THE AGILE TRANSFORMATION AT VOLVO CARS: A TEAM MATURITY PERSPECTIVE

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Postdoc in the Collective Intelligence of software development teams (Chalmers | University of Gothenburg)
The Change at Volvo Cars

Mega trends

Unlock the potential of our teams

DIGITALIZATION
AUTONOMOUS DRIVING
ELECTRIFICATION

AGILE TEAMS
70 ARTs: 10,000 people (~150 million lines of code per car)
Trust – transparency – continuous improvement
Scaled Agile Framework e (and little Emelie)
Implement SAFe or becoming agile?

• The core of agile is responsiveness to change.
SAFe is build 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.
Principles that leads 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.
Principles that leads to agility

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

*Principle 12.* With each iteration, the team *candidly reflects* on the success of the project, *feedback*, and how to be more effective, then *tunes* and *adjusts* its plans and *behavior* accordingly.
The Integrated Model of Group Development

Stage 1: Dependency & Inclusion
Focus on relationships and emotions

Stage 2: Counter-Dependency & Fight

Stage 3: Trust & Structure

Stage 4: Work & Productivity
Focus on work and productivity

80% work-oriented
20% relation-oriented

Figure adopted from Christian Jacobsson
Objectives

1. Research:
   • A valid a reliable short version of the GDQ to speed up data collection and enable large studies (not for consultancy)
   • Spread the GDQ in research globally.

2. Practice (in order to do research with companies, we must offer value in return):
   • Give teams a stage fit quickly (to prompt action).
   • Give teams the possibility to follow trends.
   • Get a strong case for group development interventions.
What???????

HOLY SHIT, MAN!! LOOK AT THIS!!

"STUDY FINDS 50% OF PEOPLE BORED BY STATISTICS."

Cyanide and Happiness © Explosm.net
Why statistics?

“Cognitive psychology tells us that the unaided human mind is vulnerable to many fallacies and illusions because of its reliance on its memory for vivid anecdotes rather than systematic statistics.”
— Steven Pinker
Convergent validity between the GDQ and the Mini-GDQ (Studies 1 and 2).

<table>
<thead>
<tr>
<th>Study</th>
<th>Scale I</th>
<th>Scale II</th>
<th>Scale III</th>
<th>Scale IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1 (N = 1249)</td>
<td>0.881</td>
<td>0.932</td>
<td>0.904</td>
<td>0.926</td>
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<tr>
<td>Study 2 (N = 2462)</td>
<td>0.843</td>
<td>0.900</td>
<td>0.841</td>
<td>0.898</td>
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</tbody>
</table>
### Criterion-Related validity of Study 2.

<table>
<thead>
<tr>
<th>GDQ (N = 2462)</th>
<th>Burnout</th>
<th>Job Satisfaction</th>
<th>Feeling of Mastery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale I</td>
<td>0.256</td>
<td>−0.233</td>
<td>−0.220</td>
</tr>
<tr>
<td>Scale II</td>
<td>0.335</td>
<td>−0.317</td>
<td>−0.281</td>
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<tr>
<td>Scale III</td>
<td>−0.336</td>
<td>0.493</td>
<td>0.445</td>
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<tr>
<td>Scale IV</td>
<td>−0.350</td>
<td>0.525</td>
<td>0.484</td>
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</table>

<table>
<thead>
<tr>
<th>Mini-GDQ (N = 2462)</th>
<th>Burnout</th>
<th>Job Satisfaction</th>
<th>Feeling of Mastery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale I</td>
<td>0.229</td>
<td>−0.206</td>
<td>−0.170</td>
</tr>
<tr>
<td>Scale II</td>
<td>0.312</td>
<td>−0.310</td>
<td>−0.256</td>
</tr>
<tr>
<td>Scale III</td>
<td>−0.329</td>
<td>0.425</td>
<td>0.389</td>
</tr>
<tr>
<td>Scale IV</td>
<td>−0.320</td>
<td>0.466</td>
<td>0.443</td>
</tr>
</tbody>
</table>

*Note. All coefficients had p < .01 (2-tailed)
GDQ short works for research

1. The psychometric properties are very similar to full GDQ.

New hurdles to overcome for practice (GDQ ethics)

1. Protect individuals
2. Protect teams
3. Give useful automated feedback to teams (~700 teams...)
   1. Range difference destroyed.
   2. New norms for GDQ short (stage fit...)
   3. Not possible to provide subscales (only 13 items...)
A few of my frustrations

1. I both hate and love to put numbers on psychological constructs.
2. too simple (reductionism)
3. people overinterpret numbers
4. people use numbers for politics
<table>
<thead>
<tr>
<th>Stage</th>
<th>GDQI</th>
<th>GDQII</th>
<th>GDQIII</th>
<th>GDQIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>&gt;42</td>
<td>&lt;42</td>
<td>&lt;54</td>
<td>&lt;57</td>
</tr>
<tr>
<td>Stage 2</td>
<td>&lt;45</td>
<td>&gt;46</td>
<td>&lt;54</td>
<td>&lt;57</td>
</tr>
<tr>
<td>Stage 3</td>
<td>&lt;44</td>
<td>&lt;40</td>
<td>54–59</td>
<td>57–63</td>
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<tr>
<td>Stage 4</td>
<td>&lt;44</td>
<td>&lt;40</td>
<td>&gt;59</td>
<td>&gt;63</td>
</tr>
</tbody>
</table>
Based on one SD away from the mean!

### Stage Diagnosis (Based on norm data from 2646 teams)

<table>
<thead>
<tr>
<th>Stage One: Dependency and Inclusion</th>
<th>GDQ I</th>
<th>GDQ II</th>
<th>GDQ III</th>
<th>GDQ IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage Two: Counter-dependency and Fight</td>
<td>&gt;44</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Stage Three: Trust and Structure</td>
<td></td>
<td>&gt;48</td>
<td></td>
<td>&gt;64</td>
</tr>
<tr>
<td>Stage Four: Work &amp; Productivity</td>
<td></td>
<td></td>
<td>&gt;64</td>
<td>&gt;66</td>
</tr>
</tbody>
</table>
Real team (from Team Diagnostic Survey)

Real teams have three features.
1. First, they have clear boundaries that reliably distinguish members from nonmembers.
2. Second, team members are interdependent for some common purpose, producing a potentially assessable outcome for which members bear collective responsibility.
3. Finally, real teams have at least moderate stability of membership, which gives members time and opportunity to learn how to work together well.
Thanks! Questions?

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