****Agenda: Workshop for problem understanding****

# Day 1

* Introduction (30 minutes)
* Understanding trade-offs (90 minutes)
* BREAK (15 minutes)
* Understanding trade-offs (90 minutes)
* LUNCH (60 minutes)
* Understanding systems effects (90 minutes)
* BREAK (15 minutes)
* Anti-patterns (90 minutes)
* Summary of day 1 (15 minutes)

# Day 2

* Recap of day 1 (15 minutes)
* Debt from an economics PoV (90 minutes)
* BREAK (15 minutes)
* Wicked problems, social complexity, and fragmentation (90 minutes)
* LUNCH (60 minutes)
* Putting it all together (180 minutes)
* Summary of day 1 and 2 (30 minutes)

# **Day1**

## **Introduction**

In this session, we introduce workshop attendees to the concepts of technical debt, including definition and causes. We conclude with an explanation of the technical debt onion model.

## **Understanding trade-off decisions**

In this session, attendees will learn the role of trade-off decisions in the creation of technical debt. In addition, attendees will learn the mechanism they use to make trade-off decisions, plus why using this mechanism leads us to build up too much technical debt.

## **Understanding systems effects**

In this session, attendees learn how systems influence the level of technical debt within an organisation. Attendees learn of the prohibition problem and how making a change to a system can lead to entirely unexpected consequences.

Attendees also experience a simulation model of software development, where they can change inputs, like scheduled completion date and levels of technical debt, to impact the costs and schedule of current and future projects.

## **Anti-patterns**

In this session, attendees learn how patterns of repeated behaviour can lead to self-reinforcing loops that influence the level of technical debt in an organisation. Attendees create some simple anti-patterns and causal loop diagrams.

# **Day 2**

## **Technical debt from an economics PoV**

In this session, attendees learn some economic problem concepts and how they are relevant to technical debt. This learning is then reinforced by getting them to identify and discuss examples of where they have seen similar effects influence technical debt in this or other organisations.

## **Wicked problems, social complexity, and fragmentation**

In this session, attendees learn what wicked problems are, plus how they influence technical debt. Attendees also learn of social complexity, fragmentation

## **Putting it all together**

In this session, attendees combine their recently gained knowledge of trade-off decisions, systems effects, anti-patterns, and wicked problems to explore the technical debt problem, as experienced within this organisation.