

Conceptualizing the Agile Work Organization: A systematic literature review, framework and research agenda

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Abstract The ongoing discussion of the Agile Work Organization (AO) in research and practice permeates a multitude of research areas. However, no clear conceptualization of the AO has been provided. In this paper, we conduct a Systematic Literature Review to investigate what constitutes and defines the AO. The SLR reveals three dimensions in the research field of the AO: Strategic, Functional and Operative Agility. These dimensions define the AO through different unique capabilities by influencing and enhancing the overall goal of the AO in adaptation and flexibility. Building up on the insights from the review, we develop proposition which describe the interrelationship between the dimensions and towards the AO. Furthermore, implications for academia and practice as well as a research agenda are provided in order to trigger and guide further discussions and research surrounding the AO.

Keywords: • Agile • Agile Work Organization • Structured Literature Review
• Agility • Framework

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1 Introduction

"Agility" and the "Agile Work Organization" are on everyone's lips right now. This applies to practice and research, which highlight the potential for innovation, sustainability and profitability. The concept of the Agile Work Organization (AO) with increased speed and flexibility is reflected in inconsistencies, overlapping and contradictory definitions, and different and heterogeneous mindsets. In IS-Literature agile information system development methods are discussed and based in dynamic work structures enabling organizations to deliver faster products for customers (Cao, Mohan, Ramesh, & Sarkar, 2013; Rigby, Sutherland, & Takeuchi, 2016). Recognizing these characteristics, IS scholars have analyzed the influence of these methods on firm's strategies, structures, and processes (Cao et al., 2013; Conboy, 2009; Tripp, Riemenschneider, & Thatcher, 2016). Management and organization science focus on the development of a new organizational logic to (re)organize resources and work arrangements in a digital world (Y. L. Doz & Kosonen, 2010). However, little attention has been paid to the question of the constitution of an AO and the relationship between the different research streams. The missing clarity about the exact nature of an AO makes it difficult to appropriately compare, analyze, and discuss the phenomenon. Consequently, we conduct a structured literature review (SLR), drawing on existing AO articles and prior AO studies, to present a framework of the AO, and furthermore provide an explanation, current state and connection between the different components by formulating propositions for the relationships between the different components of the identified AO dimensions.

This paper is organized as follows. First, the methodology is presented. Second, we present a definition and framework of the AO. Third we present the results of SLR, which consists of the identified three dimensions and six components and four propositions, which we identified from management, organization science, and IS literature. Finally, theoretical and practical implications, as well as limitations and prospective areas for future research of this paper are highlighted.

2 Methodology

Our research is a three step structured literature review according to Webster and Watson (2002) with the aim of better describing the area of agility in the organizational context and thus summarizing the relevant knowledge.

Step 1: Keyword-based search: We used a keyword-based peer-reviewed literature research. The first step led to the search terms "*agile*" OR "*agility*". We

applied the search terms to the titles, abstracts and keywords of the publications. For the keyword search we used the academic databases EBSCO BusinessHost, Science Direct and Scopus. We performed the keyword search between March 2019 and May 2019. This step resulted in a total of 23,092 results. In order to reduce these articles to an analyzable number, and at the same time provide not only a comprehensive but also a specific set for our analysis, we focused only on peer-reviewed journals published in IS, management and organizational science outlets in leading A* journals or journals with an impact factor greater than 1.5. After applying this inclusion and exclusion criteria, 198 papers remained. Last, we excluded papers on other topics and papers that only marginally refer to agility by applying the definition provided by Sambamurthy, Bharadwaj, and Grover (2003) p. 245. Ultimately, 36 met all the inclusion criteria and provided us with a first set of papers to be included in the review.

Step 2: Concept-based (forward/backward) search: In addition to the keyword-based search, we conducted a concept-based search using reverse and forward search (Webster & Watson, 2002). For the backward search, we examined the 36 papers for citations from earlier sources and then obtained copies of cited sources that we considered potentially relevant. For the forward search, we looked for later sources that cited the 32 papers. In total, we reviewed 875 papers in this step (762 papers from the reverse search and 113 papers from the forward search). Thus, we identified another 16 relevant papers to be included in the review.

Step 3: Additional literature search: Finally, we have also searched for highly relevant papers, which were not part of the search results in the previous steps. This included collaborating with companies in research and practice, reading reviews and making recommendations from other channels. In total, we have identified another six papers that were not already included in the two previous search forms. In total, our SLR identified 58 papers on agile or agility in the organizational context, including papers on agile or agility as part of a broader organizational use if they provide relevant insights.

The remainder of this paper contains an analysis and review of these 58 papers. Two experienced raters have independently reviewed the paper set using open coding for its content and paid particular attention to attributed characteristics, explicit and implicit definitions and key findings particularly relevant to AO. All authors confirmed the final coding of each article and discussed the coding differences until we reached a consensus; this helped to eliminate individual differences (Bullock & Tubbs, 1990).

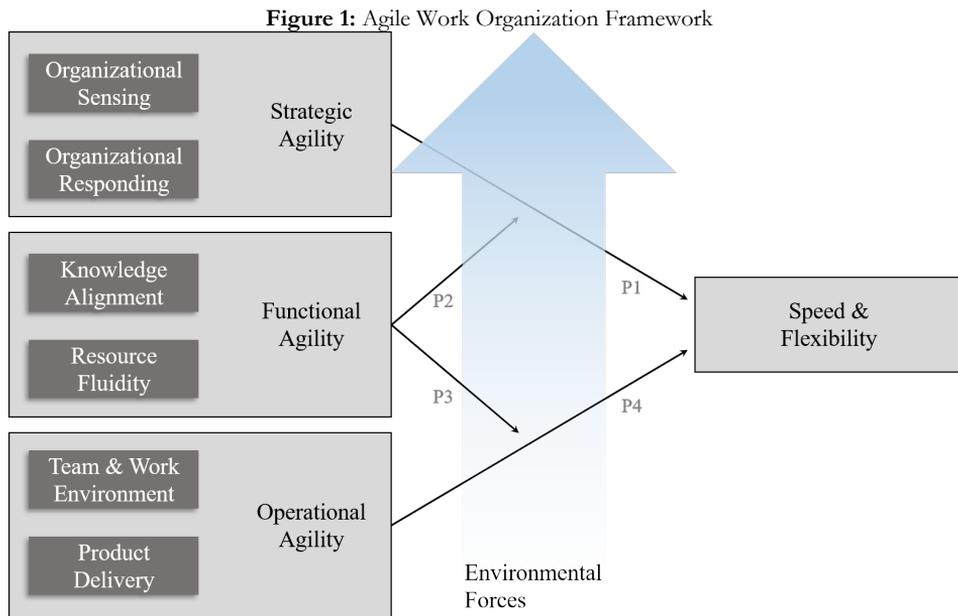
3 Agile Organization definition and framework

As generally useful for an SLR, we use a clear definition of the phenomenon of the AO and a conceptual framework to structure the review. (Rowe, 2014; Vom Brocke et al., 2015). We compared the papers, supported by our own coding, to identify characteristics that can be consistently (across all papers) attributed to the AO. After reviewing the paper set, we were able to refine our definition of the AO to the following:

The agile organization increases its speed and flexibility (a) in fast changing environments (b) by a strategic orientation in sensing and responding, by (c) a functional alignment of knowledge and fluidity of resources (d) and by an operational team & working environment for optimal customer centric product delivery.

The definition of the AO has four components (a–d) according to the set of papers. *First*, the AO is in a turbulent environment of constant dynamic change. *Second*, agility, as in many business decisions, is a strategic orientation of the organization. In our review, we found that sensing and responding are key points for the strategic orientation of an AO. *Third*, the AO must be able to bridge the gap between organizational strategic sensing and operational product delivery. The alignment and the fluidity of resources should be flexible with both dimensions. *Fourth*, agility is on an operational level based on agile methods for the rapid development and implementation of customer-centric products. Figure 1 shows the synthesis of the literature into a framework that allows us to structure the review in a concept-oriented way using important components of the AO phenomenon (Rowe, 2014; Vom Brocke et al., 2009; Vom Brocke et al., 2015; Webster & Watson, 2002). Accordingly, the purpose of the framework below is to support a better conceptual understanding of the AO and to provide a structure for our analysis of the identified papers.

The AO framework has three main components. The “Strategic Agility” component covers critical capabilities of organizations to identify or sense and respond to relevant changes for sustainable business strategies. The “Functional Agility” moderate and align strategic agility with the operational circumstances. Finally, “Operational Agility” component encompasses insights regarding the optimal use of different working systems and product delivery in the right environmental setting. The horizontal arrows indicate the direct and indirect effect of the dimensions on the overall goal of AO. The vertical arrow indicates the environmental forces on the respective dimensions.



4 Analysis

In this section we discuss the state of knowledge about the AO, which is structured according to the conceptual framework depicted in Figure 1. For each component of the framework we first give a definition and then go into detail on individual research directions. Finally, we formulate propositions denoting the effect in each of the dimension and for further research.

4.1 Strategic Agility

We refer to *Strategic Agility* as the ability of organizations to use business processes to achieve *speed, accuracy* and *cost savings* in the exploration and exploitation of innovation and competitive opportunities. (Y. Doz & Kosonen, 2008; Overby, Bharadwaj, & Sambamurthy, 2006; Park, El Sawy, & Fiss, 2017; Sambamurthy et al., 2003). The concept presented by Sambamurthy et al. (2003), which was further elaborated and refined (i.e. (Overby et al., 2006; Park et al., 2017)), identified the ability to (1) *identify* or *sense* and (2) *respond* to relevant changes as critical capabilities of organizations for shaping sustainable business strategies (Battleson, West, Kim, Ramesh, & Robinson, 2016; Overby et al., 2006; Park et al., 2017; Sambamurthy et al., 2003; D. Teece, Peteraf, & Leih, 2016).

Organizational sensing, which itself is defined as the systematic monitoring of environmental change in different areas within and outside of the normal business context (Overby et al., 2006; Park et al., 2017). Sensing requires to simplify

information and to properly take action (Weick, Sutcliffe, & Obstfeld, 2005), by labeling and interpreting the relevant information (El Sawy, 1985). However, capturing the dynamics and context of environmental change involves a social systematic (Weick et al., 2005), where a dedicated knowledge acquisition process of an organization is supported by a strong network of knowledge (e.g. interacting with customers and suppliers). Thus, knowledge conversion into new explicit knowledge opens up pathways for knowledge exchange and promotes knowledge exploitation across different entities, which is important to highlight organizational strengths and weaknesses in light of external environmental changes (Mavengere, 2013). *Organizational Responding* is the decision making process within the organization of consolidating, classifying, and assessing the information collected from various internal and external sources with the goal of understanding the impact of opportunities and threats in order to define an action plan as response to maximize opportunities and minimize threats (Houghton, El Sawy, Gray, Donegan, & Joshi, 2008; Kester, Griffin, Hultink, & Lauche, 2011; Park et al., 2017). The link between organizational sensing and taking action in organizational responding is given by workforce agility and enabled by empowered autonomous teams (Goldman & Nagel, 1993; Van Oyen, Gel, & Hopp, 2001). Building relationship over platforms that increase entrepreneurial alertness within the organization is supportive, as employees are more willing to share their ideas and build on each other's comments and actions (Matook & Maruping, 2014).

In the following, we can summarize the previous explanations on the proposition P1: Strategic Agility positively influences the speed and flexibility of organizations through organizational sensing and responding.

4.2 Functional Agility

The functional agility underlies two abilities (1) the alignment of knowledge and (2) the fluidity of resources to enable the strategic and operational side of an organization to co-evolve through joint optimization and adaptation (Vessey & Ward, 2013; Vidgen & Xiaofeng, 2009).

Knowledge Alignment is a product of shared knowledge and understanding between individual business units (Kearns & Lederer, 2003; Preston & Karahanna, 2009; Reich & Benbasat, 1996; Roberts & Grover, 2012). A proactive and dynamic view of corporate direction ensures continuous learning and renewal to avoid competence traps and enable co-evolution between business units (Vidgen & Xiaofeng, 2009). Organizations with a progressively adaptable knowledge alignment enable business units to benefit from both tacit employee knowledge

and explicit organizational knowledge. Thus, it enables organizations to create new promising business opportunities and increase business value in the face of environmental change (Anand, Coltman, & Sharma, 2016).

Resource fluidity denotes an organizational internal ability and integral component to redeploy resources timely in response to change (Y. L. Doz & Kosonen, 2010; Paul P. Tallon & Pinsonneault, 2011). Resource fluidity is needed by all stakeholders to develop an informed and coherent transformation strategy, which has the capacity to respond to required product and business model adjustments (Mavengere, 2013). However, aligning strategic and operational agility requires embedding IT in critical business processes to enable rapid response to process changes (Paul P Tallon, 2007). The basic consideration is to align or expand the existing resources as efficiently as possible (Oh & Pinsonneault, 2007) by trying to mitigate the general tension between long-term commitment of resources with the current strategic orientation of agility (Kelly & Amburgey, 1991). Resource fluidity-induced exploitation and exploration of important organizational resources stimulates innovation and adaptation between strategic and operational alignment of business processes (Gupta, Smith, & Shalley, 2006; He & Wong, 2004; Kraatz & Zajac, 2001). As outlined Functional Agility moderates the effect of the Strategic- and Operational Agility on Speed and Flexibility and enables us to formulate the following two propositions:

A higher degree of knowledge alignment positively impact Sensing and Responding (P2). The higher the degree of resource fluidity, the greater the impact on faster customer-oriented product delivery (P3).

4.3 Operational Agility

Acting on environmental change is the reconfiguration of resources to adapt business processes or to redesign the organizational structure in such a way that the customer quickly receives added value (Augustine, Payne, Sencindiver, & Woodcock, 2005; Daft & Weick, 1984; D. J. Teece, Pisano, & Shuen, 1997).

The *Team & Environmental* ability denotes the optimal and effective use of applied work techniques, which influences various factors such as structural characteristics, IT, mindset, work characteristics, organizational context and interaction style, employee empowerment, knowledge and experience (Augustine et al., 2005; Cao et al., 2013; Mangalaraj, Mahapatra, & Nerur, 2009). Highsmith (2009) therefore argues that decentralized decision-making in an autonomous team is a core element of agile work (Augustine et al., 2005; Boehm & Turner, 2003). And, in which team members are able to make decisions on the best information available

(McAvoy & Butler, 2009; Tata & Prasad, 2004; Vidgen & Xiaofeng, 2009). Literature suggests that the internal diversity of a team (e.g. age, gender, education, etc.) should match the diversity and complexity of its environment (Goh, Gao, & Agarwal, 2011). Sharp and Robinson (2004) discovered that high performance teams work effectively in a tight, informal environment. *Product Delivery* as another ability, focus on "customer agility" on the product development level. Customer agility places particular emphasis on agile development methods, which in turn strengthens the agility of the product delivery (Maruping, Venkatesh, & Agarwal, 2009). Agile methods require a product environment in which developers can dispense plan-driven development processes and quickly integrate product components desired by customers (Harris, Collins, & Hevner, 2009; Maruping et al., 2009; Shihao et al., 2018), but also allow organizations to monitor, change and improve production processes in real time (Harris et al., 2009). The results indicate that the dynamic performance of an organization has a significant positive impact on the operational processes of the work units that design, manage and implement new products. And, agile workflows allow organizations to monitor, change and improve production processes in real time (Harris et al., 2009).

Hence, operational agility positively influences speed and flexibility through optimal customer-centric product delivery (P4).

5 Conclusion and Implications

In this paper, we conducted a literature search to investigate and identify important dimensions and components of the AO. In total, the SLR showed three research dimensions: Strategic Agility, Functional Agility and Operational Agility and four proposition within our presented framework.

Within our presented framework we present the different components within each dimension, and additionally the relationship and dependencies of each dimension to the overall goal of Speed & Flexibility within the AO. The outlined four propositions (P1-P4), which denote the currently missing links between the identified research dimensions allow scholars to identify within the different dimensional level the impact on Speed & Flexibility on AO.

The **theoretical implication** of this paper is the clear definition and conceptualization of the novel phenomenon of AO and a comprehensive overview of research results and findings relevant to the AO. The review enables a clear conceptualization of the AO in (1) Strategic Agility, as the company's ability to capture environmental impacts and develop a concrete, overarching organizational response strategy, (2) Functional Agility, as the ability to mediate between strategic

and operational agility with the alignment of knowledge and the fluidity of resources to enable rapid action with the necessary resources, and (3) Operational Agility, the ability to make optimal use of working methods and environment to deliver fast customer-focused products. In our developed framework, we present the different components within each dimension, as well as the relationship and dependencies of each dimension to the overall goal of Speed and flexibility within the AO. The four developed propositions (P1-P4) describe the direct influence between the dimensions and on the AO as a whole. This allows scientists to identify and describe the effects on speed and flexibility on AO within the different dimensions.

The **practical implications** of our work results are of high relevance for a successful transformation towards AO. However, the transformation process is limited if organizations do not take a balanced approach within the agility dimensions. Our presented framework can help practitioners to plan and classify their transformation intentions and to evaluate the impact of the implemented objectives. In addition, it allows to identify areas where improvements can be made to support the overall agility initiative. In particular, the identification in the interaction of the individual dimensions through the presented propositions can help practitioners to identify problem areas and blind spots.

6 Limitations and Research Agenda

Despite our attempt to rigorously analyze the identified literature on AO, this SLR has several limitations. First, the scope of the SLR is not completely exhaustive in all areas of AO. In addition, the selection of relevant papers is a process that involves subjective judgement. Finally, we limited the initial keyword search to titles, abstracts and keywords to ensure that the keywords appear close together in the text, as we were interested in the interaction of different components in the AO.

A prospective area for further research may aim to analyze the relationship, relative importance, interactions and appropriateness in different contexts between the different strategic agility characteristics of the AO. This means which way and configuration of strategic agility and which parameters are best suited for certain circumstances and how can these be achieved and measured? Functional agility was a particular focus of research (Kwon, Ryu, & Park, 2018; Mavengere, 2013; Vessey & Ward, 2013). Despite extensive research, no general model was identified that would motivate to close the gap between strategic and operational agility. Particular aspects in the area of resource redistribution and knowledge

management were addressed (Kearns & Lederer, 2003; Preston & Karahanna, 2009; Reich & Benbasat, 1996; Roberts & Grover, 2012). However, there is no clear overall link to the individual components to the other dimensions of the AO. Particularly in the area of strategic agility, the connection between essential resources and the resulting advances in knowledge in sensing needs is missing. In addition, some of the mechanisms mentioned above are not sufficiently understood in operational agility. We do not know much about the process of transforming companies into agile practices and how it can be mastered. Future research must examine how companies proceed or could proceed to define the conditions in which agile practices can be successfully implemented. A better understanding of this process will also help us to understand what kind of work in its nature can be optimally replaced by agile forms of work and can contribute positively to business success. Another relevant question that has not yet been researched is the measurement of the AO's objectives and their short, medium and long-term effects. Concepts for measuring and benchmarking organizations and in-depth longitudinal studies could shed light on the effects of the AO, including its less obvious and long-term effects on topics such as corporate climate and culture, innovative strength, business value, and profitability.

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