

Lucas Gren and Per Lénberg

Using **team development** methods to
increase organizational productivity –

Lessons learned from Saab and Volvo Cars



Agenda

1. The importance of behavioral factors in SE
2. Per Lenberg and Lucas Gren
3. An introduction to Group Development Questionnaire (GDQ)
4. Lessons learned
5. Upcoming studies



1. The importance of the **behavioral factors** in software engineering

Why focus on the behavioral factors?

Software is developed by humans, which, unfortunately, are not fully rational. To improve software engineering, the behavioral factors need to be accounted for.



2. Who is Per Lenberg?

- Industry
 - Program owner at Saab Air Traffic Management
 - Change manager at Saab Air Traffic Management
- Academia
 - Bachelor's degree in psychology
 - Master's degree in software engineering
 - PhD in Software Engineering
 - Researcher at BTH



2. Who is Lucas Gren?

- Academia
 - Master's degrees in industrial engineering/psychology/software engineering
 - PhD in Software Engineering from the University of Gothenburg
 - Researcher at BTH
- Industry
 - Change Leader/Researcher at Volvo Cars
 - Driver of the Teams & Culture part of the Data-Driven Transparency initiative at Volvo Cars covering all R&D (~750 teams, ~10,000 people)



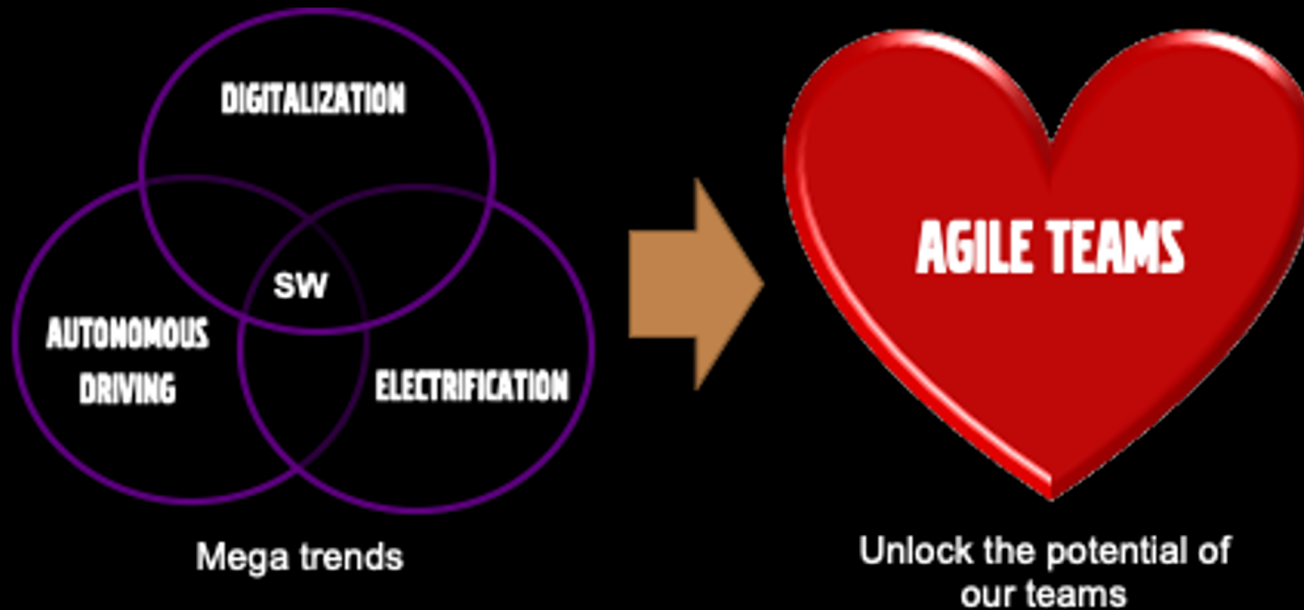
3. An introduction to **Group Development Questionnaire** (GDQ)

Why build mature teams from a collaborative perspective?



3. An introduction to **Group Development Questionnaire** (GDQ)

The Change at Volvo Cars



3. An introduction to **Group Development Questionnaire** (GDQ)

Psychological safety



3. An introduction to Group Development Questionnaire (GDQ)

Implement SAFe or become agile?

- The core of agile is responsiveness to change.



3. An introduction to Group Development Questionnaire (GDQ)

SAFe is built on four paradigms

- *“It includes Agile principles and methods, Lean and systems thinking, product development flow practices, and Lean processes.”*
- The agile principles are one of the foundations.
- The agile principles guide the team level.



3. An introduction to Group Development Questionnaire (GDQ)

Principles that lead to agility

Principle 5. Build projects around **empowered motivated individuals** with a **shared vision** of success; give them the environment and support they need, clear their external obstacles, and **trust** them to get the job done.



3. An introduction to Group Development Questionnaire (GDQ)

Principles that lead to agility

Principle 11. The best architectures, requirements, and designs emerge from **self-organizing teams** guided by a **vision** for product release.



3. An introduction to **Group Development Questionnaire** (GDQ)

The Integrated Model of Group Development

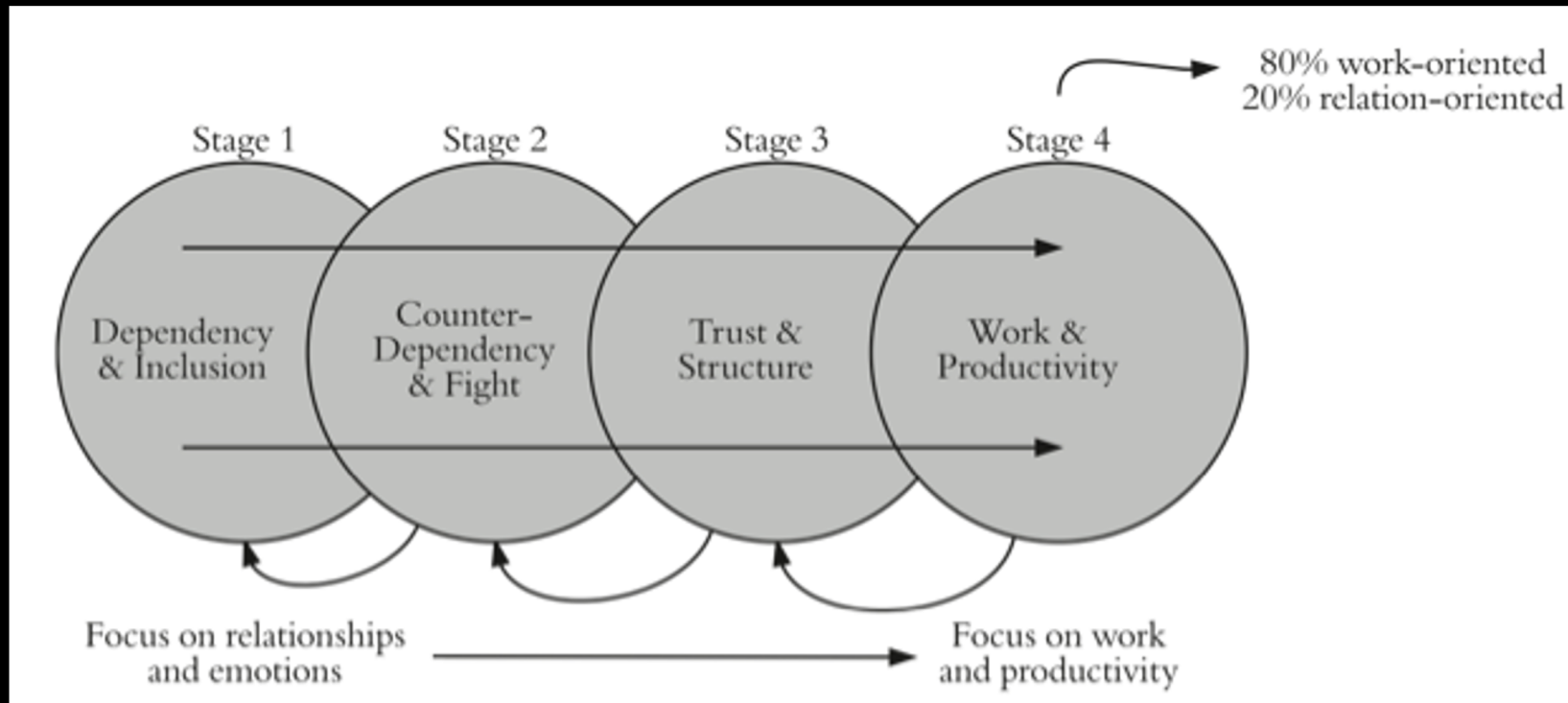


Figure adopted from Christian Jacobsson



3. An introduction to Group Development Questionnaire (GDQ)

The solution used at Volvo Cars

- Train teams (not specific roles) in IMGD (650 teams trained so far)
- A technical solution that protects individuals and teams
- Let teams own their data, follow trends, and take action
- Aggregate anonymous data for other roles (e.g. RTEs)



3. An introduction to Group Development Questionnaire (GDQ)

The solution used at Volvo Cars

Criterion-Related validity of Study 2.

GDQ ($N = 2462$)	Burnout	Job Satisfaction	Feeling of Mastery
Scale I	0.256	-0.233	-0.220
Scale II	0.335	-0.317	-0.281
Scale III	-0.336	0.493	0.445
Scale IV	-0.350	0.525	0.484

Mini-GDQ ($N = 2462$)	Burnout	Job Satisfaction	Feeling of Mastery
Scale I	0.229	-0.206	-0.170
Scale II	0.312	-0.310	-0.256
Scale III	-0.329	0.425	0.389
Scale IV	-0.320	0.466	0.443

*Note. All coefficients had $p < .01$ (2-tailed)

- The solution works and is based on Wheelan's original questionnaire.
- Feels old and need clarification.
- We need a new agile GDQ!



4. Lessons learned #1 - organizational cognitive dissonance

Supporting functions:

- *Human resources*
- *Career paths*
- *Performance reviews*
- *Salary negotiations*

Maximize individual productivity



Agile approaches

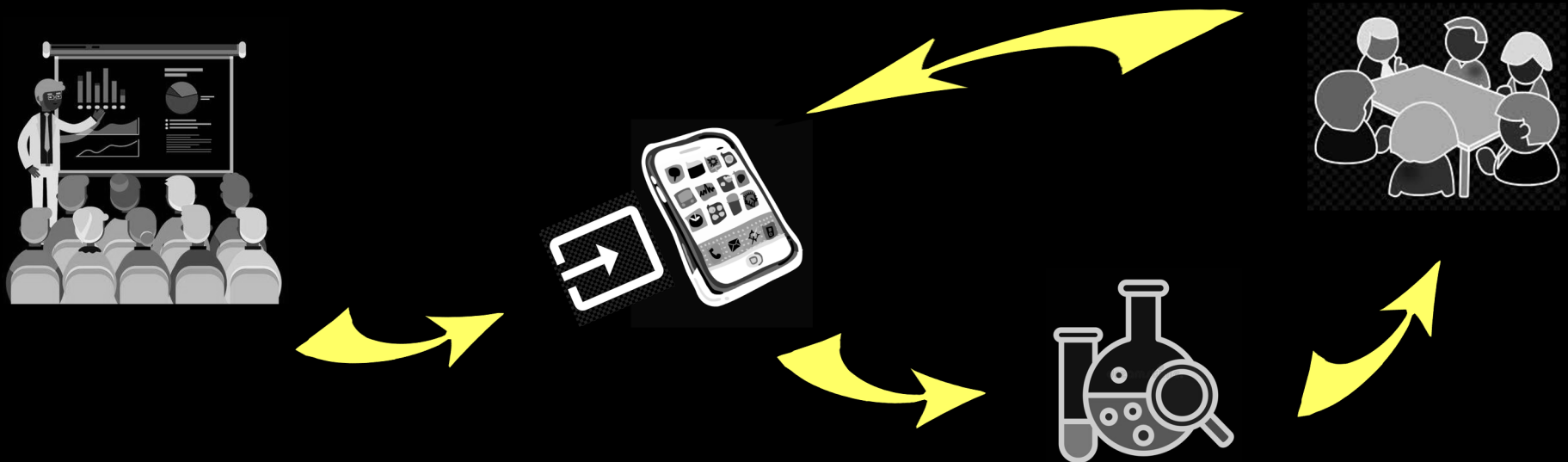
Maximize team productivity



4. The upcoming studies

The purpose of the studies:

- 1. Develop and validate an agile team development survey (ATDS), estimating group maturity.*
- 2. Bolster the link between team development and team productivity.*
- 3. Validate a way to integrate the use ATDS into the agile practices.*





Thank you for listening!

