SHIFTING CONCEPTUALIZATION OF CONTROL IN AGILE DIGITAL TRANSFORMATIONS

MARIUS MIKALSEN, SINTEF DIGITAL & NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY (NORWAY)
Shifting Conceptualization of Control in Agile Transformations

Maia Mikkelsen1,2, Vibeke Steyn1,2, Nils Reide Hauge1, and Ida Bukseth1
1 SINTEF, Trondheim, Norway
2 Norwegian University of Science and Technology, Trondheim, Norway
3 University of Oslo, Oslo, Norway
4 Stavanger, Oslo, Norway
m.k.mikkelsen@sintef.no

Abstract. Agile transformations imply that organizations apply agile methods also outside of software development units. One particular way of doing such transformations is to create cross-functional software development units. This requires new approaches to control. In our study, we find that at the national level, mechanisms from the software sector are not fully transposable and instead need to be adapted. To analyze the results, we develop a new perspective on control in the digital era, which challenges existing approaches to control. Our findings indicate how agile transformations expect rethinking traditional control mechanisms and experiment with new control perspectives more suitable for the digital era.

Keywords: Agile transformation, agile project, empirical, case study, control, and organizational theory; CEOs.

1 Introduction

The pressure of globalization with rapidly changing markets and technology developments drive organizations towards adopting agile ways of working, also outside software development units. Agile transformation implies that agile methods are used not only in software development teams but also by other parts of the organization, such as business units. Agile transformations deal with challenges such as hierarchical management in a digital mode, difficulties working across organizational boundaries, and units not willing or able to change. One particular form of change aiming to overcome some of these challenges is creating semi-independent, cross-functional units (i.e., consisting of personnel from both business- and software-development units) that use agile methods to improve the value of the software developed.

Collaboration across different units while working in new ways represents new challenges for control. The informal agile control mechanisms from the
Agenda

• Defining agile digital transformation
• Challenges in agile digital transformation
• Cross-functional teams as a solution to some of these challenges
• Stewardship perspective on control
• Testing the stewardship perspective on a case from finance
New perspectives of control are necessary in agile digital transformations, and a stewardship perspective on control is suggested.
Changes

- rapidly changing markets, user behavior and technology developments (digital transformation)
- agile methods is not only used in software development teams but is used also by other organizational units (agile transformation)
Digital transformation


Key:
- The dotted arrows represent global trends (industry, society level/s).
- The solid arrows represent phases of the DT process at the organizational level.
Agile transformation

“The agile mindset is now finding its way into the C-suite, and it is starting to radically change the way organizations are led and managed. Business agility is on everybody’s lips, for very good reasons”

Bjarte Bogsnes
Equinor and Chairman of Beyond Budgeting Roundtable
In foreword to “Unlocking Agility” by Jorgen Hesselberg, 2019
Benefits of agility

Word cloud of benefits reported in the Version1 State of Agile Survey.
Challenges

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hierarchical management and organizational boundaries</td>
</tr>
<tr>
<td>2</td>
<td>Integrating non-development functions</td>
</tr>
<tr>
<td>3</td>
<td>Resistance to change</td>
</tr>
<tr>
<td>4</td>
<td>Coordination challenges in multi-team environment</td>
</tr>
<tr>
<td>5</td>
<td>Agile difficult to implement</td>
</tr>
<tr>
<td>6</td>
<td>Lack of investment</td>
</tr>
<tr>
<td>7</td>
<td>Different approaches emerge in a multi-team environment</td>
</tr>
<tr>
<td>8</td>
<td>Quality assurance challenges</td>
</tr>
<tr>
<td>9</td>
<td>Requirements engineering challenges</td>
</tr>
</tbody>
</table>

• Cross-functional teams
• Join software and business development
  • BizDev: close and continuous linkage between business and software development (Fitzgerald and Stol 2017).
• Sense, respond and adapt together
• New challenges for control

Stewardship perspective on control

Different forms of organization

**Direct control**: known problem and solution

**Indirect management/autonomous teams**: unknown problem, known solution

**Mutual adaptation**: rapid changes, new development, innovation

“Old” definition of control

“control is defined as any attempt to ensure that individuals behave in a manner consistent with organizational objectives” (Wiener et al 2019)

- Individualistic, self-interest
- Informasjon assymetry is negative
- Extrinsically motivated agents
- Short-term focus
- Stable, hierarchical relationships

Direct control

Indirect management/autonomous teams

Mutual adaptation
Blurring of organizational boundaries and roles, platform innovation

Congruance with common overall goal, steward acts for collective interest

High knowledge intensity and specialization

Information asymmetry among actors may be neutral or positive

Changing workforce (knowledge workers and millennials)

Intrinsically motivated stewards

Continuous innovation, open-ended experimentation

Long-term orientation

Platform ecosystems

Dynamic network structures

New trends

Stewardship assumptions
Purposes of control

- Control problem
  - Knowledge exchange, complexity, interdependencies

- Control focus
  - Cooperation, coordination, facilitation, and guidance

- Overarching goal
  - Maximizing value
Case context: Banks, digital transformation and agile transformation

- Banks at the forefront of digital change, digital marketplace
- Legacy systems and legacy processes
- “Digitalization hits at the core of a bank—i.e., the digitalization of money and all the related functions around money” (Sia et al. 2016)
- The European payment service directive (PSD2) is requiring banks to open parts of their payment infrastructure to third-party providers
- Aim for agile transformation

Case Background

• Bank, pension and insurance
• 2000 employees
• 2014: hierarchical and modular structure on IT organization (mirroring): business relationship management, banking and insurance, and digital and mobile
• Transformation programme
  • From technical modules as the central organizing concept to a delivery model consisting of five delivery streams (e.g., insurance, banking, pension)
  • Effects sought: giving development clearer frames regarding resources (i.e., hours), a more unified prioritization of tasks, rapid delivery, stable team participation, a unified development method, and a predictable frequency for prioritized deliverables.
Evaluations one year into the transformation

- Separation of business and IT development → Challenge
- Business orders, IT delivers
- Complex business side, many decision makers, challenging to prioritise
- Business side specified things that were challenging to implement → trust issues
- Need for mutual adjustment → create agile program with cross-functional teams
New approach: an agile program w/cross-functional teams
Stewardship in the agile program?

- Cross-functional teams
- Long term
- Agile methods
Control configuration, enactment and purpose

1. We measure what we produce (user stories, Work in Progress, cycle time?)

2. We control each other and that the team delivers?

3. I have extensive dialogue with those who decide the goals

4. We measure to handle insecurities regarding budget, time and functionality

5. We measure to handle insecurities regarding collaborations between actors with different competencies

6. We measure to handle insecurities regarding business value
Different perspectives on value

- **Product managers:**
  - Dependencies outside of the program
  - Continious OKR reviewes to focus
  - Access key competencies

- **Steering forum**
  - Demonstrate business value
  - OKRs to involve business
  - Clarify roles and responsibilities
7. My goals align with the goal of the program.

8. It is ok that others have information that I do not have.

9. I am intrinsically motivated by working in the program.

10. We focus on short-term goals.

11. We consider the development as part of something that continuously changes.

12. I collaborate with people outside my team.
Key takeaways

• Agile digital transformation by cross-functional (software and business development) means that forms of control will collide

• Digital era characteristics require changing conceptualizations of control

• Stewardship perspective is promising to understand and experiment with novel forms of control in agile transformations
Technology for a better society
Why cross-functional teams?

• Team autonomy and diversity is reported to be key to achieving agility (Lee and Xia 2010).

• Autonomous—that is, self-organized, self-directed, and self-disciplined—teams are necessary for achieving ISD agility (Nerur and Balijepally 2007).

• Diversity is defined as the heterogeneity of actors involved in ISD in terms of characteristics such as education, functional role, and technical abilities (Williams and O’Reilly 1998).

• BizDev: close and continuous linkage between business and software development. The process of continuously assessing and improving this link is described as BizDev (Fitzgerald and Stol 2017).


