
- (4/39) I've got the ~~info pack~~ for like weather and news and stuff like that financing <v: use>
- (4/40) they [data service packs] are all unlimited usage (uh huh) for $3 a month <v: unlimited> <v: v4$>
- (4/40) I've got the music club pack the tones and pic pack and the web and email pack which the web and email pack is $5 a month (yes) but all the rest of them are $3 a month <i. strat>

i.strat → va → att

- (4/43) oh I think [data packs] they are very very good [value] <v: v4$>
- (4/44) what company like Optus or Telstra would give you unlimited usage of music and news and weather <v: unlimited>

i.strat → va → att

- (4/45) not many do that [unlimited] so that is really good <va: closing> <va: compare> → <attitude>
- (4/45) so if you want to download music that you see on the tv you can easily download it <context> <v: convenience> <v: potential>

<v: v4$>

(4/46) all it costs you is $1.50 with the music pack but everything [else] is unlimited usage <v: unlimited>

(5/3) I actually quite like all the setup on on 3 <v: interest>

(5/3) what I would probably like is if with 3 you can't buy a phone outright if it is on a plan you can only buy a prepaid phone outright <dv: control>

(5/5) what I would probably like to see is 3 letting their clients buy planned phones outright without being on plan <v: control>

(5/6) I mean you may have the money but they may not capable of being [sold outright] on a plan <i.strat>

(5/8) they [3] want you to pay per month <i.strat>

(5/9) if you buy the phone outright you still have to be on a plan with <i.strat>

(5/10) with the plans take them off you can buy them [handsets] outright because every other provider you can buy any phone that is on a plan outright without being on a plan <Va: comparing>

(5/12) it's just 3 that doesn't let you do that [buy plan phones outright] <i.strat>

(5/16) my phone is the world to me <v: emo>

(5/16) I need it to go everywhere because if I don't have my phone with me what happens when you get lost <dv: uncertainty> <v: connection>

Soc.net → v

(5/18) plus my mum needs to contact me if my boyfriend needs to contact me that is the biggest thing <soc.net.mother> <v: connection> <i. partner>

(5/19) if I meet a friend and they haven't seen photos of our friends (yes) I can easily show it to them <soc.net.friend> <v. potential> <v. convenience>

Soc.net → v

(5/21) my phone is my life it has got everything in it my family my friends my photos videos it has got everything meaningful messages numbers you need contact numbers <v.emo> <v. connection> <v.archive>

(5/24) there would be a humoungous problem if I lost my phone <dv: loss use>

(5/24) last year for instance I lost one of my phones but luckily my boyfriend had my my sim card in his pocket and I lost my phone so I was so grateful that he had my sim card in his pocket <dv: potential> → <action>

(5/26) so I can still have my numbers and messages and (photos) photos and everything <v: potential> <v: use>

(5/30) So every month I save everything onto my memory card and then get everything off my memory card and stick it into the computer and just download everything off my memory card into the computer then put the memory card back in my phone <c.strat.> <<protect>>

(5/33) that way I have got everything on my computer as well as my phone that way if my phone goes missing then I've still got stuff on my computer <c.strat. protect>

(5/35) [get backup files] yes straight off my computer and put it back in my phone <c.strat. protect>

<ends>

Appendix 10 – Price Analysis

An investigation into one value meaning (pricing) for subdimensions is provided for completeness. I examined 3G brochures from 2005 to 2008, and found 150 price movements relating to the use of mobile broadband using 3G during that time. I examined and compared, the price movements, bearing in mind the complex value model. Given the complexity of pricing, consumers filter most of the information when making a value assessment. A thorough analysis of pricing shows how much complexity is inherent in Australian 3G pricing. Consumer with overseas experience of pricing (V010 USA, V004 Scandinavia) complained about Australian complexity of 3G pricing. An example of the complexity of pricing of one phone, and the level of fine print involved in a 3G phone advertisement on the Optus website is provided in Appendix 12.

<u>3G Data prices</u>

Besides the many new 3G handsets that the 3G innovators offer, use of mobile data is a significant differentiator from 2G mobile phones. However, the pricing of 3G mobile data is highly complex. I examined 106 3G broadband data price points from Australian 3G companies from 2005 to 2009. Within this pricing I found 15 dimensions of pricing. These dimensions include:

- price per month
- price per Gb (gigabyte 10 ,000 ,000 ,000 bytes),
- monthly data caps,
- excess price over cap,
- provider,
- data type (mobile phone data or external usb modem),
- speed,
- handset price,
- prepaid/postpaid,
- contractual term – 12, 24 months, prepaid,
- non-data pricing (included calls, sms messages),
- free extras (such as phones, data services, wifi),
- shaping (slowing data speed once a monthly cap is reached, rather than paying an excess),
- comparison with local fixed broadband, and with international mobile broadband,
- movement over time.

I made a comparison on the seven most important dimensions (see Figure A10-2), and compared 34 price data points between providers for one phone (iPhone 3GS) at its launch in July

2009 (see Ferrers 2009). These price points were a reduced dataset from all the advertised price points, by selecting from each company the highest and lowest prices per month, and the highest and lowest data quantities offered per month, thereby choosing the lowest price per month for each provider, and the lowest rate per Gb data for each provider.

The key result from this analysis is the concept of the 'value frontier'. On a graph of the two most important dimensions (price per month and price per Gb), I plotted all the price offerings from five companies for the iPhone 3GS. A boundary emerged, which I call the value frontier. The phone companies compete on different price, quantity combinations, and use complexity, and fine print to make it difficult for consumers to compare between offerings.

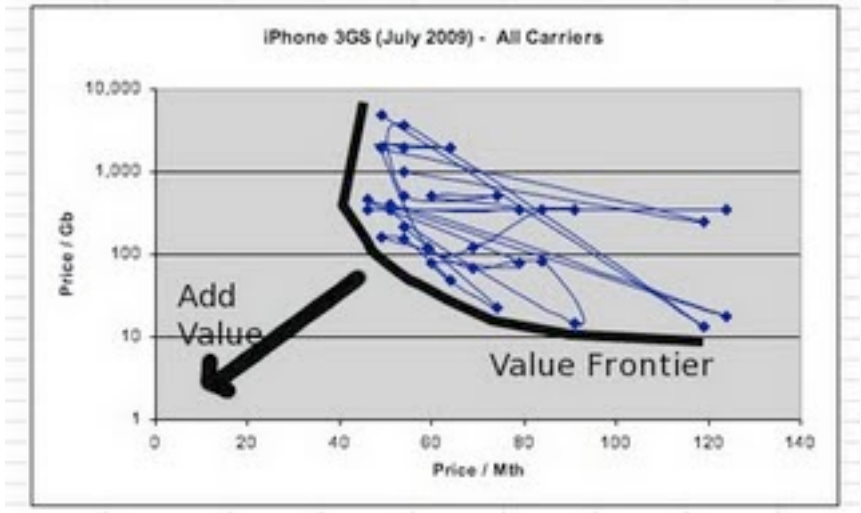

Figure A10-1: Price dimensions compete – price per month, and price per Gb data combinations. Dots indicate price combination offers for iPhone 3Gs during launch in July 2009.

As prices approach the origin (bottom left corner) value increases, since both price decrease and quantity of data received increases. Subsequently to this analysis a sim only offer from Optus reseller, Exetel, with a new price point, crossed the value frontier. The Exetel deal offers a price of $15 per Gb, with minimum cost each month of $5. However, this value combination is not directly comparable, because all the points in Figure 3-3 include the iPhone 3GS handset in the price/data combination, whereas the Exetel offer is sim only, and does not include a 3G phone.

A similar value frontier can be found in looking at 3G mobile broadband prices versus fixed broadband and international mobile broadband. The comparison shows international rates are better value than Australian rates, and fixed broadband is cheaper per Gb, but not cheaper per month. Full data for these graphs is shown in Ferrers (2011). The data shows for each year from 2005 to 2008, the cheapest price per month and cheapest price per Gb, found in the pricing data for that year. The graphs plot these prices and associated excess rates, and roaming charges (3 only). For instance, 3

offers the cheapest 2008 price (found in the examined 3G brochures) per month for mobile web data $12 per month at $120/Gb, plus excess fees at $100/Gb, and roaming charge of $1,650/Gb. 3 offers the cheapest 2008 mobile USB data prices at $39 per month at $7/Gb ($100/Gb when exceeding monthly limit (6 Gb); $1,650/Gb when roaming off their network). This shows up on the graph as a vertical line at the $39 price per month point. This pricing approach shows the complexity inherent in current Australian 3G mobile pricing, especially compared to international unlimited data pricing (Canada $5pm, Finland $10pm).

Reference:

Ferrers, R. (2009). *iPhone 3Gs: price analysis: Ausralian Phone Companies*. Viewed online 18.01.2011 at: http://valman.blogspot.com/2009/07/iphone-3gs-price-analysis-australian.html

Ferrers, R. (2011). *Comparison of Australia / International Mobile / Fixed Broadband Prices per GB / Mth 2005 – 2008*. Viewed online 18.01.2011 at: http://www.mediafire.com/file/vb3llw2oyd083gg/App11MobBBFixedBBIntl2005to2008.pdf

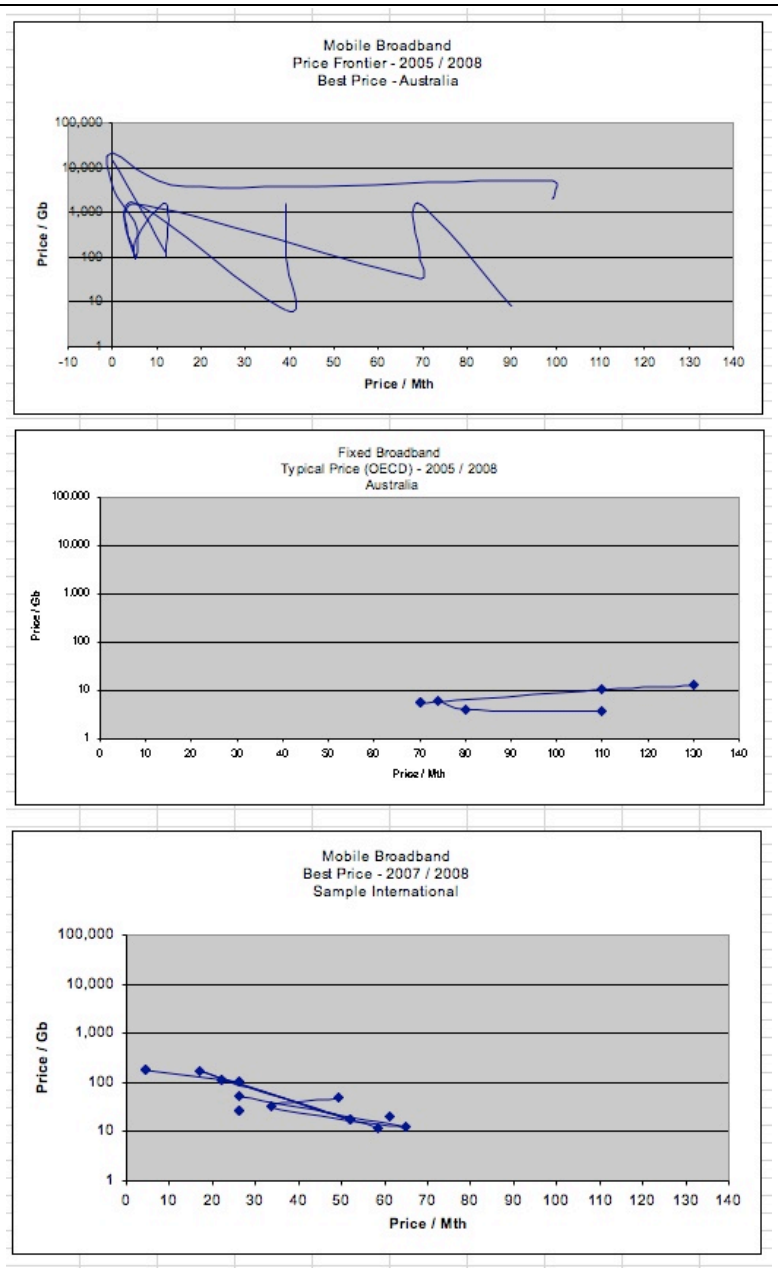

Figure A10-2: Comparison of value frontier for Australian mobile broadband, fixed broadband, and international mobile broadband. International graph does not show unlimited mobile data plans in Canada ($5 AUD), Finland ($10 AUD), Netherlands ($13 AUD). Vertical lines on Mobile broadband are usage prices, when exceeding monthly data allowance.

Appendix 11 – Sample 3G mobile advertisement.

See Attached.

Mobile

- **Mobile Phones**
  - HTC Dream
  - BlackBerry
  - **Samsung HD**
- **iPhone**
- **Online SIM Only Deals**
- **Plans & Rates: Mobile**
- **Pre-Paid**
- **Mobile Internet**
- **Email On The Run**
- **Mobile Features & Services**
- **Using Your Mobile Overseas**
- **Mobile Satellite**
- **Visiting Australia?**
- **Online Shopping Help**
- **Activate My Post-Paid Mobile**

You are here: Homepage / Personal / Mobile / Mobile Phones / Samsung HD

Login

Samsung HD

The World's First 720P video recording and playback mobile phone is here. The new Samsung HD ICON is the ultimate entertainment device Enjoy a mobile handset with 8 megapixel camera with digital camera capabilities; experience the super bright 3.7" AMOLED screen that truly make your pictures, videos and games come alive.

The ICON Series presents: SAMSUNG HD

GET IT ON THE POPULAR 'YES' $49 CAP

- AMOLED Display
- 3.7" Touchscreen
- 8MP Camera
- HD Recording

'yes' $49 Cap + $20 handset payment per month over 24 months
Minimum Total Cost 24mths = $1176
Buy Now

'yes' $59 Cap + $20 handset payment per month over 24 months
Minimum total cost over 24 months is $1896
Buy Now

'yes' $79 Cap + $14 handset payment per month over 24 months
Minimum total cost over 24 months is $2232
Buy Now

$99 Timeless plan with $14.99 Mobile Internet Pack + $5 handset payment per month over 24 months
Minimum total cost over 24 months is $2855.76
Buy Now

Monthly Access Fee	*First use* Optus2 AnyOne Value [1]	*Then get* Optus2 Optus Value [2]	Flag Fall	Call Rate (per min)	SMS (per message)
$49	$330	$350	35c	80c	25c

$59	$330	$350	35c	80c	Unlimited standard SMS & MMS
$79	$640	$610	35c	78c	Unlimited standard SMS & MMS
$99 + $14.99 mobile Internet Pack 500MB[3]	Unlimited standard calls, unlimited standard SMS & MMS to Australian GSM mobiles				

Optus2AnyOne Value: If you exceed your plans "Optus2AnyOne Value" in any one billing period, standard rates of your plan will apply for calls and messages to other Australian network customers and the "Optus2Optus Value" becomes available. "Optus2AnyOne Value" excludes some call and message types.

Optus2Optus Value: Customers must utilise their "Optus2AnyOne Value" before being able to access/use the "Optus2Optus Value". If you exceed your plans "Optus2Optus Value" in any one billing period, standard rates of your plan will apply. "Optus2Optus Value" excludes some call and message types. Calls to selected Optus Fixed Line phones exclude calls to Optus Local Access Resale customers.

Unlimited Standard SMS and MMS Offer: is only applicable for standard personal SMS and MMS sent and received within Australia. Offer excludes all other message types. The unlimited offer is not to be used for commercial purposes. Optus Fair Go™ policy applies.

Free for 5: Applies to national voice calls to other Optus GSM Mobiles on the same customer account number. Standard call rates of your plan apply after the first 5 minutes. Optus Mobile Fair Go™ Policy applies and currently allows up to 1000 minutes per month.

Video Calling: is handset dependent and both parties to the call must be in a 3G or dual band coverage area. For coverage details see www.optus.com.au/coverage. International Video Calling is charged at $1.50 per minute, plus 35c flagfall per call. International text is 50c per message.

'yes' Cap Plan 24 Month Plan	$19	$49	$59	$79
24 Monthly minimum total cost	$456	$1,176	$1,416	$1,896
Initial Termination Fee	$310	$555	$570	$715
'yes' Cap Plan 12 Month Plan	$19	$49	$59	$79
12 Monthly minimum total cost	$228	$588	$708	$948
Initial Termination Fee	$220	$350	$365	$440

'yes' $19 Cap, 'yes' $49 Cap, 'yes' $59 Cap and 'yes' $79 Cap plans: Is only available for new or eligible existing customers who apply to connect to the Optus Mobile Digital service, and pass the Optus credit assessment and who are accepted by Optus. You will pay the 'minimum cap' amount each month even if you do not make calls to that value. For the part month, you will pay only part of the minimum spend and you will also receive only part of the "Optus2AnyOne Value" and "Optus2Optus Value". **Optus2AnyOne Value:** Eligible call and text types include standard national voice calls, standard national SMS and MMS, International SMS, national video calls, VoiceMail, PTT (Optus Fair Go™ Policy applies to PTT up to 150 minutes), national diversions and calls to 13/1300 and 1800 numbers. The Optus2AnyOne Value excludes 124 YES (937), International Voice including calls to fixed lines or GSM mobiles that switch/divert or re-route overseas, International Diversions, International Video, International Roaming, International MMS, International Video Calling, Optus Zoo Browsing, Optus Zoo Downloads, Content Packs (unless specified in promotions), Mobile Internet usage, Mobile IM - Instant Messaging , TrueLocal usage, Directory Assistance, Premium SMS and MMS, VOIP services and usage, and 19XX services. If you exceed your plans "Optus2AnyOne Value" in any one billing period, standard rates of your plan will apply for calls and messages to other Australian network customers and the "Optus2Optus Value" becomes available. **"Optus2Optus Value":** Customers must utilise their "Optus2AnyOne Value" before being able to access/use the "Optus2Optus Value". "Optus2Optus Value" includes standard national voice calls, standard national SMS and MMS, national video calls, PTT, national diversion calls and calls to 13/1300 and 1800 numbers made from one Optus Mobile Digital customer to another Optus Mobile Digital customer (on the Optus GSM network) or Selected Optus Fixed Line phones within Australia. If you exceed your plans "Optus2Optus Value" in any one billing period, standard rates of your plan will apply. Selected Optus Fixed Line Phones include those Fixed Line Phones on the Optus Local Access Direct or Local Access Telephony networks. Excludes calls to Optus Local Access Resale customers.

Unlimited Standard SMS & MMS Offer: is only applicable for standard SMS and MMS sent and received within Australia. Offer excludes International SMS and MMS, Premium SMS and MMS, Group and Email SMS and MMS and Instant Messaging (IM). The unlimited SMS and MMS offer only applies to standard personal SMS and MMS and is not to be used for commercial purposes. Optus Fair Go™ Policy applies.

The 'yes' Timeless are available as a month to month, 12 or 24 month plans. 'yes' Timeless $99 Plan when you take the $14.99 Mobile Internet Pack: is only available as a package and is not available separately. Your monthly minimum access fee is $113.99. **'yes' Timeless $99 Plan when you take the $14.99 mobile internet Pack Plan, 'yes' Timeless $119 Plan and 'yes' Timeless $129 plan:** Pay the first "timeless value" (minimum monthly access fee depending on your chosen plan) after which Timeless value services are unlimited. You will pay a minimum amount of "value" (depending on your chosen plan) per month even if you do not make that value worth of calls. For the part month, you will pay only part of the minimum spend and only receive part of the included value.

Timeless value: on the plan includes standard National Voice and Video Calls, Standard National SMS, PTT and National MMS. The 'yes'

Timeless $129 Plan also provides customers with unlimited Voicemail Deposits and Retrievals. The unlimited offer only applies to standard personal calls and text only and is not to be used for commercial purposes and excludes some call and message types. Optus Mobile Fair Go™ Policy applies.

Timeless value excludes 124 YES (937), Voicemail deposits and retrievals (included in the $129 plan), International Voice (including calls to national fixed or GSM mobile services that divert/switch or re-route overseas), video calls and SMS, International roaming and diversion, International MMS, International video calling, 1800, 13 and 1300 numbers, calls to MobileSat, Mobile IM - Instant Messaging and True Local usage, Premium SMS, Optus Zoo browsing and downloads, Content packs, Mobile Internet Usage, 966* Zoo, Directory Assistance, VOIP services and usage, Premium video, Operator Assistance, Video Conferencing and 19XX services. Normal charges apply for calls and services that are not part of the Timeless value. The mobile data included in your 'yes' Timeless $99 Plan when you take the $14.99 Mobile Internet Pack and 'yes' Timeless $129 Plan is supplied in accordance with the terms of the Standard Form of Agreement. You must comply with these terms including our Acceptable Use Policy and Mobile Fair Go™ Policy when using the service. The service provides a connection to the Internet via the Optus Mobile 3G or dual band and GSM networks.

'yes' Timeless $99 Plan when you take the $14.99 Mobile Internet Pack and 'yes' Timeless $129 Plan: Also includes 500MB (on the $99 + $14.99 Mobile Internet Pack plan) and 2GB (on the $129 plan) of data per month to access services on Optus Zoo as well as browsing the Internet from your mobile. If you exceed your plan's included monthly data allowance, excess usage will be charged at $0.35 per MB or part thereof. Any unused data allowance cannot be rolled over. Your data allowance does not include some call, message and data types and third party content and applications. If you are able to access such services, your use of such services will be charged at standard rates. Data usage will be counted in kilobytes, where 1024KB = 1MB and includes both uploads and downloads.

'yes' Timeless Minimum Total Cost And Termination Fee

	'yes' Timeless Plan $99 Plan when you take the $14.99 Mobile internet Pack ($113.99)	**$119**	**$129**
24 Monthly minimum total cost	$2,735.76	$2,856	$3,096
Initial Termination Fee (24 Month)	$760	$760	$820
12 Month minimum total cost	$1,367.88	$1,428	$1,548
Initial Termination Fee (12 month)	$470	$470	$500

Paper Invoice Fee: A $2.20 fee will apply if you choose to receive a paper bill posted to you. To avoid this fee you may change to an electronic bill sent to you by email by enrolling at www.optus.com.au/myoptusaccount. Electronic bills will be phased in over time and may not be available to you immediately. If Optus does not provide your bill in electronic format, we won't charge you the fee. Optus will write to you to advise you of the availability of electronic billing and before any fee is charged. **Credit Card Fee:** If you use a credit, charge or debit card to pay your bill, a 1% fee (inc. GST) will be charged. This payment processing fee will be shown on your Optus bill after the payment has been processed. Exemptions may apply. **Single Bill:** Optus may place your service on a single bill with one or more other services that you have with Optus. At point of sale you may choose to have all services billed individually. If you receive a single bill, afterwards it may not be possible to obtain individual bills for your services.

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Appendix 12 – Summary of Value properties

Dimension / Property / Hypotheses	Significance	Result	Literature
1. Value dimensions and value elements	✓✓✓	Property 1	NEW
2. Value is a single result, derived from all value elements / dimensions	✓✓✓	Property 1 (P2)	NEW
3. Value dimensions compete with each other	✓✓✓	Property 2	Christensen 1995, Weber
4. Value is remembered as attitude	✓✓✓	(P1)	NEW Ryan and Gross 1943 (knowledge precedes action by years), Rogers 2003 persuasion
5. Value dimensions have polarity	✓✓	Property 3	Kim and Mauborgne 2005
6. Value elements / dimensions act before / after purchase	✓✓	(P3): Implied by	Rogers 2003
7. Value iterative, moves with new information	✓✓	(P3)	Bijker 1995 – technology trajectory, Christensen 1995 – sustaining / disruptive
8. Value moves up and down	✓✓	Property 4	Kim and Mauborgne 2005
9. Value multidimensional	✓✓	Property 1	Christensen 1995, Kim and Maurbogne 2005
10. Value dimensions socially constructed	Assumption		Aristotle (conspicuous consumption), Bass, Bijker
11. Value is subjective (attitude, context, social network)	Assumption		Objective – Marx, Ricardo Subjective – Aristotle, Holbrook, Zeithaml 1988
12. Universal, social, individual value dimensions	Minor		Bass, Ryan and Gross, Rogers 2003
13. Value element / dimensions combinations provide a value fingerprint	Minor		n/a
14. Search for further value dimensions not found	Minor		n/a
15. Value dimensions are the DNA of value – ie Value Dimensions combine	Minor		n/a
16. Value driven by value assessment	Minor		n/a
17. Value cycles: explore, learn, discuss, act	Minor		Bass 1969 – innovator, imitator
18. Value dimensions combine to form complex value elements	Minimal		NEW
19. Innovator brochures emphasis some value dimensions	Minimal		n/a – no duty
20. Universal value dimensions not universal in other techologies	Minimal		n/a
21. Loss of value drives action	Unexpected		NEW

Table A12 – 1: Properties of Value compared to literature and assessed significance.
Simplified Value Hypotheses (subsequently replaced by Value Conversations) April 2010: 3G consumer dataset

- Property 1: Value is constructed from value dimensions (later meanings) and value elements (instances).
- Property 2: Value dimensions compete with each other.
- Property 3: Value dimensions have bi-polarity, affecting increase or decrease in (later overall) value.
- Property 4: Given bi-polarity of value dimensions, value can fall (devalue) as well as rise.

Value Connections Propositions (April 2010): 3G consumer dataset (P1, P2, P3)

- Proposition 1: Value is stored as attitude.
- Proposition 2: Value is stored a single result.
- Proposition 2a: Value is stored as a multiple result.
- Proposition 3: Value shifts with new relevant value information. That is attitude endures over time.
- Proposition 3a: Attitude degrades over time (forgetting) without new value information.

Supported: Proposition 1, Proposition 2 (overall attitude), Proposition 2a (attitude by value meaning), Proposition 3

Not Supported: Proposition 3a

In triangulating datasets (see 2.6.3 Generality) the same results were found. Exceptions to Proposition 2 were found consistent with the 3G dataset; new value information, citing social attitudes, conditional attitudes, and varying attitudes across levels (for instance, product attitude versus an attitude to a font on that product). In conclusion, the non-3G datasets provided no disconfirming evidence of the properties and propositions of value derived from and grounded in the 3G dataset.

Appendix 13. The Structure of Value

This Appendix shows the structure I found underlying my analysis of value; three value conversations and three value phases. In the final model of value (Chapter 6), the Telco and Social value conversations are combined for simplicity.

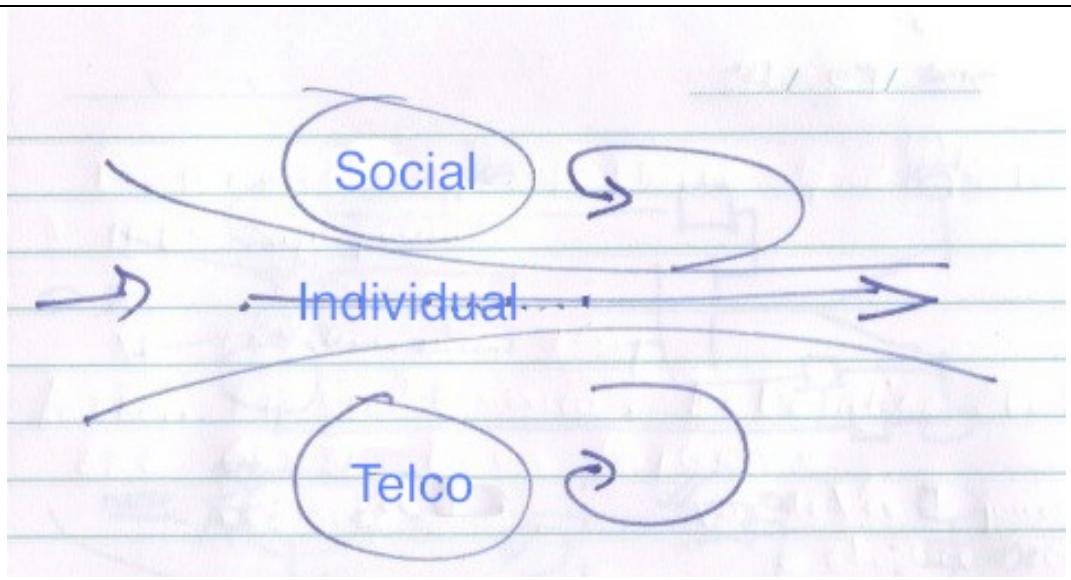

Figure 1: Three Value Conversations: Social, Telco, Individual.

<u>Three value conversations</u>

Consumers drew their value information from three value conversations. Value conversations are ongoing exchanges (value practices) of value information, resulting in shifting attitudes, emotion and action. Firstly, consumers interacted with their social peers, including family and friends, classmates and partners, giving and receiving information. Together with their peers (Bass, 1969, Ryan and Gross 1943, Rogers 2003), consumers socially constructed meanings of value, in their circumstances and according to their own comprehension and understanding. Secondly, consumers drew their own conclusions and made value assessments based on their own experience, separate from other people, through using their 3G mobile phones (like Bass' innovators 1969, or Rogers' early adopters 2003) and personal *exploring* and *filtering*/*closing*. This is a conversation through use, with the designers, the technology and their context. Lastly, consumers interacted with telcos' stores, staff and websites, and after purchase with their customer service phone and email helplines. These three conversations form a base layer of the value model. These three conversations form the major structure within Chapters 3, 4, and 5. For the purposes of the model, the telco and social conversations are both considered social.

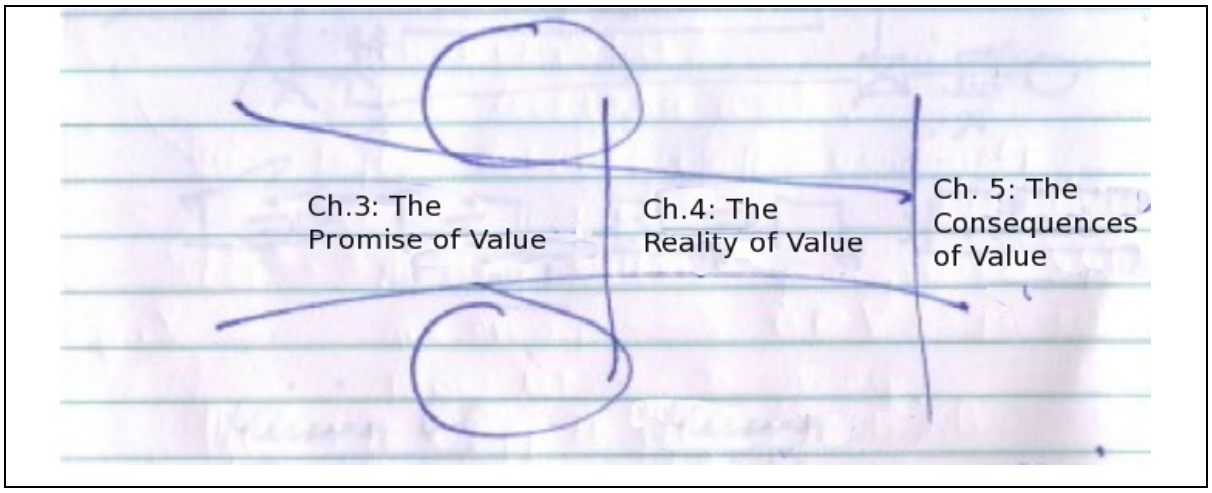

Figure 2: Three Value Phases

Three value phases

The value experience can be separated into three phases; pre purchase, post-purchase, and the action phase following valuing. After purchase, consumers experience new value related information through using a new technology that can significantly alter their earlier pre purchase value assessments. The Results chapters are split by phase. Chapter 3 examines the pre purchase phase; the Promise of Value. Chapter 4 examines the post purchase phase; the Reality of Value, and Chapter 5 examines the Consequences of Value, the actions arising out of value. There is some overlap between the phases and the phases are indicative rather than definitive. Mick and Fournier (1998) note that the post purchase phase has been an under-researched area of diffusion research. Most diffusion research focuses on activity up to adoption (Rogers 2003, Bass 1969, Ryan and Gross 1943), though Bijker's (1995) social construction of technology includes problems consumers have after purchase.

Appendix 14. A Complex Value Model

This Appendix shows the working that lead to the simple Value Model in Chapter 6. Building from the structure of value (Appendix 13) and the connections I saw between concepts in my data (see Appendix 3), I developed an integrated analysis of value. I use a series of diagrams to indicate my theorising.

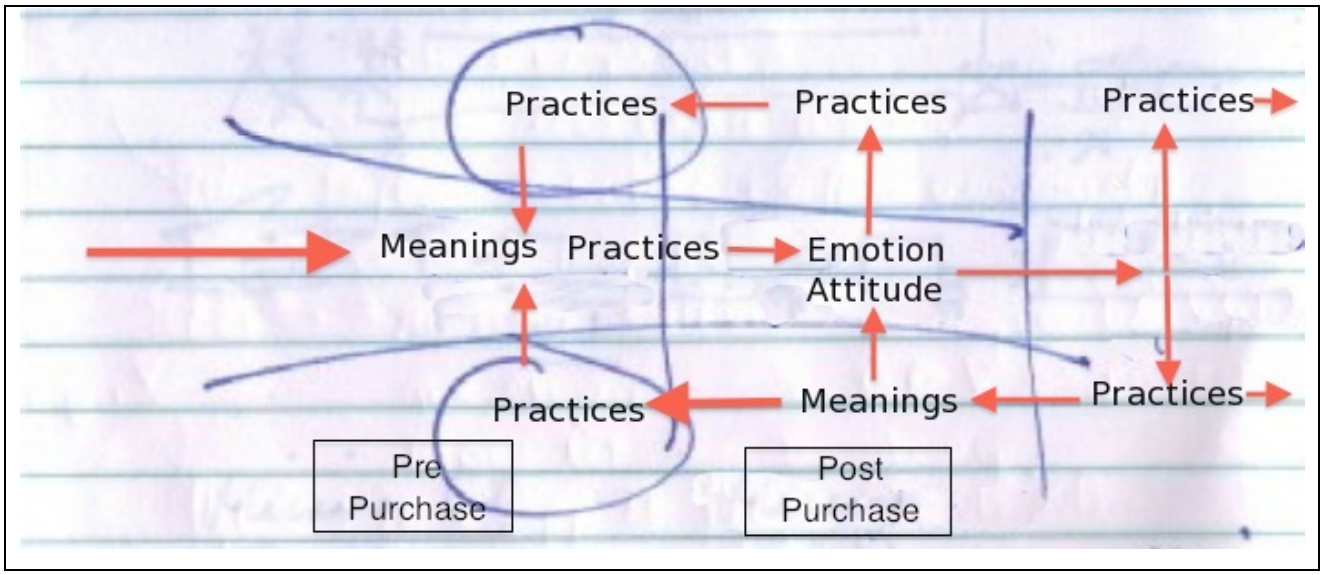

Figure 3: Value meanings and value practices interact to produce value dynamics.

Value meanings and value practices are mutually constituting. Figure 3 shows the complete model of value flows, but for simplicity excluding the names of the value meanings and the value practices. Value meanings and practices are indicated by dots in Figure 4. Single dots are value practices and double dots are value meanings. The emphasis in Figure 4 is on the flows between value meanings and value practices. Figure 4 shows another layer of meaning; emotional thresholds for action. Strong positive emotion is shown by two ticks. Strong negative emotion is shown by two crosses. A dollar sign means money paid in consumers case or received in a telco's case. Thus consumers do *recommending* when they experience strong positive or negative post purchase emotional outcomes. Consumers do *buying* when there are strong positive outcomes of value assessment. Weak negative outcomes are referred to a telco for *problem solving*. Weak emotional value assessments lead to *waiting* rather than *buying*. The split in the path between *waiting* and *buying* (a decision point) was not significant in the 3G consumer dataset, hence a decision (as an activity) forms no part of the value model. [Further work: Decisions did not emerge as a grounded concept in the value model. Comparison of a value theory and decision theory would explore the connection, is also recommended.] The question mark against the consumer figure in the centre shows a consumer unsure of value, but once they reach the parallel vertical lines (indicating a store of value) an attitude and emotion have formed, as a result of a value assessment. The circles on the

right hand side indicate the end of the value process (a stop indicator from a flow chart) and valuing continues on the left hand side as new value information arises from the consumer's context, either social, individual or in connecting with the telco. Thus a cycle of valuing occurs, moving between the three Value Conversations and through the three phases of Value. A simplified model is presented in Chapter 6.

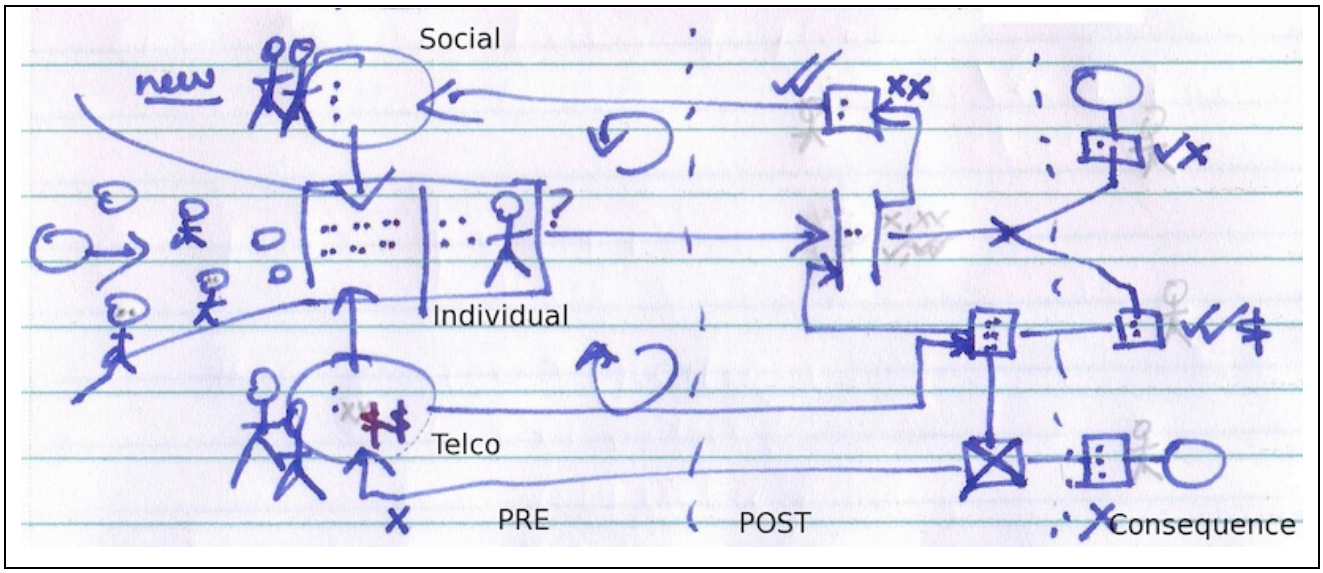

Figure 4: Flow of value meanings and practices.

Note: Ticks and crosses indicate threshold attitudes. Double tick is strong positive emotion or attitude. Single tick is weak positive emotion or attitude. Emotion or attitude is an expression (outcome or store) of value, shown as parallel vertical lines.

Value is cyclical. The circles on the left in Figure 4 indicate consumers about to make evaluation, and the circles on the right indicate end points, that reconnect with the circles on the left. The ticks and crosses (Figure 4,5) indicate flow to a value practice based on the strength of value meaning, and is reflected in an attitude. *Buying* is indicated by the single dollar sign indicating a consumer purchase. The telco is indicated by the multiple dollar signs generated from *buying*.

Figure 5 shows the Value Practices in the value model, within the structure of the Value phases and Value conversations.

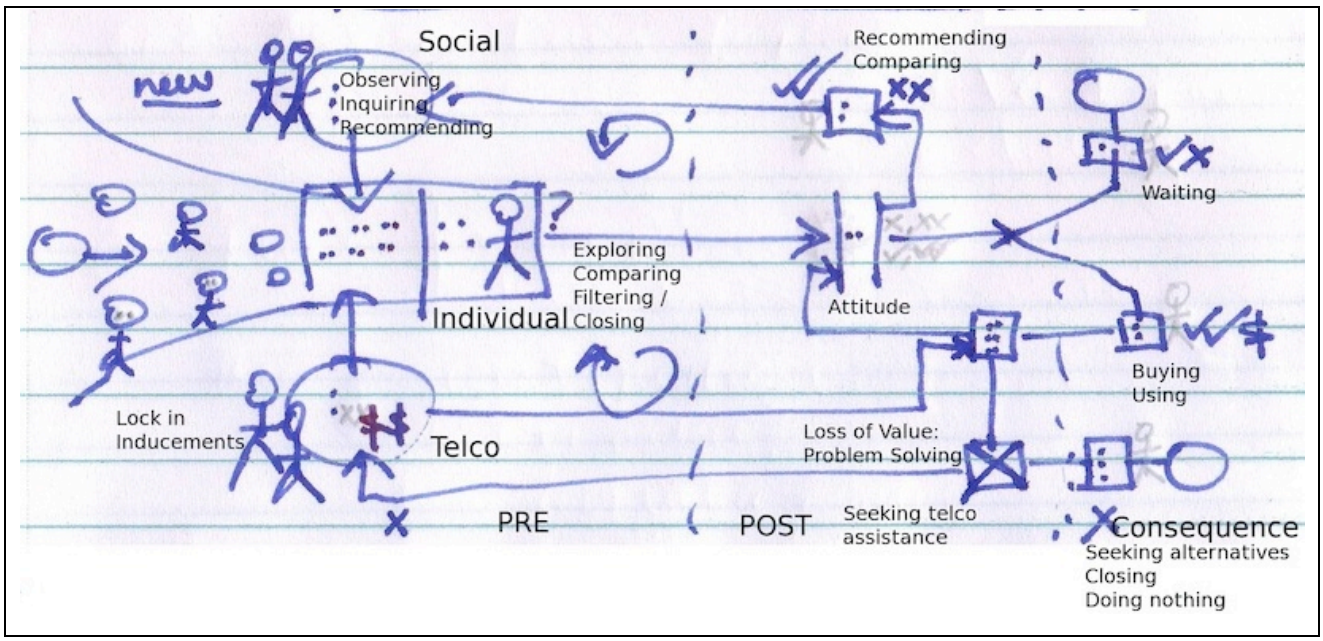

Figure 5: Value practices in a grounded theory model of value.

Figure 6 shows the Value meanings within the Value Model. The 12 value meanings, including the four underlying value meanings are shown, separated between pre and post purchase meanings.

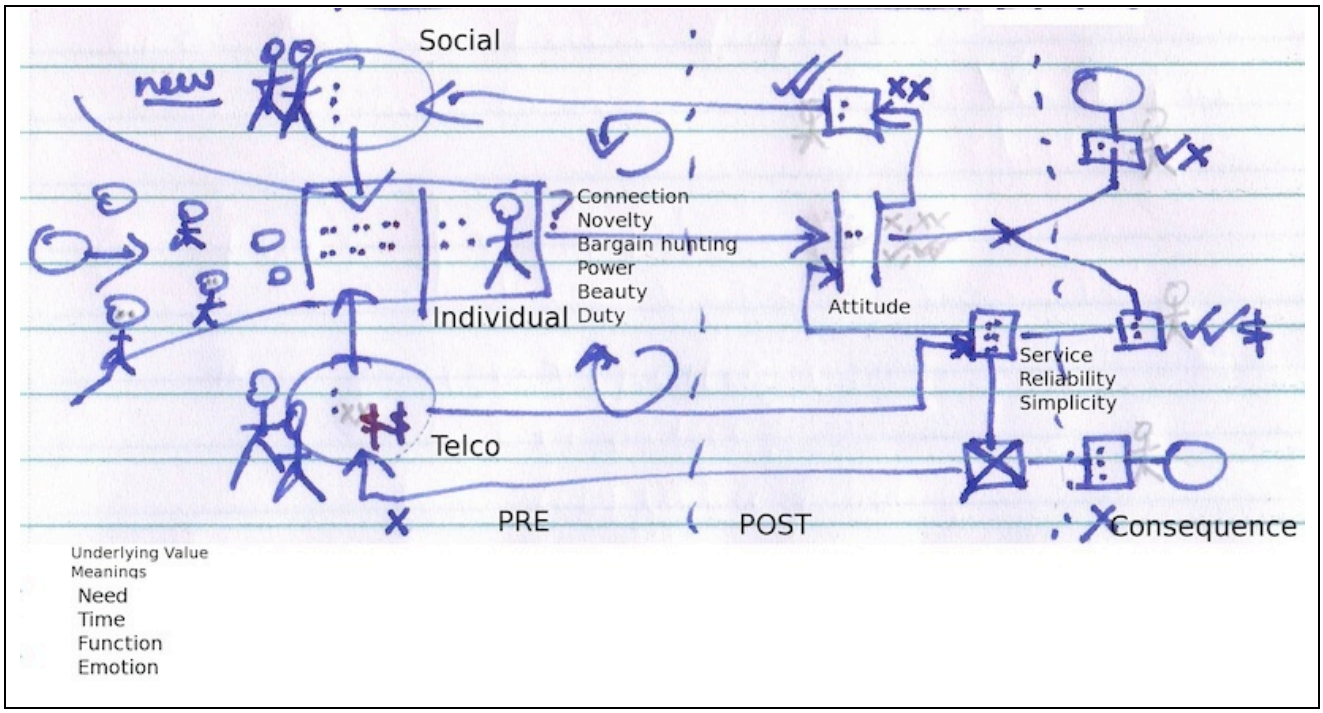

Figure 6: Value meanings in a grounded theory model of value.

Source: 3G mobile phone dataset

In the final model of value, the telco and social value conversation are combined for simplicity. A comprehensive value model, including the value meanings and practices is presented in Figure 7. This model is not included in the main text as I consider this too complex. It is included here for

completeness, and for special readers (such as PhD students) who have the inclination to absorb and work through the complexity of this model. The value conversations are three horizontal layers, shown with dotted lines extending through the pre and post purchase phases, leading to a three by three value analysis.

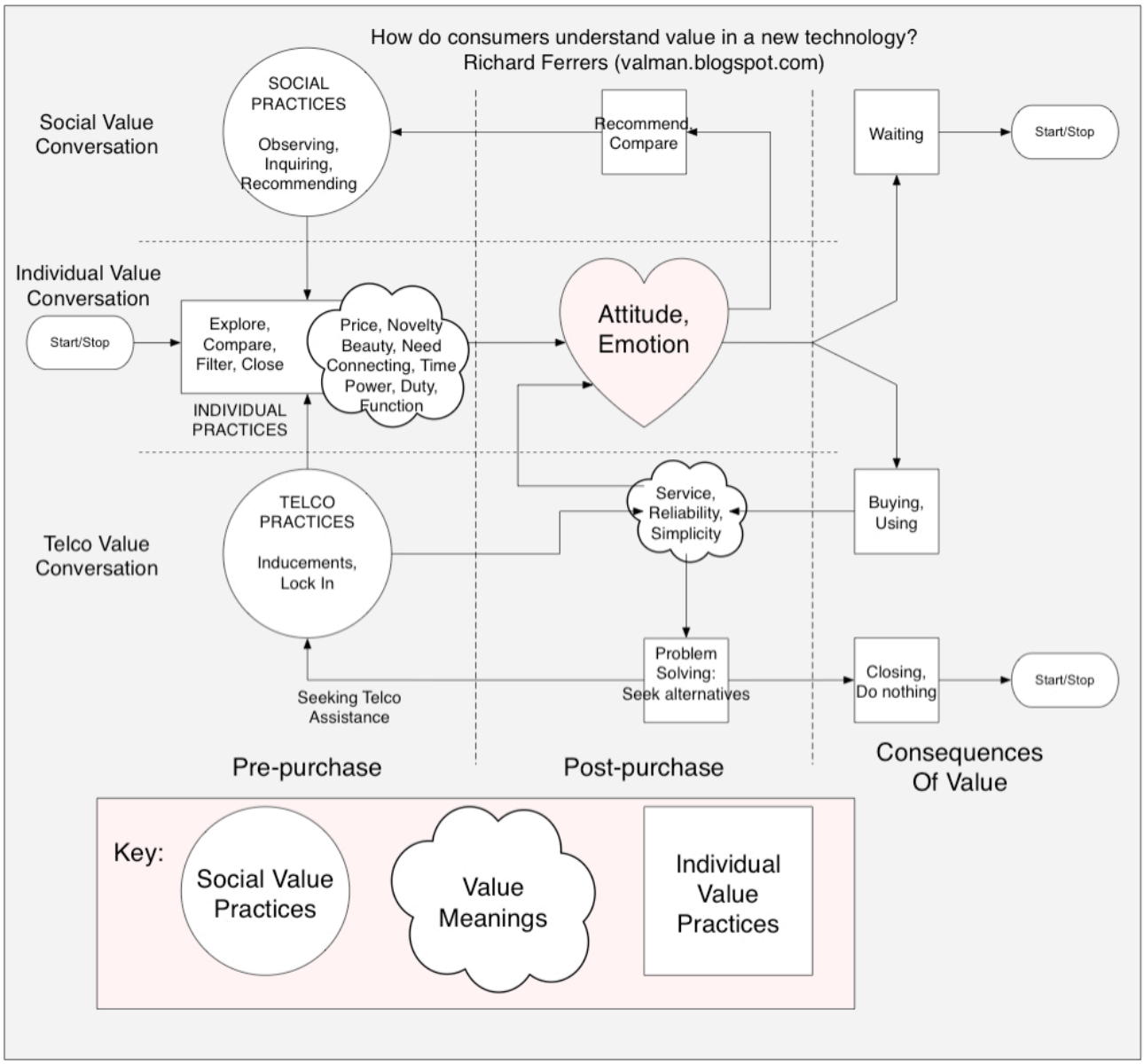

Figure 7: A comprehensive model of the value process, including value meanings and practices.

NB: Following examination, I included Figure 7 within the body of Chapter 6 based on a request from examiners to not over-simplify the value model. Given grounded theory's non-causal approach to relations between concepts, the arrows in Figure 7 were revised to show less certainty on direction of connection.