MINIMUM VIABLE COMMON GROUND: A CASE STUDY OF COLLABORATION ROOMS AS AN AGILE APPROACH TO INTERDEPENDENCY MANAGEMENT

Research paper

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Abstract

Large-scale agile transformation implies that agile approaches are moving from standalone information system development units such as teams towards being applied in more complex organisational settings with multiple and diverse units. Research on large-scale agile transformation suggests that agile methods with its focus on mutual adjustment increases interdependencies between diverse units. However, extant empirical research on how interdependencies can be managed in large-scale agile transformations is scarce. We report from an interpretative case study of an agile transformation ini-

tiative in a company with 20.000 employees. Based on data from 32 interviews combined with participatory observation in retrospectives we analyse how "collaboration rooms" are used to manage the interdependence between heterogeneous units, and how the collaboration rooms are conceived by information systems development practitioners as an agile transformation initiative. Using the concept of trading zones, we contribute by discussing how heterogeneous units can manage interdependencies by using collaboration rooms as a minimum viable common ground. We discuss how collaboration rooms as a minimum viable ground i) fit new practices with existing practices, ii) allows to move around hierarchical decision structures, and iii) is a subtle and iterative approach to agile transformation.

Keywords: Large-scale agile transformation, Information System Development, interdependencies, coordination, collaboration rooms, empirical, case study, trading zones, minimum viable common ground.

1 Introduction

Many large organisations are seeking to foster flexibility and innovation by undergoing an "agile transformation" (Dikert et al. 2016, Fuchs and Hess 2018). They want to achieve a faster sense and respond capability. Agile transformation implies that agile methods are moving out of individual information systems development (ISD) teams and are being used in more complex organizational settings. Larger organisations have many interdependencies between different organizational units, such as IT and business units, that must be managed (Mikalsen et al. 2018). Traditionally, such interdependencies are managed by coordination mechanisms, such as standardisation, planning, and hierarchical organisation (Barlow et al. 2011). These coordination forms are being challenged in agile transformations because agile approaches put a premium on continuous mutual adjustment between autonomous and diverse units (Conboy 2009, Lee and Xia 2010).

As an example, in more traditional ways of developing software, the business unit would make a requirement specification document, that the development unit would develop, the testing unit test, and then the product would be handed over to operations that would maintain the software. In more agile ways of working, there is less focus on formal documentation and formal handovers between units, and a turn towards increased, continuous communication and interaction between units. For example, in agile ISD, requirements would be defined by a customer representative that is in close dialogue with the development team, and typically the same team that develops the software will have responsibility to maintain it in operations. In sum, an agile transformation with an increased mutual adjustment between units require new ways of managing the interdependencies between units, be that development teams or organizational units such as business and it.

The relevance of mutual adjustment is emphasised by recent studies of agile used in larger organizations. Rolland et al. (2016) challenge the current underlying assumptions of research on large-scale agile development which extrapolate agile practices and coordination mechanisms in small projects, such as scaling scrum to scrum-of-scrums, scaling user stories to epics. They argue that there is a need to emphasize the boundary work that is required for working across contexts (such as different units) working with complex sociotechnical interdependencies (Carlile 2004; Levina and Vaast 2005).

An agile transformation process is described as consisting of phases and being episodic (Fuchs & Hess 2018), thus transitions between phases is characterized by barriers regarding coordination of different organizational logics and practices, This study therefore seeks to contribute to an increased understanding of how mutual adjustment and coordination practices change in multi-unit organizational environments with the introduction of agile practices, and what the perceived effects of such changes are. We report findings from a case study of an agile transformation initiative in an internationally operating company based in Scandinavia with approximately 20.000 employees. We focus on their application of what they call "collaboration rooms" to handle interdependencies between multiple and

heterogeneous units. We ask the following research question: *How are interdependencies between diverse units managed in collaboration rooms?* To analyse our findings, we draw on the concept of *trading zones* (Galison 1999, Kellogg et al. 2006). The concept of trading zones has the potential to supplement findings from the large-scale agile coordination literature as it provides insights on how very different units with seemingly very little in common can cooperate. Applying trading zones, our analysis begins to conceptualise how collaboration rooms constitute a *minimum viable common ground* for managing interdependencies between multiple and heterogeneous units working with the agile method.

The rest of the article is organised as follows. In the next section we summarise challenges in large-scale agile transformation and suggest the concept of trading zones to explain how they can be managed. The Case and Method section situates the large-scale agile transformation initiative studied and outlines our empirical approach to study such transformations. The Findings section illustrates the collaboration rooms as trading zones focusing on display, representation, and assembly practices. The Discussion section begins to outline how the concept of *minimum viable common ground* can be an approach for multiple and heterogeneous units in large organisations to work with the agile method.

2 Theory

2.1 Agile Transformation: Motivation and Challenges

Increasingly faster technological change, shifting customer behaviour, and changing market conditions necessitate information system development (ISD) that is customer centric, iterative, experimental, and fast. To achieve this, organizations seek to apply agile methods to allow themselves to create, react to, embrace, and learn from change while enhancing customer value (Conboy 2009). Crucially, this implies that it is no longer just the IT department that applies agile methods, but that increasingly more organizational units seek to apply the method. The goal is that the organization at large is to become more responsive to change.

Large-scale agile transformation then, implies that agile approaches are moving out of the agile sweet spot of small, stand-alone ISD teams and units (Kruchten 2013), towards being applied in more complex organisational environments. Complex organisational environments include large-scale ISD projects (Rolland et al. 2016; Dingsøyr et al. 2018b), ISD portfolios (Sweetman and Conboy 2018), ISD programs (Jiang et al. 2018) and even entire organisations (Barlow 2011).

Key challenges in large-scale agile transformation include integrating non-development functions, change resistance, and hierarchical management and organizational boundaries (Dikert et al. 2016). Integrating non-development functions can be challenging as units outside development, such as business, may be unwilling to change as they can have challenges adjusting to incremental delivery pace and iterative product launch activities (Cao et al. 2009). Marketing for example may need time to plan and execute marketing campaigns. Change resistance involves several reasons in a range from personal dispositions to structural and cultural factors (Rosenberg and Mosca 2011), for instance fear of the unknown, increased workload, dysfunctional or poor leadership, lack of trust, top-down steering, and poor implementation planning. Hierarchical management and organisational boundaries cause challenges as middle managers role in agile approaches is unclear, management can prefer to operate in waterfall mode, keep the old bureaucracy, and want to keep internal silos. Managers seeking to integrate agile practises into traditional, top-down organizations find themselves facing a "daunting litany of barriers" (Boehm and Turner 2005, p. 30).

2.2 Managing Interdependencies in Large-Scale Agile Transformations

Paasivara at al. (2018) provide one of the few empirical studies of large-scale agile transformation, and finds that in the case of Ericsson, agile transformation was a key part of the corporate strategy and involved standardising their entire development organisation towards a shared agile framework.

Change resistance for example, was dealt with by "[…] reorganizing the leadership team to involve more people with agile experience" (ibid., p. 2584). Different from such a "standardised" approach to large-scale agile transformation, Zheng et al (2011) discuss how introducing agile in distributed collaborative system development involves a set of paradoxes and tensions that needs to be resolved, such as "Planned agility" and "Structured chaos" (Ibid., p. 308). In the same vein, Karlsson and Ågerfalk (2009) argue that a tailored agile ISD method should fit the situation in terms of existing practices, and at the same time align with the basic goals and values of the new method introduced.

As the above suggests, different units will adopt different agile practices such as XP, Scrum, in-house methods, and will practice agile differently tailored to their needs and existing practices (Conboy and Carroll, 2019). Some units will most likely change slower or not at all (such as business and marketing that for example need long term planning). This implies that if for example the IT unit works using agile methods, and another unit is using traditional methods, in sum, a large-scale agile transformation with its focus on mutual adaptation between units will increase interdependencies between diverse and heterogeneous units.

Consider some examples of interdependencies that needs to be managed. Agile methods in large ISD projects must deal with an increasing number of actors, interfaces with existing systems and unexpected interdependencies (Rolland et al. 2016). In ISD portfolios, the autonomy and flexibility inherent in agile approaches require handling interdependencies between dynamic projects in the portfolio (Sweetman and Conboy 2018). In ISD programs there will be ambiguity related to goals, objectives and from multiple interpretations among different units across organisational levels (Jiang et al. 2018). For organisations with hierarchical and centralised decision-making structures, agile ISD methods cause frictions between management, perhaps working in waterfall mode (i.e., planning and documenting) and agile units (Cao et al. 2009), which may result in changes in management practices (Persson et al. 2016).

Large-scale agile transformations introduce several challenges, including managing interdependencies in multi-team environments (Dikert et al. 2016). Sub challenges identified include difficulties interfacing between teams and that autonomous team models are perceived as challenging. From studies of large-scale agile development (Paasivaara et al. 2012, Bick et al. 2017) there are findings identifying coordination challenges. Coordination is often defined as "management of interdependencies between activities" (Malone and Crowston 1994) and for large projects there are several interdependencies. These dependencies are then managed differently when adopting agile methods which emphasise teamwork, oral communication, and individual relationships. In software engineering, we find arguments for rethinking coordination as large-scale agile development involves several dependencies and many people coordinating in new ways (Dingsøyr et al. 2018a). One can argue that large organisations are even more complex than large-scale ISD projects as such organisations have more employees, typically a more heterogenous workforce, more heterogeneous units, while still having a high amount of interdependencies.

2.3 Trading Zones: A Perspective on Managing Interdependencies

To understand how large-scale agile transformations unfold there is a need for more empirical insight into how mutual adjustment between diverse and heterogeneous units can be managed. Aiming to contribute to such an understanding we draw on the concept of "*Trading Zones*" (Galison 1999). Galison studied how different communities within physics, such as theorists, experimentalists, and engineers managed to coordinate activities despite significant local differences in their respective communities. They were able to manage interdependencies despite differences in community goals, practices, and results. Kellogg et al. (2006) apply the notion of trading zones to analyse how coordination is possible between diverse communities in less-hierarchical, flatter, and more adaptive organisations. Through an analysis of four different community groups in an heterarchical ISD organisation, Kellog et al (ibid.) identify three practices as enacting a trading zone.

First, there are **display** practices. Display practices is relevant when work is done by different units in parallel and is concerned with rendering work visible to members of other units. Practitioners make their work available and their schedules and work assignments transparent. This can be done by using digital tools (such as communication or project management tools), and by having shared whiteboards. For diverse units, which often has several different tasks and priorities to collaborate, some form of shared understanding of what is worked on, and the status of this work is necessary.

Second, there are **representation** practices. Representation is concerned with making work comprehensible using project genres. Genres let members of different communities represent their ongoing work while reducing the nuances of their local concerns. The purpose is to express ideas in a form that can be used by others. Ideas and concepts are represented so that they are tangible, observable and readable by people outside the unit. The focus is on practical problem solving rather than universally shared meaning and understanding. As an example, end user problems with IT applications may be reported in several ways. Creating a problem description accumulating different user feedback that allows people from different units to grasp and begin address the problem is a representation practice.

Third, there are **assembly** practices. Assembly is concerned with juxtaposing existing work through modification and aligning work through provisional agreements. Assembly is about referring to, reusing, and aligning the work products of different communities. In contrast to making joint products, assembly work is about reusing, revising, and aligning the products of other units. For instance, fixing downtime on end-user IT application may require those responsible for the end user application to align work with those responsible for maintenance on the servers.

3 Case and Method

This study is an interpretative case study (Klein and Myers 1999) of agile transformation in a large international company based in Scandinavia with approximately 20.000 employees.

The case was chosen as they are engaged in a research project on agile ISD and have an internal program to improve internal customer experience of their IT products. The company has around 500 people working internally on IT and another 500 consultants. The program to improve IT product customer perception works with around 70 product lines in the company. Their work has focused on improving work practice through a higher uptake of agile methods. Although the company adopted Scrum in the early 2000s, they believe they have a potential in further adoption of agile methods. The improvement program employs several agile coaches who have been working with initiatives in the product lines. We have selected one initiative, the “collaboration rooms”, for our study, which aims to reduce the impact of "silos" in the large organisation and introducing more agile ways of working.

3.1 Data Collection

Data used here was collected from February 2018 to June 2018. We collected data from the case in two stages. For both stages, we asked our contact person in the company to identify people with a variety of roles and opinions who were available during a two-day visit. The interviews were semi-structured, and the interview guide focused on the motivation for the initiative, perceived benefits, perceived challenges, about what they think is happening in these rooms, and about the "core mechanisms" they believe influence the work. Interviews lasted about 25 minutes. The interviews were recorded, minutes of interviews were written during the interviews (2-3 pages per informant). Informants included all roles present in the rooms as well as management roles to gain understanding of the context. Roles involved mostly own employees but also some from external companies and from subcontractors.

In the first stage, we interviewed 19 participants from two collaboration rooms (see Table 1 for overview of interviewees). All three authors were involved in the interviews. We also facilitated two half-day retrospectives with key participants from the two rooms. The retrospectives identified a timeline and issues participants thought was working well, what should be improved as well as suggested ac-

tions on high priority issues. One room focused on end-user experience and the other room on a platform for a core domain. Results from the retrospectives were documented by taking pictures of whiteboards and flip-overs.

We visited the case again in the second stage four months later and conducted another 13 interviews. At this time, the company had introduced a collaboration room for leaders, and we also interviewed participants in this room. Length was also 25 minutes, and the two first authors conducted the interviews. Again, we conducted a retrospective, now also with participants from the platform for a core domain-room.

Stage	Room/context interviews	Roles interviewed
1	Context	Director, IT services, Leader, improvement program, Department leader
1	End user experience room	Facilitator (2), Cybersecurity engineer, Communications officer, Infrastructure, Line manager (2), Product owner, Senior analyst, Service manager, Technical architect
1	Platform in core domain room	Infrastructure (2), System responsible, Line manager, Technical architect
2	Context	Department manager
2	End user experience room	Facilitator (2), Infrastructure, Line manager, Subcontractor
2	Platform in core domain room	Infrastructure (2), Line manager, Service manager, Technical architect

Table 1. Data collection stages, context and roles interviewed (numbers in parentheses indicate how many of the role were interviewed).

3.2 Data analysis

An interpretive approach guides our data analysis process, putting the practitioners' understandings of reality at the centre of our analysis (Walsham 1995). We used an inductive-deductive approach. We started inductively, by doing rapid analysis of the material that were presented back to the case the days following the interviews and observations. We analysed our notes, identified topics, and presented it back to the informants. We took notes of comments given from the case. Following this, all three authors conducted several readings of the interview material and documentation from retrospectives. Collectively, we selected key statements to illustrate a variety of opinions on the core topics investigated. In our analysis we use the principles proposed by Klein and Myers (1999), a key principle of which is the hermeneutic circle. The hermeneutic circle helps to account for the interdependent meaning of the parts (e.g., the participants' understandings) and the whole that they form (e.g., the meanings emerging from the interactions between the parts). We iterated by focusing on the large-scale agile transformation (the whole) and the collaboration rooms (part) in line with the hermeneutic principle (number 1) in interpretive field research (Klein and Myers 1999). We provide the context (principle 2) of the study through background information above. The 30-minute feedback session where all informants were invited verified main impressions of interviews and showed related research on the main findings (principle 3). After these steps we began connecting our findings to theory. We found that the findings illustrated a new way for this organizations to manage boundary work, and we use studies of agile transformation and the trading zone metaphor for abstraction and interpreting these findings (principle 4). We did another round of data analysis, mapping the selected key statements to the trading zone concepts of display, representation, and assembly, as our findings show.

4 Findings: Collaboration Rooms as Trading Zones

The collaboration rooms were part of a large-scale agile transformation initiative that aimed to reduce the impact of "silos" in the large organisation by introducing and spreading more agile ways of working. A facilitator summarised how they wanted to use the collaboration rooms as part of a journey towards more agile ways of working:

> "We are on a cultural journey, and what we really want to achieve is an organisation that works with continuous improvement. Much of this is common sense, but we´re making it systematic. And you have a tool which helps you achieve that."

The principles behind the collaboration rooms were: *i*) they should address themes that matter to many, such as better end user experience of IT solutions, and work conducted in the rooms should have authority to choose and work on particular topics related to these themes, *ii*) the rooms should spur curiosity and invite broad participation, *iii*) they should have a physical manifestation, have enough space, and be facilitated, and *iv)* meetings should be short (15 minutes) and involve the relevant people needed to solve problems. The program to improve IT product customer perception ran the collaboration rooms as an experiment into how to spread agile approaches without reorganising units. As they experienced pros and cons of the collaboration rooms, they iteratively changed how they operated.

In Table 2 below we summarize the key findings related to how the collaborations room operated as a trading zone. The findings are outlined in the following sections.

Trading Zone Construct	Key findings
Display	Several boards rendering work visible to others Joint planning with broad involvement, stickers as reminders of tasks Organisation of work Easier work organisation when all roles present
Representation	Detecting critical issues not already addressed in units Share information between units Identify and fix root causes to problems
Assembly	Facilitator role is key due to overview of problems and solutions Create a structure Facilitators are disengaged from hierarchy, thus enabling them to call on whomever they find relevant for problem solving Creating connections

Table 2. Findings related to trading zone constructs

4.1 Display Practices in the Collaboration Rooms

Display practices are, in a setting with parallel work, used to help staying informed about what work is done by others: This includes rendering work visible to others, joint planning and organising the work.

Rendering work visible to others: The collaboration rooms had several boards showing customer feedback, feedback from product lines, status of tasks, with the purpose of "everyone can see the same picture" (product line manager). A sector leader stated the effect this way: "if you visualise, there is more emphasis on expectations, who is to do the task, how you are to interact in the team".

Digital tools were also used to rendering work visible to those that were not present on site. Videoconferencing equipment were used to include people from other sites in the meetings. Project management tools were used to represent the boards digitally, so that it could be accessed after the meetings and be available to people off-site.

Joint planning of work: Planning is done in front of boards, a product line manager stated that they "have focus during the minutes they are present in the room and make priorities ... you can air challenges there and then, get clarifications in the meeting ... and make decisions faster". In addition, "anybody can put a sticker on the board", meaning that prioritization of tasks and issues to be solved do not have to go through a hierarchical decision process in the organization. Stickers are a reminder of work to be done, as a facilitator expressed it: "the stickers keep staring on us all the time".

Organisation of work: Being in the same room looking at the same artefacts and having relevant roles present makes organising work easier. A sector leader stated that "we have wanted to get a direct dialogue with [a subcontractor] and that the communication should not be through the line organisation. Now, the subcontractor is present in the collaboration rooms".

4.2 Representation practices in the collaboration rooms

Representation practices are used to help different communities represent their ongoing work and solving practical problems. Rather than aiming for shared meanings across units, these practices are concerned with pragmatic problem solving, as outlined below.

Detecting critical issues not already addressed in units: An example of a critical issue is an application that experiences hundreds or thousands of support tickets from users. To ensure that the work in the collaboration room were focused on user needs, one of the collaboration rooms had dedicated "problem managers" that were responsible for monitoring issues addressed to the service desk, as a collaboration room facilitator explained: "If they see a pattern in the requests to the service desk, they group them into a problem record. This is a trigger for the IT department to investigate it. The problem manager prioritises, and we help him get the right people involved to get this solved".

Issues that were addressed in the room could emerge in several other ways as well. New issues would emerge as existing issues were discussed and would become new items for the collaboration room to address. People would also just come by the room and raise issues that were important to address. Factors that determine whether to prioritize it included importance for the end user, if collaboration between different units were required to solve it, and that no other unit is already addressing it.

Share information between units: a key problem-solving mechanism practiced in the collaboration room is to identify, involve and connect relevant stakeholders across units to solve problems. An IT unit manager summarised the challenge:

> "When you have many teams, you need to scale how they connect [across boundaries]. The users experience is that issues fall between two stools, and what do you do then? When you have 10 teams that delivers towards the same objective, and they are different teams within different organisational units. We need to address the interdependencies between the teams, how we can optimise the flow between the teams, and share information between the teams. Get it up on white boards, gather people in one area. It has solved some of our problems, and we solve issues faster than with a more sequential approach".

Identify and fix root causes to problems: To identify and fix root causes to problems with IT solutions, joint problem solving across silos is necessary. A line manager explained how the collaboration room enabled them to work out a problem relating to storage admin-jobs influencing the capacity of applications: "There were storage admin-jobs running, and it directly affected application performance. Earlier, in the Ford model [referring to an assembly line model], we did not see the connections. By sitting together, we know by talking to each other that we can correlate some of the effects. The application guys say: ´yes admin jobs are important, but let's try to time them´"

4.3 Assembly practices in the collaboration rooms

Assembly practices are used to help juxtaposing existing work through modification, reusing prior work, and aligning work through provisional agreements. This is done by referring to, reusing, and aligning the work products of other communities in their construction of interdependent products. In contrast to making joint products, assembly work is juxtaposition of separate elements that relate to and reference each other.

Facilitator role is key due to overview of problems and solutions: The collaboration room is used by different stakeholders and for a broad range of topics of concern, and one or more facilitators are always involved when different communities are gathered to discuss a problem. One participant noted that "Having a facilitator is good. They have given a considerable positive impression. It is good that someone gives an overview and tries to see the whole picture." Thus, facilitators will have an overview of the full batch of problems and solutions and may see connecting links between different communities and teams. A facilitator stated, asked about the role: "It is a little bit more than facilitation, because when you are facilitating you have scope in hand. In this case it is more catalysing, you need to find out your part and create your own backlog."

Create a structure: During a discussion in the collaboration room, facilitators could introduce the work products of other communities if relevant, hence helping different communities get aligned and possibly reuse products. The display practices mentioned in 4.1, such as a generic list of "topics of concern", to do-lists etc., are on display in the room, hence it makes it easier for all participants in the discussion to relate to the solutions that may be possible. One participant noted: "[It is] very important to have a good structure for these collaboration rooms to facilitate collaboration."

Facilitators are disengaged from hierarchy, thus enabling them to call on whomever they find relevant for problem solving: The facilitators' outsider role in the organization enables them to disregard hierarchy and summon whomever they find relevant for solving the problem. They need to assemble the right representatives from the involved communities. Thus, facilitators are key in involving the right people, that being people with decision making authority, to speed up the process of finding solutions. A principal analyst for IT security explained: "…the most impressive thing I have noticed in those rooms, is when a problem is introduced, and the right people get involved, and you can see the problem move. This improves earlier practice when issues could get stuck for months".

Creating connections: Participants note that by using the collaborations rooms they get to know more people in the organization, outside their team, thus being able to call on them if they need to reuse their products or align their work. Hence, connections created using the collaboration room can be used later. One participant noted: "Very nice to have a standardised way of working with the relevant people - on troubleshooting matters that generate a lot of incidents. First, you get to meet new people. Then you know that if you have a problem with this you must talk to that guy. You can more easily identify experts to troubleshoot an issue."

5 Discussion: Towards an Understanding of Collaboration Rooms as Minimum Viable Common Ground

Larger organisations are seeking to increase flexibility and innovation through agile transformation (Fuchs and Hess 2018). While the agile method has been successfully used in relatively homogenous ISD teams and units, agile methods are now used to manage interdependencies between multiple heterogeneous units (such as ISD and business units). Research on coordination in large scale ISD projects and programs has shown that coordination needs change when using the agile method (Dingsøyr et al. 2018a; Dingsøyr et al. 2018b). Integrating non-development functions brings about new challenges, such as dealing with hierarchical management, and strict organisational boundaries (Dikert et al. 2016). Driven by our research questions - how are interdependencies between diverse units managed in collaboration rooms - we have presented findings from a large organisation using collaboration

rooms for addressing some of the challenges related to agile transformation. We find that, contrary to other large scale agile transformations where one aim to change entire organizations and organizational cultures, the collaboration rooms are a more subtle approach to changing how an organization develops its software. Below we discuss how collaboration rooms work as minimum viable common ground to support boundary work between multiple and heterogeneous units working with the agile method.

Minimum viable ground seeks to fit new practices with existing practices

The collaboration room as a minimum viable common ground aimed at mitigating reported challenges in agile transformation such as integrating non-development functions, change resistance, and hierarchical management and organizational boundaries (Dikert et al. 2016). In our case all of these were present. It was challenging to integrate non-development units such as user support, as there was a long tradition for hierarchical management with fixed communication and decision structures to follow between units, and there were silos with little cooperation between them. This is how interdependencies are traditionally managed in large, hierarchical organisations (Barlow et al. 2011). The collaboration room was considered to remedy some of these challenges by introducing representation practices in line with agile principles (Dingsøyr et al. 2018b). We found that critical issues not previously addressed as they did not specifically fall into the responsibility of the existing silos, now were addressed by the introduction of dedicated problem managers. The problem managers' task was to detect critical software issues from users and formulate these in a form that allowed different units to understand them and coordinate their work to solve it. Instead of reorganisation and standardisation within separate units, the minimum viable common ground attempts to fit new shared agile practices with existing practices, while at the same time encourage alignment with the goals and values of an agile transformation (Karlsson and Ågerfalck 2009).

Minimum viable ground allows hierarchical organizations to move around hierarchical decision structures.

As such, the minimum viable common ground aims to facilitate pragmatic problem solving involving diverse units without seeking global agreement on shared practices in the respective organizational units involved (Kellogg et al. 2006). To that end, our respondents highlight the importance of the display practices that make work visible in the physical room. The board in the room allows persons from different units to get a unified understanding of what is being worked on, and the status of the tasks. In addition to people physically present in the room, people attended by videoconferencing. In addition, the boards were replicated in digital project planning tools making them available also after the sessions in the room ended. A key perceived benefit of the display work was that it allowed people from different units to be in direct dialogue without having to go through the established lines of hierarchical communication and decisions. As such is it an example of boundary work (Rolland et al. 2016). The collaboration rooms became a boundary spanning practice, with its boundary objects (such as the board and the digital planning tools) key to achieving a form of standardization that still allows local flexibility in organizational units. As such, the collaboration room as a minimum viable common ground allowed the hierarchical and siloed units to move around hierarchical communication and decision structures, without changing the entire existing organizational structures by design. This is in line with Cao et al. (2009), who argue that agile transformations must find ways to solve the conflict between the flatter decision and communication structures in agile methods and the existing hierarchical organisation structure.

Minimum viable ground is a subtle and iterative approach to organizational change

We find that the minimum viable common ground approach chosen in our case differs from published cases on large-scale agile transformations such as the standardised approach from Ericsson (Paasivara et al. 2018). Collaboration rooms seem like a subtler and more iterative approach by using assembly practices where different units temporarily come together to align work and products across units. We found that collaboration rooms helped in mobilising the right people to solve a particular problem, in a sense working around existing plans and decisions that exist in the organization, making sure that the

pertinent problem at hand is solved. More than standardising on a particular practice across diverse units, it illustrates the "planned agility" paradox from Zheng et al. (2011) and the collaboration room can be considered a form of minimal strategic planning and management to ensure that practices orient towards the organisational goals of becoming more flexible and responsive.

Our study is a qualitative case study and does not come without limitations. Interviews are one of the most important sources of case study information, and they should not be considered as structured queries. While the strength of interviews is insight and that they are providing perceived causal explanations, we should be aware that the weaknesses of interviews as evidence is evident. They can be biased, and they can be reflexive in the way that informants state what the interviewer wants to hear. We had this in mind and used observations and retrospectives for triangulation and presented findings back to the case for verification and clarification.

6 Conclusion and Future Work

In this paper we have begun to formulate the concept of minimum viable common ground as a mechanism for mutual alignment between multiple and heterogeneous units in a large organisation undergoing agile transformations. The case serves as an example of a form of organizational change that is not all encompassing, but rather one where new practice is implemented to solve one of the big organizational challenges, alignment between distinct organizational units. Continued research can help flesh out the finer details of the work in the collaboration rooms that makes them work as a minimum viable common ground. An exhaustive discussion will further contribute to clarifying the benefits and drawbacks of a minimum viable common ground approach to large-scale agile transformation.

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