

Designing Products and Services for Healthy Ageing
Masterclass session – Design-led Innovation

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To get us thinking - I'll first
share some project slides to
show how we teach design.

(particularly human-centred
design approaches)

Step 2

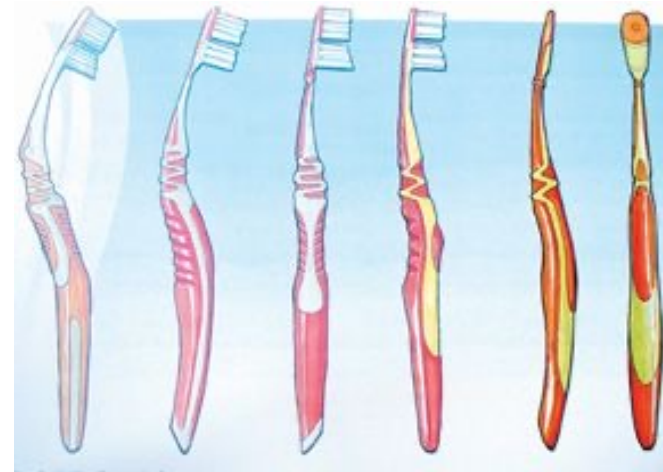
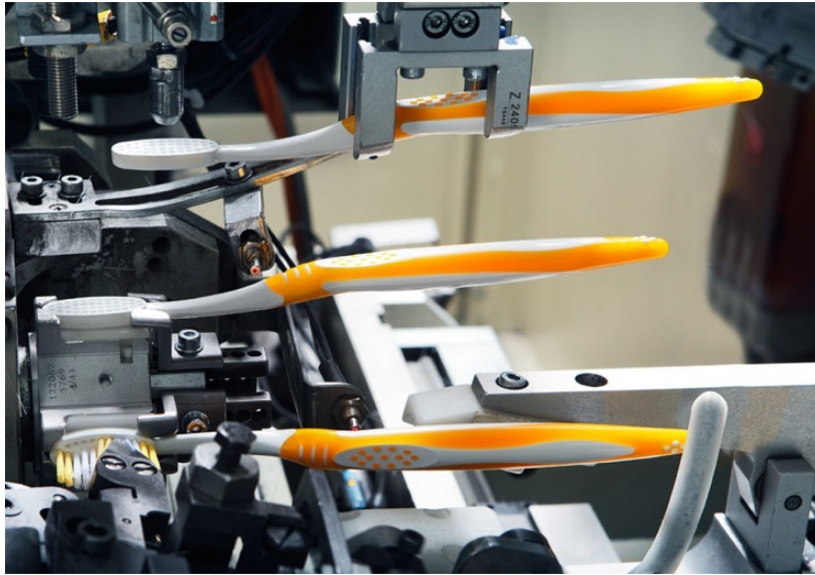
Exemplar brief

*Collaboration with: Dr Rebecca Wassall,
Newcastle Hospitals NHS (Foundation) Trust,
Community Dental Service*



*Your Product Design brief is to: **Design an oral-care product to help older and cared-for people maintain good brushing habits.***







1. Place the toothbrush against your gum line at a 45-degree angle. This angle makes sure that you are fully reaching the gum line as well as the tooth surface. Move the brush back and forth gently in short, tooth-wide strokes.



2. Brush the outer tooth surfaces, keeping the toothbrush at a 45-degree angle to the gums.



3. Brush the inner tooth surfaces.



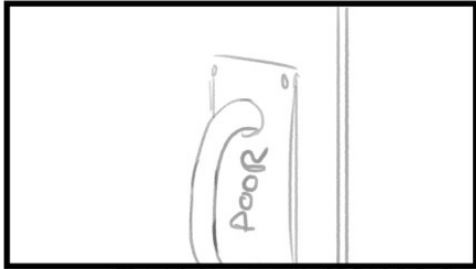
4. Brush the chewing surfaces.



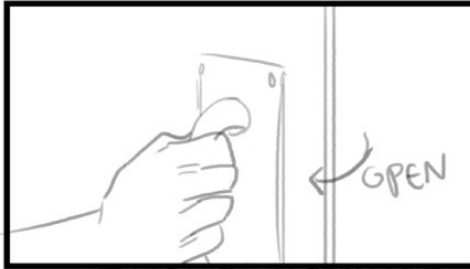
5. Use the top part of the brush to clean the inside surface of the top and bottom front teeth. Use a gentle up-and-down motion.



6. Brush your tongue to remove bacteria which may help freshen your breath.



TOILET ENTRANCE?



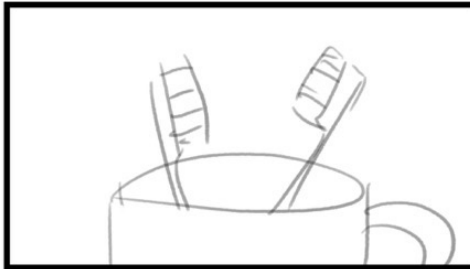
TOILET ENTRANCE?



MIRROR



TAP



TALE BRUSH

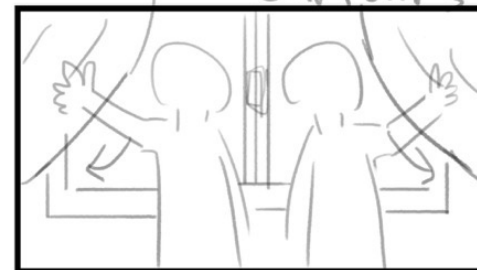
curtains



Brush



just stare



open





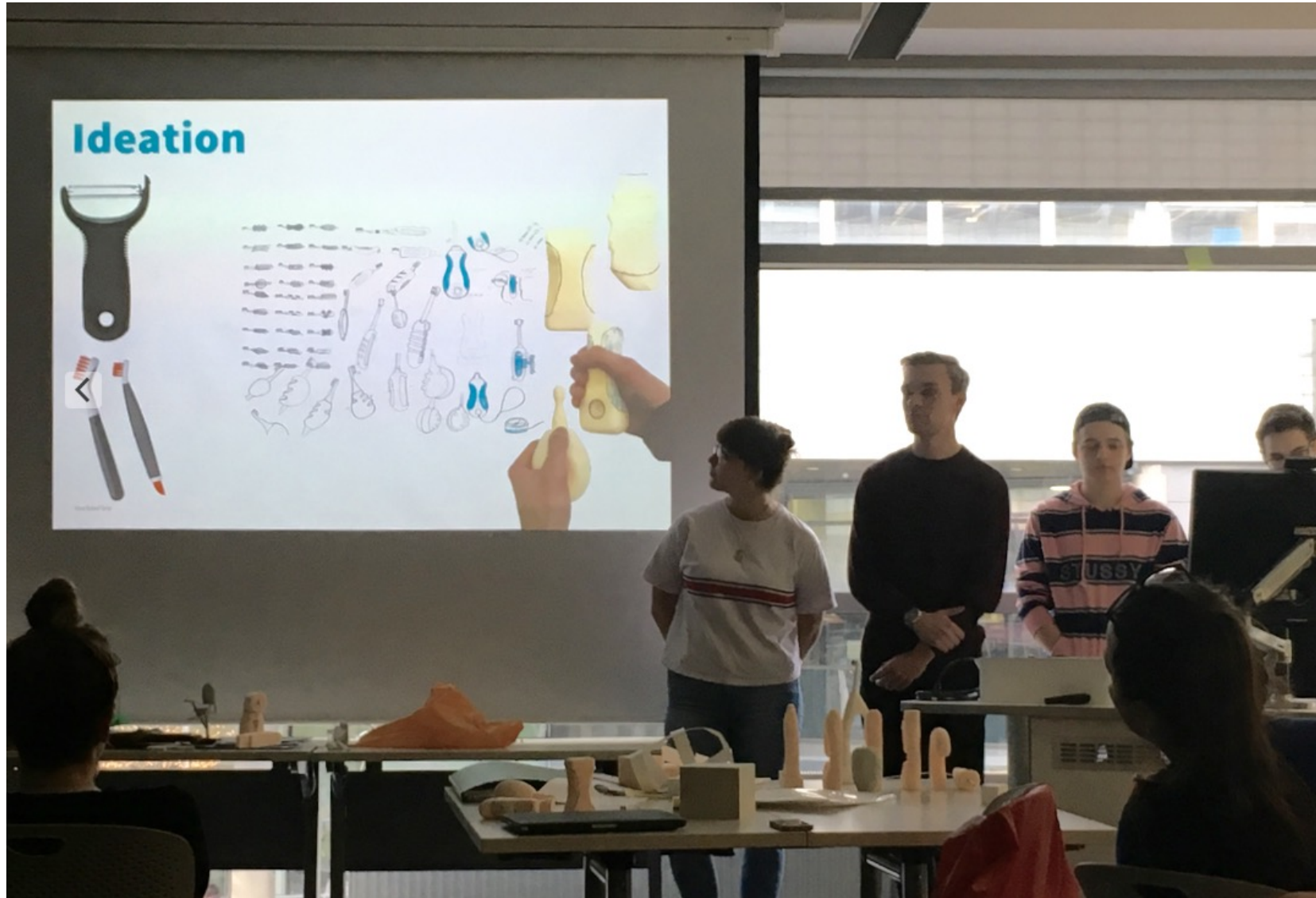
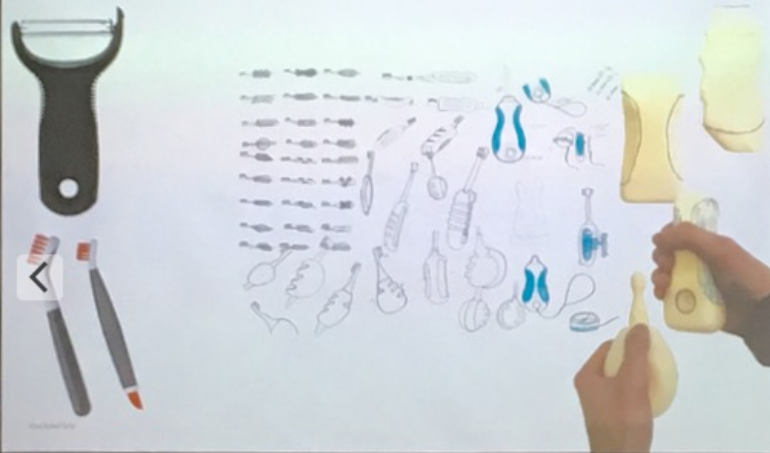
Step 3

*Supporting the students
throughout the design
process: interim and final
presentations.*

*Collaboration with: Dr Rebecca Wassall,
Newcastle Hospitals NHS (Foundation) Trust,
Community Dental Service*

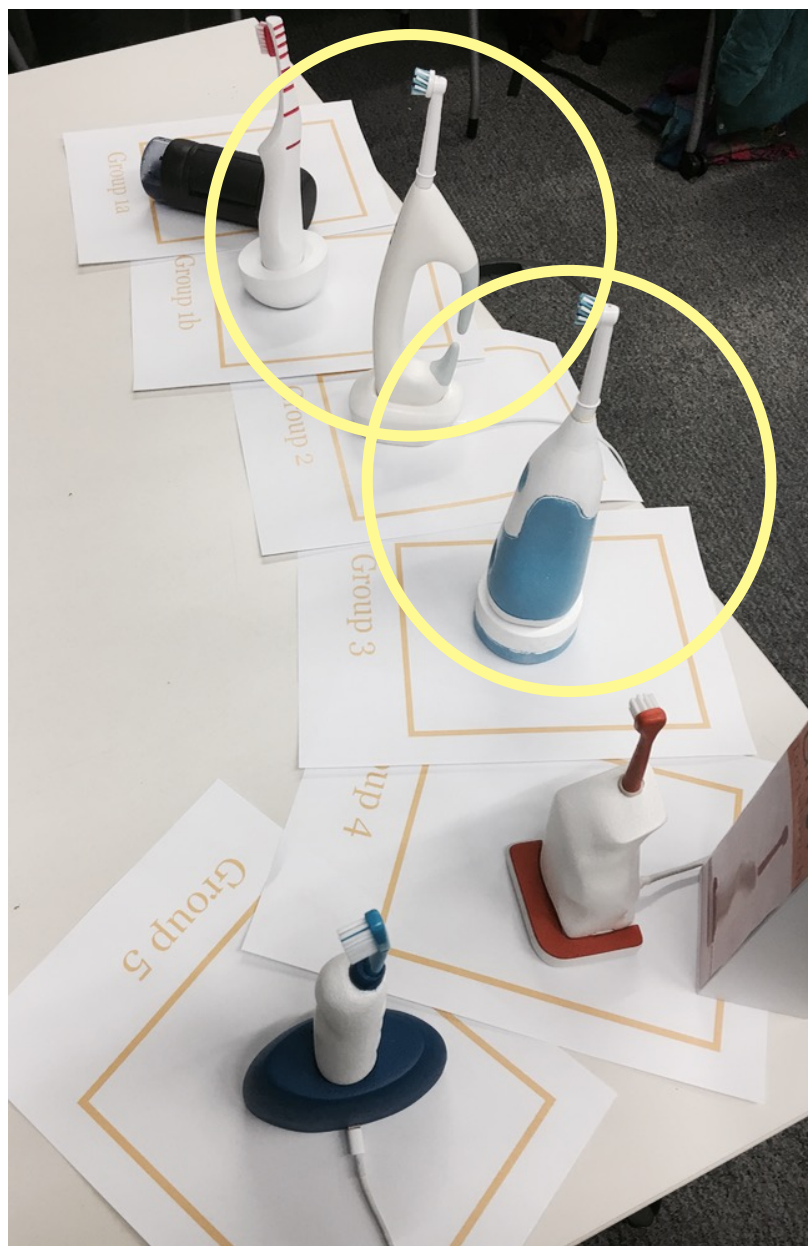


Ideation









Example 1 – Health and Independence

*(Focus on **product**)*

Oral Health And Overall Health: Why A Healthy Mouth Is Good For Your Body

Colgate Professional > Education > Dental Patient Education > Systemic >
Oral Health And Overall Health: Why A Healthy Mouth Is Good For Your Body

Taking good care of your mouth, teeth and gums is a worthy goal in and of itself. Good oral and dental hygiene can help prevent bad breath, tooth decay and gum disease—and can help you keep your teeth as you get older.

Researchers are also discovering new reasons to brush and floss. A healthy mouth may help you ward off medical disorders. The flip side? An unhealthy mouth, especially if you have gum disease, may increase your risk of serious health problems such as heart attack, stroke, poorly controlled diabetes and preterm labor.

The case for good oral hygiene keeps getting stronger. Understand the importance of oral health — and its connection to your overall health.

What's in your mouth reveals much about your health

What does the health of your mouth have to do with your overall health? In a word, plenty. A look inside or a swab of saliva can tell your doctor volumes about what's going on inside your body.

Many conditions cause oral signs and symptoms

Your mouth is a window into what's going on in the rest of your body, often serving as a helpful vantage point for detecting the early signs and symptoms of systemic disease — a disease that affects or pertains to your entire body, not just one of its parts. Systemic conditions such as AIDS or diabetes, for example, often first become apparent as mouth lesions or other oral problems. In fact, according to the Academy of General Dentistry, more than 90 percent of all systemic diseases produce oral signs and symptoms.

RESEARCH

“People want to **remain in control** over their own lives, to be able to **do things for themselves** and carry out everyday living tasks **independently**, like dressing, bathing and cooking.”

“Many older people just need help, ideas and advice about the **simple equipment that exists** to **help them with daily tasks** and to lead full, active and safe lives.”

- Christine Shaw, the DLF's chief executive

400,000+

people in the UK have rheumatoid arthritis costing the NHS approximately £560 million per year.

The National Audit Office estimate that the total cost of RA to the UK economy is

£4.8 billion

per year

Student Work
Team A (5-boards)

Experiments

We experimented by taping our fingers together using cellotape to simulate the possible feeling of having Rheumatoid arthritis and held a conventional toothbrush

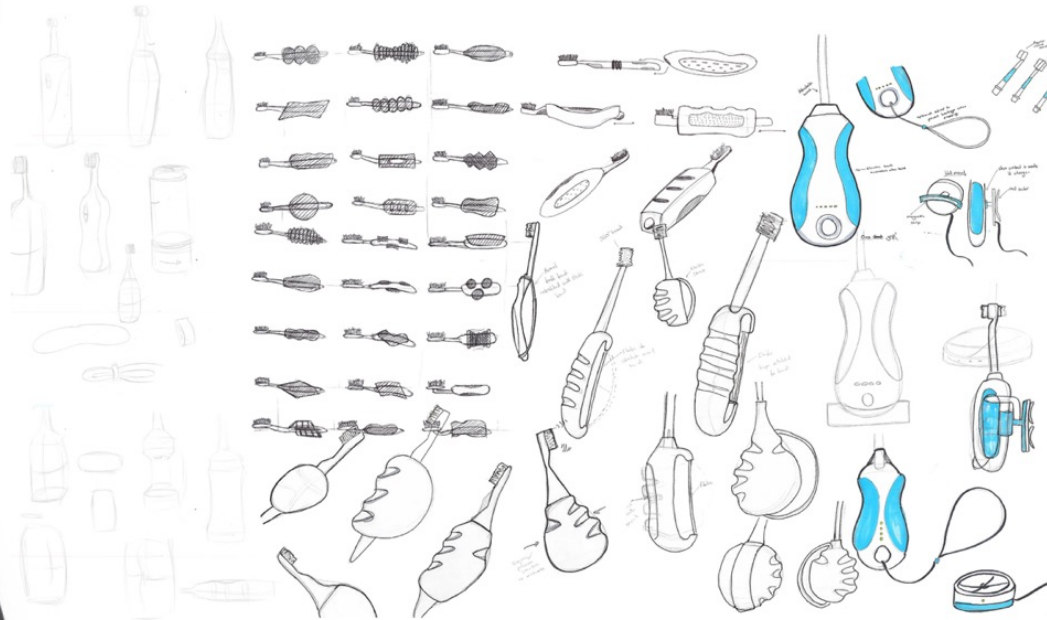
we also experimented with taping different 'grips' to a conventional tooth brush to make the brush easier to hold



Ideation



Oxo Good Grip



Proposition



Large, easy-to-grip, non slip rubber handle reduces strain on hand and wrists for people who have difficulty with grip, even with wet hands



Rechargeable battery simply charges when placed on the toothbrush dock



Motorised electric toothbrush to reduce the amount of movement needed by the user when cleaning



Optional strap to ensure no breakages when the toothbrush is being used and is dropped.



Two minute LED timer on base indicates how long user should brush for



Heated handle helps relax hand muscles when used in the morning



Easy Brush

The Interactions



-Normal toothbrushes can become hard to grip for older people

-They can be dropped and possibly broken if they are electric

-Handle slightly heats up to stimulate muscles to make the brush easier to grip

-When the strap is used the brush would not be broken if accidentally dropped

-Automatically charges when placed on the stand

-The base indicates how long the user should brush

Benefits

- Not just marketed at the old and people struggling with grip
- Optional strap prevents dropage
- Simple one button design
- Simple aesthetic prevents it from looking medical
- There isnt any existing brushes on the market that help with the problem of grip
- People wont have to retrofit their existing toothbrush
- Doctors and Denstists could recomend this product if grip starts to effect their oral hygiene
- Increases independance



*Example 2 –
Emotion
Meaning
Humanity*

*(product, interaction design and
service design combined)*

The Truth Of What A Toothbrush Represents In Modern Dating

What this basic hygiene item could really reveal about your relationship

BY BECA GRIMM · SEPTEMBER 12, 2016

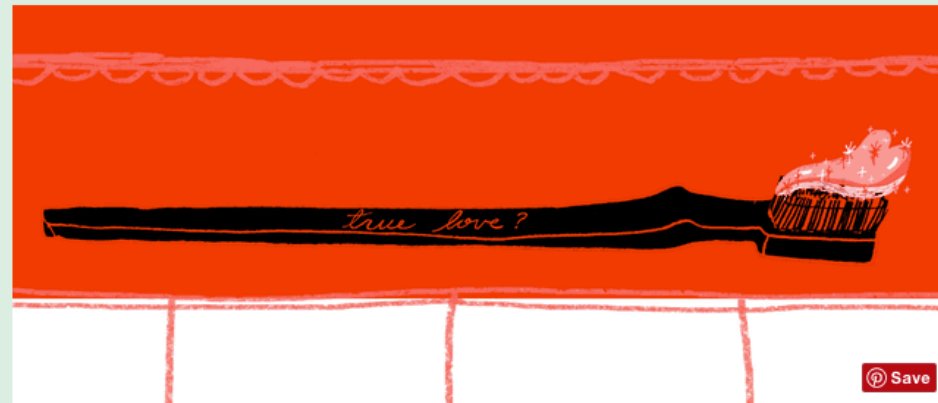


ILLUSTRATION BY LIZ RICCARDI



The ability to convey touch—especially to transmit it—has been ignored for most of the computer age. Because touch is one of our most important intimate sensations, it can create some controversy or feelings of discomfort when used as part of an electronic experience. Surely the ridiculous claims of cyborgdildos (artificial sensation devices for networked sex) make enough people queasy at the thought of device-mediated touch.

However, IDEO, a global design firm, built a prototype that shows how wonderful and human touch can be by using advanced technologies such as wireless networks.

The Kiss Communicator comes as a pair of devices that are linked only to each other via a wireless network (pick one: cellular, spread-spectrum, it doesn't matter). When one device is activated, perhaps by a gentle blowing across its top, or a caress of the surface, the message is sent to the other device where it is received and "played" as a warming of the device and a gentle glow. Though the device doesn't exactly replicate the original touch, the symbolic meaning is clearly communicated.



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photographs: Beverley Harper
copyright 2000 IDEO

kiss communicator 261

nathan shedroff experience design



the *problem*

For all ages oral hygiene is an crucial and often overlooked element of healthcare. It is vital for this habit not to slip as we age. We want to design a product that makes you feel cared for.

oral health

47%

Of people don't brush their teeth twice a day.

40%

of the elderly take medication with adverse effect on their oral health.

45%

of over 75s haven't visited the dentist in the last 5 years.

"If you scrupulously brush your teeth at least twice every day, and floss before going to bed, you have an excellent chance of keeping your teeth for life"

- Sacramento Dentistry

loneliness

51%

of the elderly aged 75 and over live alone.

26%

Have gone over a month without speaking family, friends or neighbours.

73%

of the elderly describe themselves as lonely.

handle with care

Student Work
Team B (5-boards)

the proposition

We want to propose a new way of looking at brushing teeth, the problem is not with the current market's ability to get a good clean but for the user to find incentive. We wanted to connect to two most abundant issues in the elderly- health and loneliness.

We instinctively seek the touch of each other- from birth we have a “grasping reflex” in which we will responsively grab the hand of another.

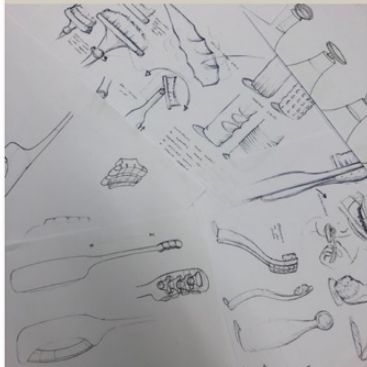


A toothbrush that mimics the connection felt when holding hands.



product development

Once we had singled out an key problem and devised a solution it was important to develop both the form and aesthetic of our design. We wanted to ensure that the toothbrush holder was ergonomic and comfortably familiar.



We looked at different designs and how to encompass hand-holding into our product.

sketching

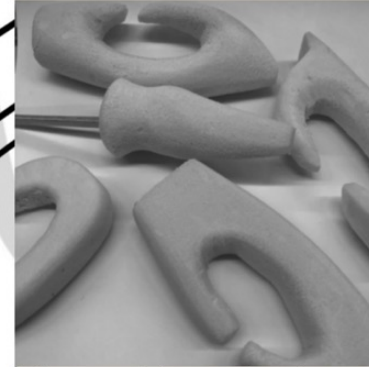
Sketching is a great way to explore the desired visuals for a device.



We wanted full understanding of every element of our final design, at this point we altered the stem for a more uniform finish.

cad

Cad creates a platform in which we can envision our product in 3D.



Here we needed to ensure the product was ergonomic, we overcame a hurdle when our initial design did not allow a comfortable 180° rotation.

modelling

Modelling is a vital in ensuring the "feel" of the product.

handle with care

Improves **oral hygiene**, overall **health** and tackles **loneliness**.

A **holistic, non-invasive** approach to **caring** for and **monitoring** old people.

Provides an **incentive** for young and old to practice a menial task.

Unobtrusive addition to daily routine.

Adding **emotion** to an emotionless task.

Can be used by a **multitude of people** e.g. long distance couples and parents working away from home.

Familiar and **normalised** aesthetic and function used by all.

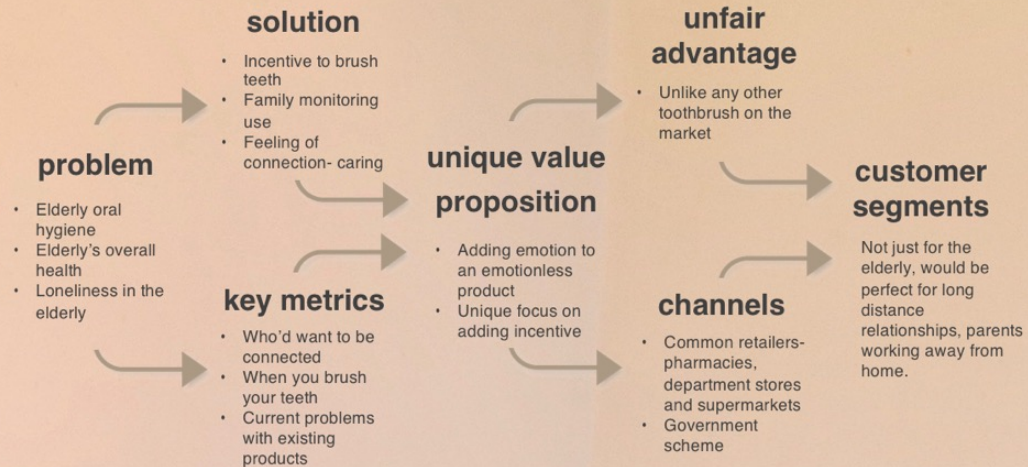
Incredibly **ergonomic**, easier to **grip** and easily **manoeuvrable**



the benefits

Handle with Care- a new and innovative ideology with a range of benefits across a variety of space.

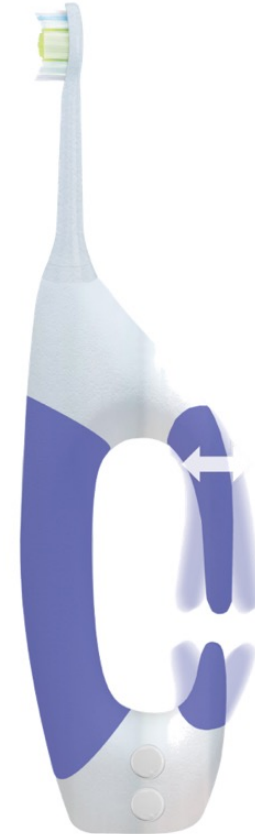
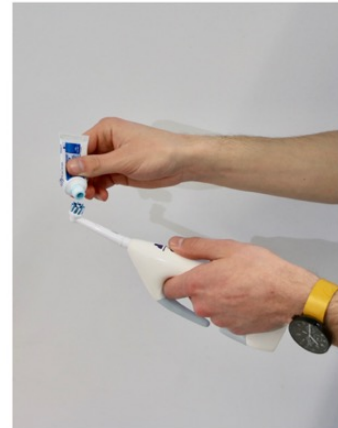
lean business model



handle with care

how it works

Receptors in the handle respond to the grip of the user and correspond with the grasping fingers on the paired toothbrush. The data is saved so the users are not required to brush at the same time. However, if both brushes are used simultaneously live feedback can be sent and received.



handle with care

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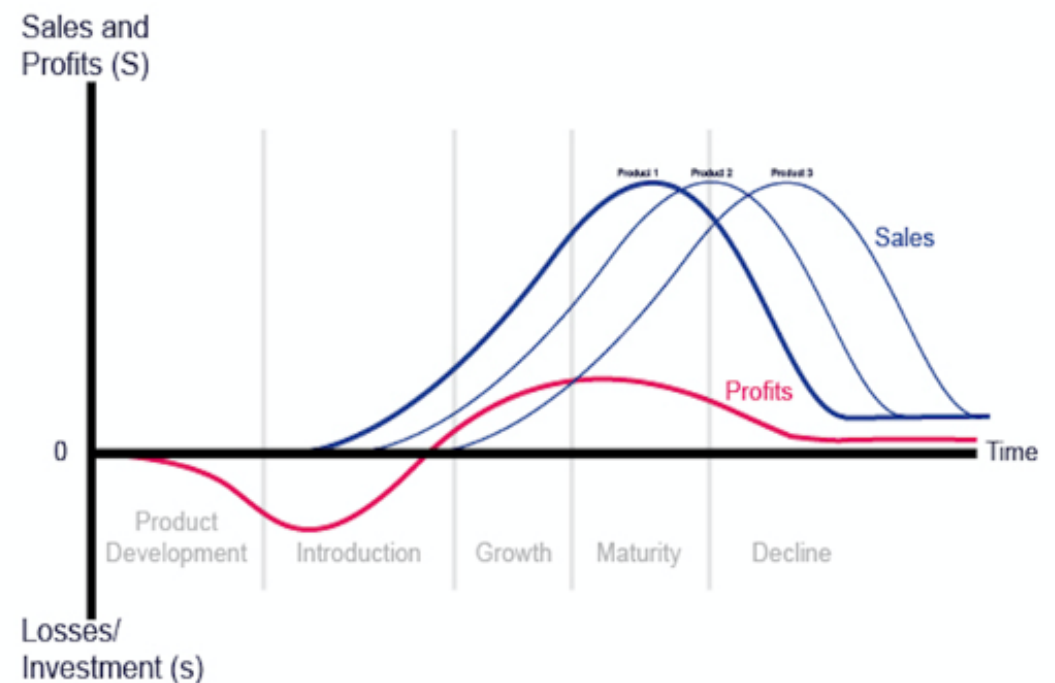


Introducing innovation

- Innovation in existing firms can both increase their efficiency (reducing costs of production) and improve the goods and services they offer, thus increasing demand. Both can improve margins and productivity.
- The UK Government defines innovation as: **the successful exploitation of new ideas.**
- Innovation may involve an organisation's
 1. products and services
 2. processes (e.g. exploiting new technologies)
 3. business model (e.g. new sources of income, (e.g. better integrated supply chain)

Innovation should make you distinctive (and hard-to-copy)

- The sequential S-curves represent the regular cycles of innovation, and improvement seen in most companies.
- Investment in R&D is recognised as a key part of staying competitive.
- Design, with its focus on understanding customer-needs, is increasingly used at the front-end of innovation in businesses.



Innovation should make you distinctive

“ *Finding your differentiation is crucial . . . All the businesses I've run have been pretty mainstream but we've set them apart from the competition. So ask yourself, how yours will be different. It may not need to be very much – a deviation of say 10%, 20% maybe – but it needs to be there.*

Examples in my businesses include log cabins rather than caravans, and double beds plus nice showers in budget hotels, and, of course, low cost gyms with no restrictions! ”

Peter Roberts

PureGym Founder (and serial entrepreneur)



Source: <https://www.spaopportunities.com/index.cfm?pagetype=news&codeID=327984>

Let's look at some examples
of clearly differentiated
products and services

Rachel's Organic Yoghurt was founded in a farm in Wales. When it landed in supermarkets in the late 90s it was clad almost completely in black – a daring decision, defying convention.



- Rachel's Organics had observed that yoghurt meant something more to customers than simply a dessert or a snack consumable. It was fulfilling other needs: fulfilling **healthy and natural lifestyle choices** (a reflection of *how those customers saw themselves*)
- **The company's values were based on its founder's passion for sustainable, organic, close-to-nature, dairy produce.** Something which customers couldn't easily believe about the established yoghurt brand owners like Muller or Nestle etc.
When Rachel's told their story through their brand, it resonated with the customer's search for a healthier lifestyle and caring about where food comes from.
- **Satisfying needs: This example illustrates that people don't just buy the product to satisfy a functional need, they also buy 'meaning' where their needs (emotion, identity, purpose) are satisfied through experience.** (We'll explore that in our activity later on)

Differentiating an FMCG offer

“Beautiful design and environmental responsibility are equally important when creating a product, and **we shouldn't have to trade functionality for sustainability**” says Tom Domen, Method long term innovation manager.

“We are constantly evaluating and improving our products, which has resulted in **Cradle to Cradle GOLD certification of the majority of our cleaning portfolio**. We will continue to use these standards as part of our development process in offering a radically better product experience.”



Source: <https://www.naturalproductsonline.co.uk/news/company-news/method-range-gains-cradle-to-cradle-gold-mark/>

Differentiating a service offer

InkPact – B2B handwritten messaging and customer communications.

Unusual business model where they have distributed 'scribes' working on a flexible gig-economy model.

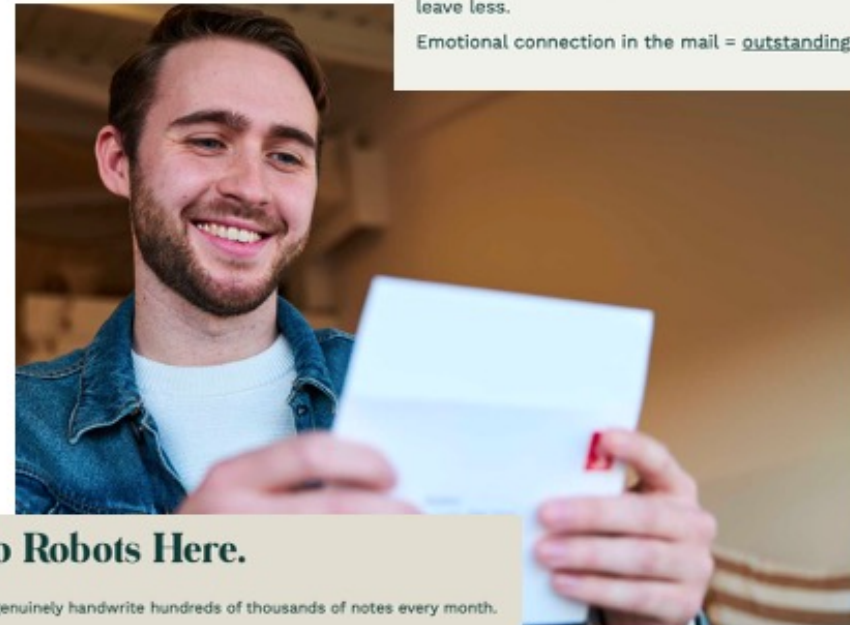
InkPact issue a job request to their network of scribes who can then offer to fulfil that brief – eg 120 x 75-word invitations and envelopes. Printed stationery is mailed to the scribe to write. InkPact quality checks photos of the work before the scribe mails the copies direct to recipients

Human Connection is the Future for Brand Loyalty.

We increase your first to second purchase rate by sending handwritten notes triggered across your customer journey.

Our clients have happy customers that spend more and leave less.

Emotional connection in the mail = outstanding results.



No Robots Here.

We genuinely handwrite hundreds of thousands of notes every month.

700+ people in the UK/US form our Scribe Tribe. Single mothers, those recovering from cancer, affected by COVID, artists and teachers handwrite your cards, supporting their families and moving their lives forward.

Image source: <https://www.inkpact.com>

Differentiating a Product Offer

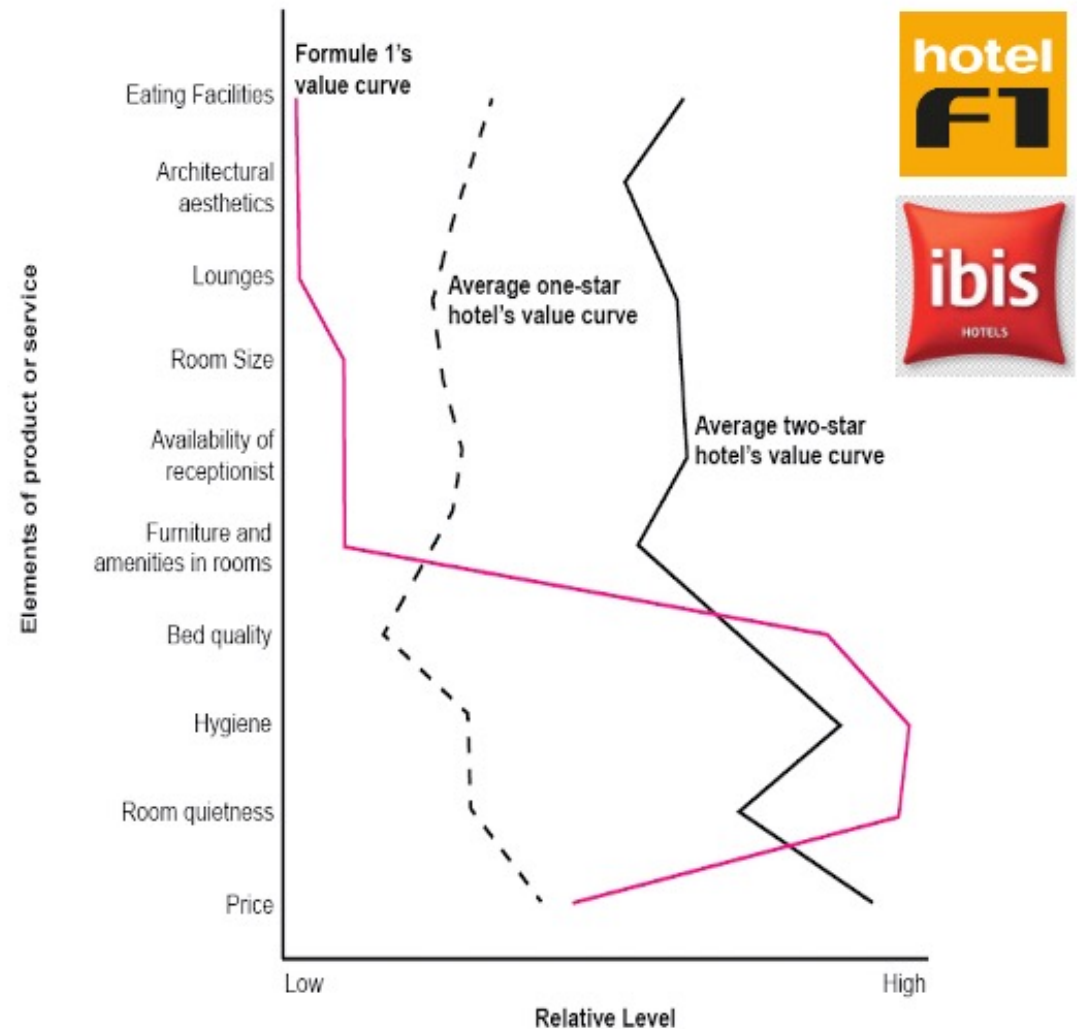


Source: <https://www.festool.co.uk>

Differentiating a Service offer

ACCOR F1 asked itself four key questions:

- Which of the factors that our industry takes for granted should be eliminated?
- Which factors should be reduced well below the industry's standard?
- Which factors should be raised well above the industry's standard?
- Which factors should be created that the industry has never offered?



This final example focuses
on Value.

We'll focus on that next.

GROUP ACTIVITY

What might your customers value?

- Thinking about your own organisation, for this activity we'd like you to focus on one product or service you offer.



There are structured ways of thinking about what people value

- Next, were going to do some work together in todays group, where we think about areas of untapped value in our own businesses, and for that I'm going to encourage you to use the visual prompt
- The original source for this piece of research is found at Bain and Co, which provides an interactive version of the chart shown here – I'll explain it via some examples.

<https://media.bain.com/elements-of-value/>

Social impact



Self-transcendence

Life changing



Provides hope



Self-actualization



Motivation



Heirloom



Affiliation and belonging

Emotional



Reduces anxiety



Rewards me



Nostalgia



Design / aesthetics



Badge value



Wellness



Therapeutic value



Fun / entertainment



Attractiveness



Provides access

Functional



Saves times



Simplifies



Makes money



Reduces risk



Organizes



Integrates



Connects



Reduces effort



Avoids hassles



Reduces cost



Quality



Variety



Sensory appeal



Informs

Used with permission from Bain & Company: <https://media.bain.com/elements-of-value/#>

Example 2

What elements are most important to consumers in different industries?

Click on each industry below to view the top five elements influencing loyalty for each.

Apparel retail

Grocery

Smartphones

Consumer banking

Auto insurance

Discount retail

Food and beverage

TV service providers

Brokerage

Credit cards

Social impact



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Life changing



Provides hope



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Quality



Variety



Sensory appeal



Informs

Used with permission from Bain & Company: <https://media.bain.com/elements-of-value/#>

Example 3 - differentiation

- Newcastle Library Service



Social impact



Self-transcendence

Life changing



Provides hope



Self-actualization



Motivation



Heirloom



Affiliation and belonging

Emotional



Reduces anxiety



Rewards me



Nostalgia



Design / aesthetics



Badge value



Wellness



Therapeutic value



Fun / entertainment



Attractiveness



Provides access

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Saves times



Simplifies



Makes money



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Organizes



Integrates



Connects



Reduces effort



Avoids hassles



Reduces cost



Quality



Variety



Sensory appeal



Informs

Example 3 - differentiation

- The Lit & Phil Library, Newcastle



Social impact



Self-transcendence

Life changing



Provides hope



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Motivation



Heirloom



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Quality



Variety



Sensory appeal



Informs

GROUP ACTIVITY

What might your customers value?

- Thinking about your own organisation, for this activity we'd like you to focus on one product or service you offer.
- As we've done with the previous (Libraries) example, use the 'Elements of Value' pyramid provided, to prompt your ideas/thinking about what a trusted customer of yours *really* values. Which needs in the pyramid does it meet?

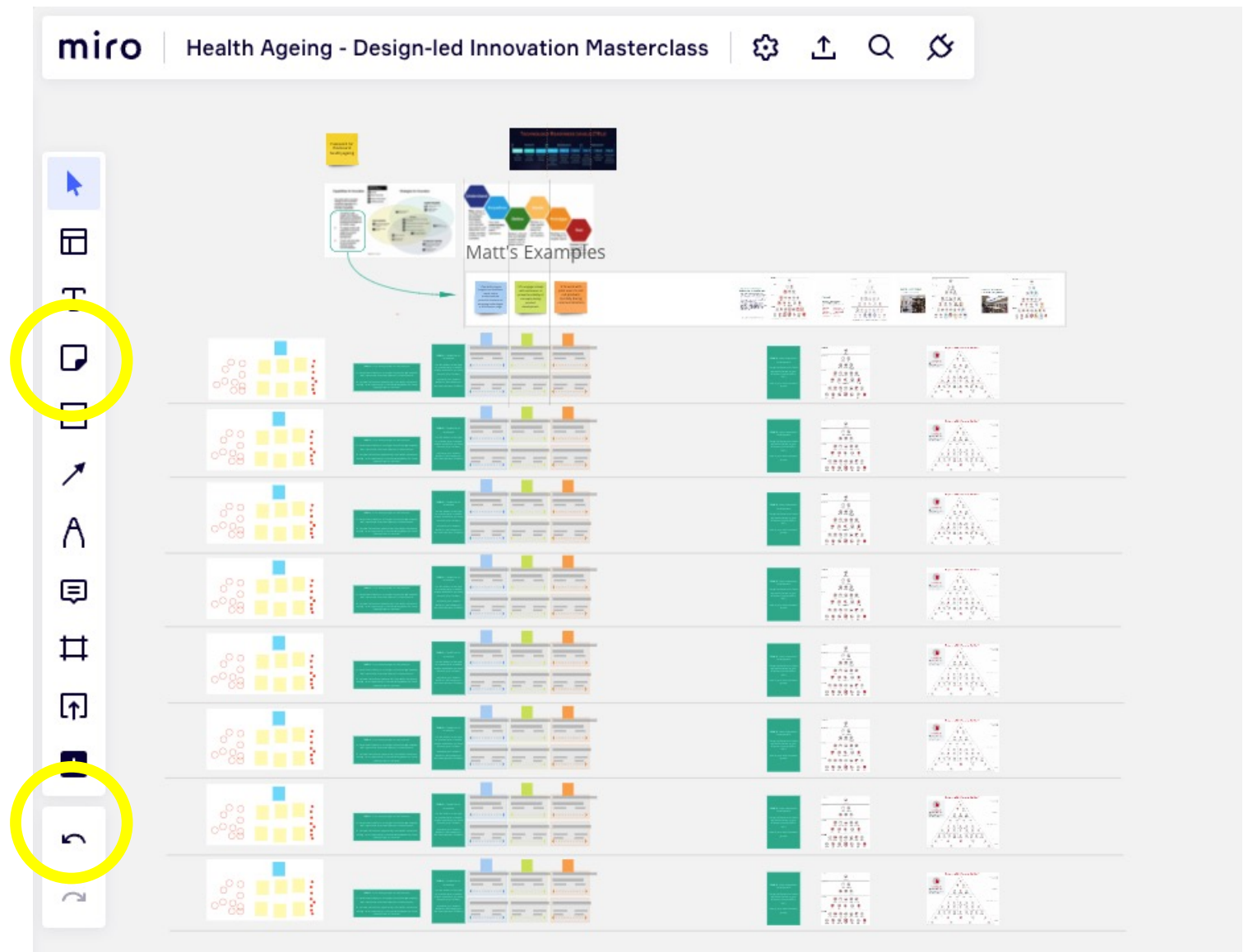
MIRO Whiteboard - <https://miro.com/app/board/uXjVMPg6nSQ=/>
Password: healthyageing



MIRO Whiteboard

https://miro.com/app/board/uXjVMPg6nSQ=

Password: healthyageing

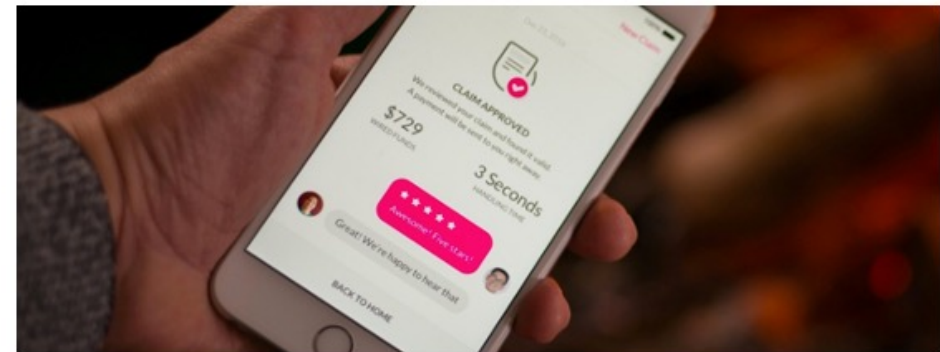


To conclude the session,
we'll look at innovation not
only at the level of the
product/service, but
innovation in the business-
model.

Innovative Business Models - Examples

'Lemonade' - Disruptive Digital Innovation

- Customers are prompted to choose a Giveback cause to support with their leftover premium. This creates a shared purpose to counter the temptation of fraudulent claims.
- An online-only startup – founded 2015
- Grew from 800,000 to 1.5M customers 2020-22.
- Doubled revenue in qtr1 2020 despite Covid-19



Lemonade Sets New World Record

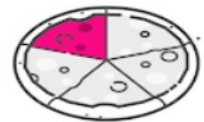
Published on January 5, 2017 | Featured in: [Banking & Finance](#), [Customer Experience](#), [Entrepreneurship](#), [Insurance](#), [Technology](#)

 **Daniel Schreiber** - [Fellow](#)
CEO & Co-Founder at Lemonade Inc.

 5,038

 271

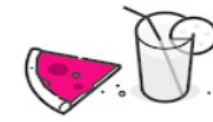
 1,346



A flat fee to
run everything



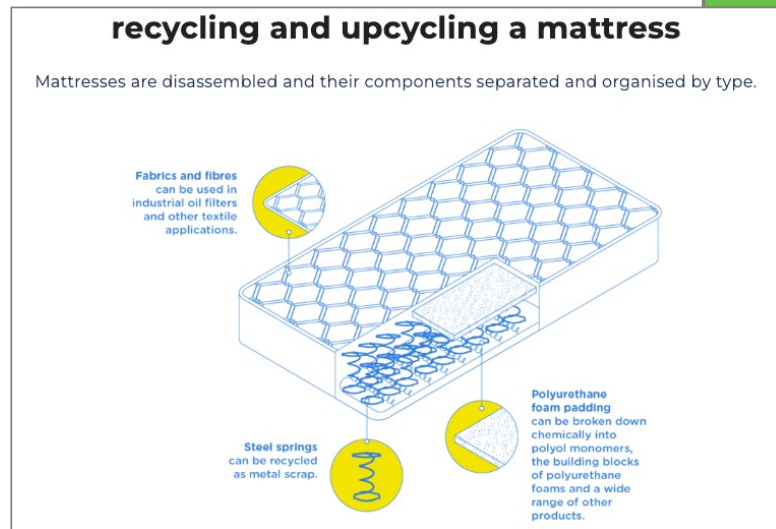
We pay claims
super fast



If there's money leftover,
we give it back to causes

Innovative Business Models – Examples

Nornnorn, Circular Economy



Innovative Business Models - Examples

FILL, Northamptonshire

- FILL makes environmentally responsible, household products shipped B2C in reusable and washable glass bottles.
- Refilling is available at a network of zero-waste stores and farm shops.
- Fill, also offer national closed loop delivery via **doorstep delivery and doorstep collection of empties** - fulfilled by Milk & More.



Images courtesy of Fill
<https://www.fillrefill.co/>



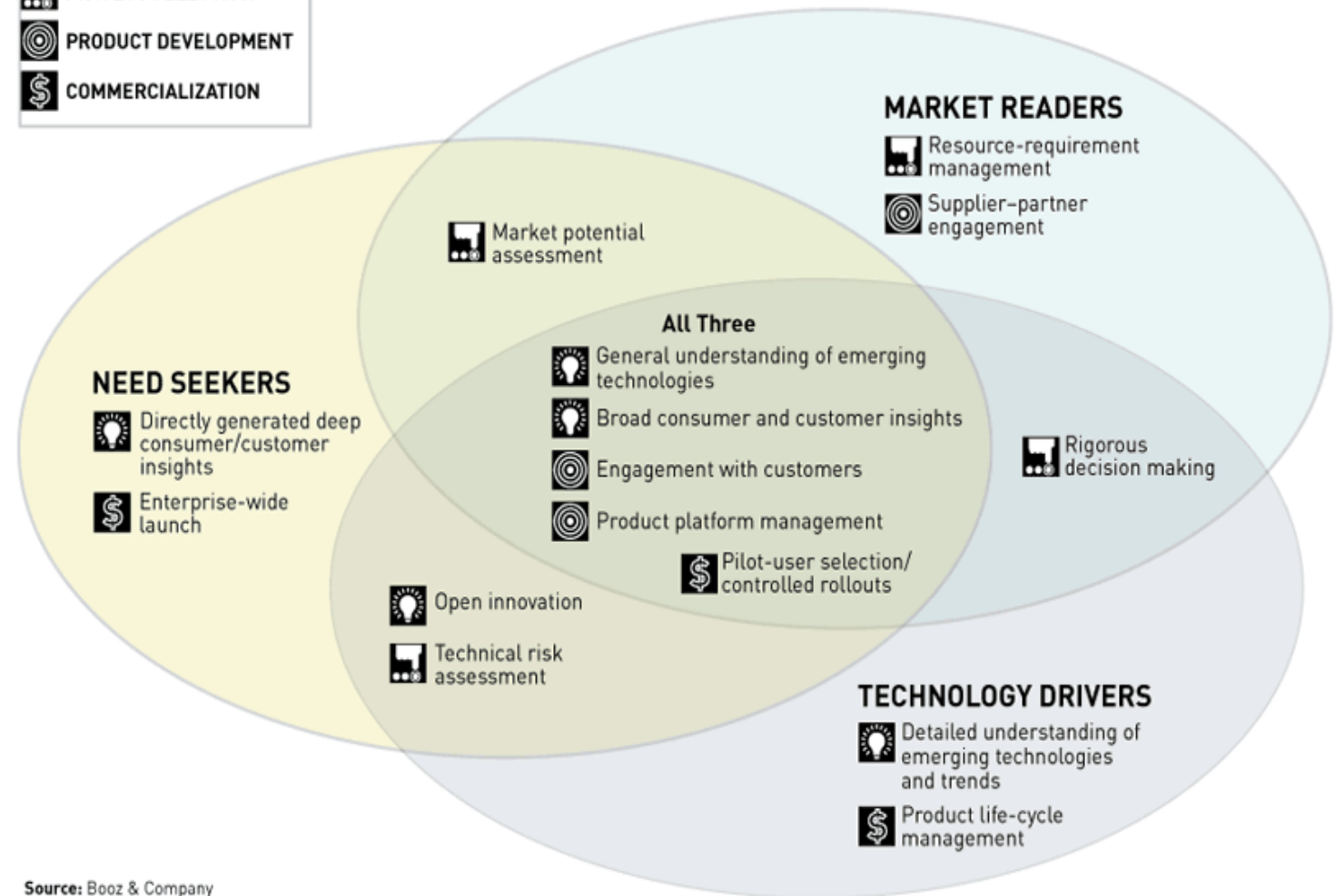
Capabilities for Innovation

“No matter which innovation strategy, all the successful companies depended on a common set of critical innovation capabilities.”

1. The ability to gain insights into customer needs and to understand the potential relevance of emerging technologies at the ideation stage.
2. To engage actively with customers to prove the validity of concepts during product development.
3. To work with pilot users to roll out products carefully during commercialization.



Strategies for Innovation



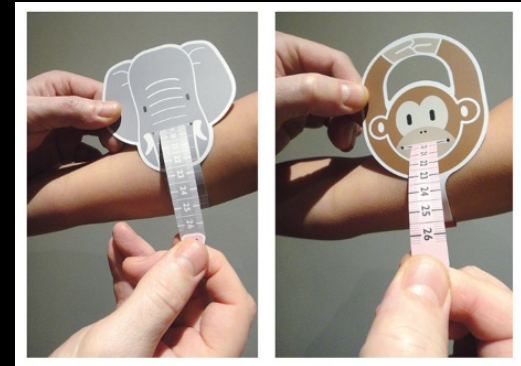
Source: Booz & Company

Recap - Designing is an iterative process of discovery.

Design addresses emotional needs not just functional needs and prioritizes people/users over technologies – e.g. friendly and low-tech.

A design capability embedded within businesses can be a particularly effective way to unpack what customers really value, and to initiate and lead innovation programmes to capture that value.

There is evidence that companies using design in this integrated 'need-seeking' way tend to perform better than those that don't.



Thank you for your attention + Questions

matthew.lievesley@northumbria.ac.uk