

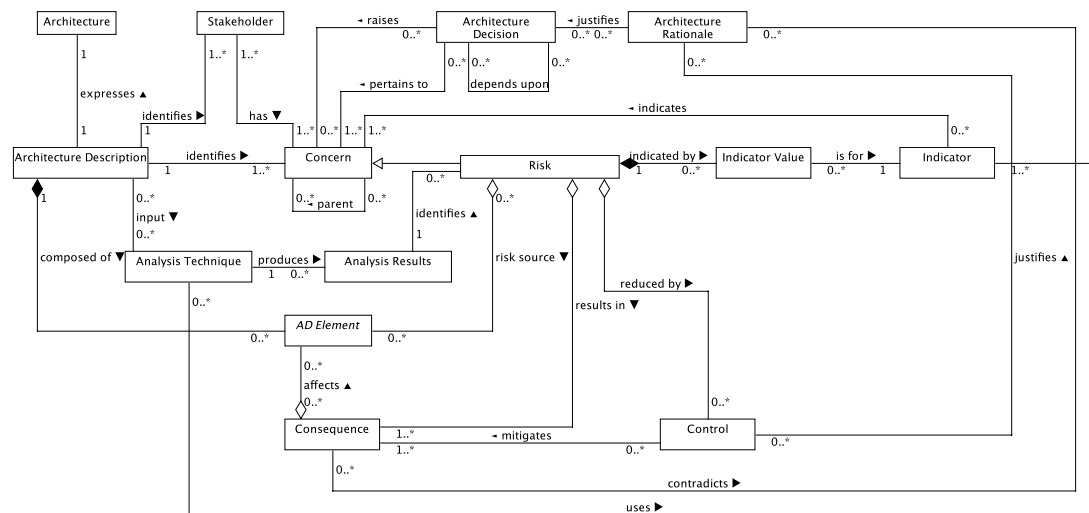
## Architecture Risk Model Research Questionnaire

### Section 1 – Participant Experience & Background

1. How many years of experience do you have in commercial system engineering?  
Around 25
2. How many years of experience do you have in commercial software development?  
30
3. How many years of enterprise architecture experience do you have?  
2
4. How many years of solution architecture experience do you have?  
8
5. How many years of technical architecture experience do you have?  
0
6. How many years of SysML experience do you have?  
0
7. How many years of UML experience do you have?  
2
8. How many projects have you worked on that have involved a SysML or UML model?  
3
9. How many years do you have working with waterfall development?  
29
10. How many years do you have working with agile (e.g. Scrum & SAFe) development?  
3

## Part 2 – Approach Background

The research is evaluating whether risks could be described using the following model that extends ISO 42010 – Architecture Descriptions:



ISO 42010 Concept	ISO 42010 Definition
AD element	"any construct in an architecture description." (p. 7)
Architecture	"fundamental concepts or properties of a system in its environment embodied in its elements, relationships, and in the principles of its design and evolution." (p.8)
Architecture Decision	"pertain to system concerns; however, there is often no simple mapping between the two. A decision can affect the architecture in several ways." (p. 7)
Architecture Description	"work product used to express an architecture." (p. 2)
Architecture Model	"uses modelling conventions appropriate to the concerns to be addressed." (p. 6)
Architecture Rationale	"records explanation, justification or reasoning about architecture decisions that have been made." (p. 7)
Architecture View	"work product expressing the architecture of a system from the perspective of specific system concerns." (p. 2)
Architecture Viewpoint	"work product establishing the conventions for the construction, interpretation and use of architecture views to frame specific system concerns." (p. 2)
Concern	"interest in a system relevant to one or more of its stakeholders." (p. 2)
Correspondence	"defines a relation between AD elements." (p. 7)
Correspondence Rule	"enforce relations within an architecture description (or between architecture descriptions)." (p. 7)
Model Kind	"conventions for a type of modelling." (p. 2)
Stakeholder	"individual, team, organization, or classes thereof, having an interest in a system." (p. 2)
System-of-interest	"systems that are man-made and may be configured with one or more of the following: hardware, software, data, humans, processes (e.g., processes for providing service to users), procedures (e.g. operator instructions), facilities, materials and naturally occurring entities." (p. 3)
Extension Concept	Extension Definition
Risk	Sub type of <b>Concern</b> that represents a <b>Risk</b> , e.g. error-proneness or security vulnerability.
Indicator	Indicates the relative risk of a <b>Risk</b> . An <b>Indicator</b> could be a quantitative software engineering metric such as a coupling measure or a qualitative assessment by an architect.
Indicator Value	The value of a particular <b>Indicator</b> for a particular <b>Risk</b> .
Consequence	Represents a potential consequence of a <b>Risk</b> being left untreated.
Control	Represents an action that could be taken to reduce the potential <b>Impact</b> of a <b>Risk</b> .
Analysis Technique	Identifies the architecture analysis technique used to for a risk analysis.
Analysis Results	Encapsulates the results of a risk analysis performed using an analysis technique.



## Example 2 - 3<sup>rd</sup> Party Interface Changes outside of MASS control

### Text Risk Description

**Title:** Low code framework Interface Changes outside of MASS control

**Details:** Oracle Data Integrator (ODI) has changed its interface specification. This will require MASS code to be reworked if ODI has to be upgraded.

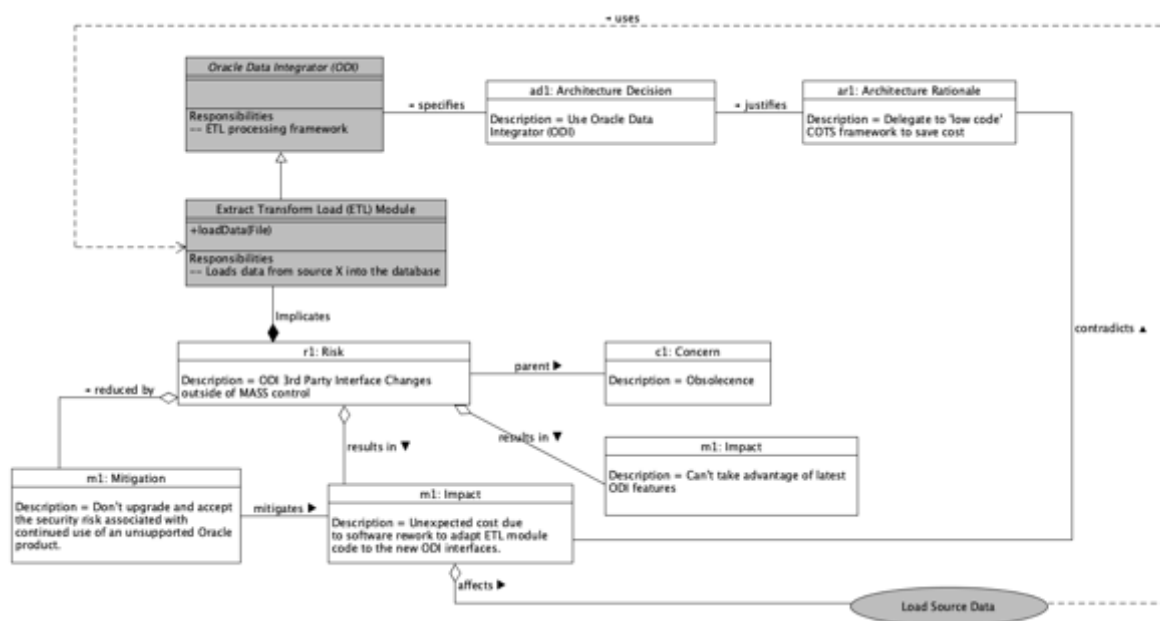
**Impact:** Unexpected cost due to software rework to adapt ETL module code to the new ODI interfaces. Can't take advantage of latest ODI features.

**Mitigation:** Don't upgrade and accept the security risk associated with continued use of an unsupported Oracle product.

### Risk Model Representation

Notes:

- Grey background elements indicate elements from the design model;
- White background elements are elements added from the proposed risk model.



Part 4 – Risk Model Evaluation Questions

#	Question	Answer (Indicate Y / N / Not Sure)			Comments – Please include any qualifying statements
		Waterfall	Agile e.g. Scrum	Scaled Agile e.g. SAFe	
11.	Do you think the proposed risk model would help or hinder design reviews?	Y / N / Not Sure	Y / N / Not Sure	Y / N / Not Sure	I think the difficulty much of the time is in properly identifying risks and really taking the time to consider what those risks are and their impacts. I am not sure if having a model to describe them makes much practical difference but could work if the team or programme adopts a design review framework which ensures the designers do consider risks and challenges them if they have not.
12.	Do you think the proposed risk model could help to identify risks?	Y / N / Not Sure No	Y / N / Not Sure No	Y / N / Not Sure No	See above, I don't think having a model necessarily helps to identify the risks, but would potentially help to document them and analyse their impact
13.	Do you think the proposed risk model could help the analysis of identified risks?	Y / N / Not Sure Yes	Y / N / Not Sure Not sure	Y / N / Not Sure Yes	Yes, though I am not sure how many Agile projects really do much design at this level or have formal design reviews
14.	Do you think the proposed risk model could help with the assessment of analysed risks?	Y / N / Not Sure Yes	Y / N / Not Sure Not sure	Y / N / Not Sure Yes	As above
15.	Do you think the proposed risk model could help the mitigation of assessed risks?	Y / N / Not Sure Yes	Y / N / Not Sure Not sure	Y / N / Not Sure Yes	Assuming we mean help to define the mitigation then yes I think it could help as the risks and impact have a good chance of being well defined if the model is being followed and therefore mitigating those risks should be easier to define also.

16.	Do you think the proposed risk model could help monitoring of ongoing risks?	Y / N / Not Sure Not sure	Y / N / Not Sure Not sure	Y / N / Not Sure Not sure	I think it might help with ongoing reassessment of risk due to design changes. But monitoring of risk is really a project management function I don't see this necessarily helping with that.
17.	Do you think the proposed risk model could be useful when a design model doesn't exist?	Y / N / Not Sure No	Y / N / Not Sure No	Y / N / Not Sure No	Not really sure how this would work as it would be hard to tie the risk to design decisions if no design exists. In which case there might be project level risks defined but not sure if the intent is to use this model for those?
<b>#</b>	<b>Question</b>				<b>Answer – Please justify your answer with a brief explanation</b>
18.	What do you think might be the advantages and disadvantages of modelling the risk in this way?				
19.	Which approach (textural description or the proposed risk model) do you prefer and why?				
20.	Do you think any of the entities or associations in the proposed model are unnecessary or overkill, if so which ones?				
21.	Can you think of any entities or associations that are missing from the proposed risk model?				

22.	Do you have any other feedback about the proposed risk model or its usage?	I think the way in which this is used will be key to take up. In practise I think the model can lead the designers in what to consider but I don't see the designers necessarily using the model itself to communicate the risks to the project managers or customer. I think perhaps it needs another view of the information to make it useful though this might just be a simple spreadsheet tying design decision/rationale to risk, impact and mitigation
-----	--	--