



GOSEI

# Systems Thinking and Organisations Design

*Wolfgang Steffens & Alexander Eckert*

*Large-Scale Scrum in Mittelfranken meet-up*

*January 2019, Nürnberg*

# Introduction

# Agenda 19:00 - 21:00

Introduction

Systems Thinking

Exercise 1

Reflection

Exercise 2

Reflection

Bonus Exercise 3

Reflection

# Wolfgang Steffens

Trainer, Coach, Consultant at Gosei Ltd

- Programmed in Turbo Pascal and Visual Basic ;)
- Systems Engineer
- Program Manager
- Coach & Consultant for Program Managers
- Lean & Agile Coach
- Scrum Master
- Globetrotter



# Alexander Eckert

**Scrum Master, Team Gardener at Siemens AG**

- **20 years experience as Software Developer.**
  - **C#, Java, C, C++ and bit of Java Script.**
  - **Clean Code and Software Craftsmanship.**
- **Started journey towards Agile and Lean in 2017.**
- **Runner, Climber, Family Guy**



THE NEW YORK TIMES BESTSELLER

# THINKING, FAST AND SLOW



DANIEL  
KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS

"[A] masterpiece . . . This is one of the greatest and most engaging collections of insights into the human mind I have read." —WILLIAM EASTERLY, *Financial Times*

# Puzzle

Linda is thirty-one years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations...

Please rank in order of likelihood various scenarios individually on paper: Linda is

- (1) an elementary school teacher,
- (2) a bank teller,
- (3) an insurance agent, or
- (4) a bank teller also active in the feminist movement.

# Does Base Rate Change Your Answer?

Bank Tellers: 600,000

Insurance Agents: 1 Million

Elementary School Teachers: 3 Million

23% of women in the US identify as feminist



# Answer

Using Base Rates: Elementary School Teacher, Insurance Agent, Bank Teller, Bank Teller + Feminist Movement Active

The remarkable finding is that respondents deem scenario (5) more likely than scenario (3), even though (5) is a special case of (3). The finding thus violates the most basic laws of probability theory. Not only do many students get the Linda problem wrong, but some object, sometimes passionately, after the correct answer is explained.

# Systems Thinking

**Peter Senge**

**Senior Lecturer, MIT**

**Founding Chair, Society for  
Organizational Learning**

# Systems Thinking

Organizations are complex systems

We model to have conversation

All models are wrong some are useful

# Systems Thinking at Bar

## Variables:

- Level of thirst
- Beer intake
- Water intake
- Alcohol level at blood
- Happy mood
- Salty food
- Time since last beer
- Cash reserve

# Practise Systems Thinking

Create system model starting with these variables for puzzle:

- “We are too busy to write clean code”

Start with these variables; write the bold words **verbatim** (*as written here*)

- % **well written and tested code**  
(clean code)
- **time available to craft clean code**
- **effort to create a new feature**
- **velocity** (...to deliver new features)
- **# defects**
- **effort handling defects**
- **pressure to deliver and “go faster”**

# Systems Thinking in Designing Organization

# Exercise

Draw Systems Model that explores impact of dependencies that are distributed in time.

Start with following variable:

- #dependencies
- #fulltime coordinators
- %time spend coordinating
- Amount of intermediate plans and documents created
- % wastes created
- Time spent waiting other teams
- Partially done work



# Reflection

How to move the dependencies that are distributed in time to shared work?

# Queues and Batch Size

Puzzle: How does batch size and queues affect the system

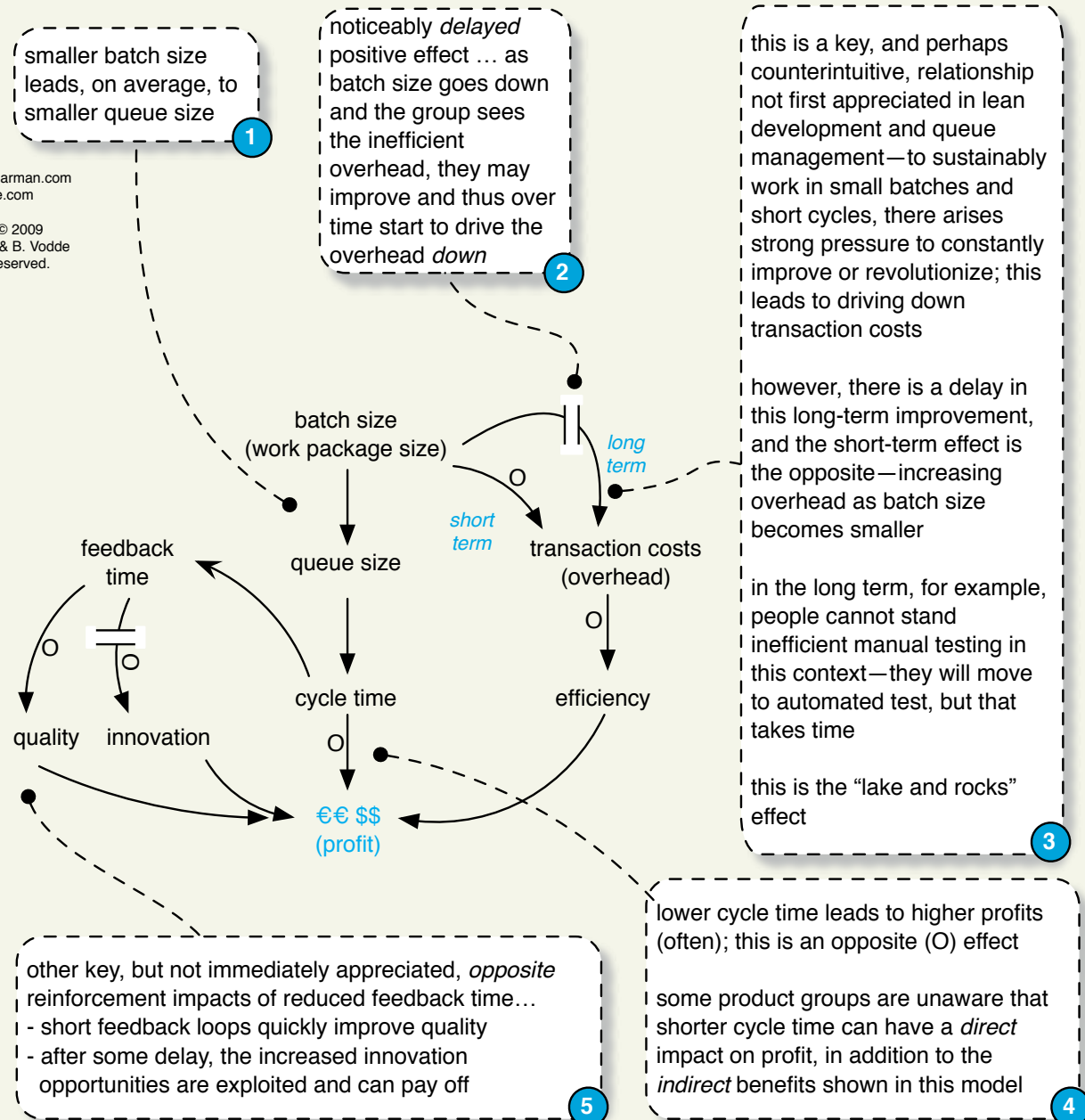
Create system model with:

- 1. Batch size** (work package size)
- 2. Queue length/size**
- 3. Cycle time**
- 4. Feedback time**
- 5. Quality**
- 6. Innovation**
- 7. Profit**
- 8. Transaction costs** (overhead)
- 9. Efficiency**

# One View

www.craiglarman.com  
www.odd-e.com

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# Reflection

How to design organisation that has small batch size since it is driving variable in this scenario?



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