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Becoming an Agile Organization: Development of a Morphology for Strategic Agile Management Systems

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Abstract. Driven by different trends, such as digitalization, the number of companies aiming for successful business transformation is increasing, while new structures and systems are paving the way. Strategic agile management systems offer significant potential benefits given the increasing speed of the evolving environment in which organizations find themselves these days. To select and implement the appropriate strategic agile management system, companies need to understand the underlying theoretical principles to be able to select the most suitable for the respective company and to introduce it based on individual adaption. Within this paper, a morphology is presented to improve theoretical knowledge about strategic agile management systems. Creating a common understanding of strategic agile management systems and their current areas of application creates a suitable frame of reference for future research projects.

Keywords: Strategy, Agile Management Systems, Morphology, Taxonomy.

1 Introduction

1.1 Initial Situation and Relevance of the Topic

Ongoing globalization and digitalization are confronting companies with an environment that is becoming increasingly dynamic. The speed and unpredictability of the corresponding conditions in question are shaping the dynamics of the economic environment. While the socioeconomic framework presents itself as volatile and complex in ambiguous interdependencies [1], the controversy over how to respond appropriately to the uncertainties is becoming a constant presence. The onset of digitalization at the beginning of the new millennium caused a profound paradigm shift [2], which has become even more pronounced in recent years due to the Covid-19 pandemic [3]. Organizations that operate in an agile manner are sensitive to change, with a framework for continuously identifying adjustments. Hence, a key component in this process is the need to transform into an agile organization that enables agile development, planning, and implementation of the organization's internal objectives and orientation [4]. The organization's strategy provides a long-term path to ensure the organization's economic

success [5]. Conventional strategic management systems are not capable of the fast decision-making and action capability that is required and are pushed to their limits when it comes to meeting the need for responsiveness [6]. Structures and processes that incorporate the dynamic environment in an agile manner must be implemented to achieve the strategic goal. Strategic agile management systems provide the framework and foundation for successful collaboration in organizations through shared strategic alignment.

1.2 Object of Study

An intensive examination and introduction of the strategic agile management systems suitable for the organization is an indispensable approach to becoming an agile organization. To select the most suitable strategic agile management system, the various approaches and their theoretical foundation need to be analyzed and evaluated in a systematic way. This paper aims to provide a fundamental understanding of the underlying theories from an empirical perspective using a unified reference base. Approaches are identified and researched for this purpose using a systematic literature search. Articles from science and practice are described, highlighting the research gap. This allows to uncover commonalities and differences between existing approaches and to draw a holistic picture of the current state of research. The relevant features and corresponding characteristic expressions are summarized in a morphology. Based on the developed morphology it will be possible to distinguish strategic agile management systems on a shared base. This represents the starting point for increasing the integration level and the coalition type of the organization using common goals and joint identities for collaborative networks. Based on the above discussion, the objective of the paper is to answer the following research question:

What are the relevant features and characteristics that differentiate strategic agile management systems applied in practice on the theoretical foundation?

2 Relation to Existing Works and Theories

2.1 Definition of Strategic Agile Management Systems

Agility is a concept that originated in the field of software development and represents a contrarian approach to the classic planning methods. Being agile is the dexterity or mobility of organizations and people as well as structures and processes [7]. It contradicts the linear and sequential approach, where individual steps are executed one after the other [8]. Furthermore, a management system is defined by its sub-components management and system [9]. Its related system thinking is seen as a discipline for examining holistic patterns of change and interrelationships rather than static moments in time [10]. Systems thinking is widely seen as critical to managing the complexity that confronts the world in the present [11] by defining systems with respected sub-systems

thus making them manageable in the first place. The successful implementation of the organization's strategy ensures long-term survival in the market and the sustainable achievement of corporate goals [12]. Strategic agile management systems are therefore characterized as a system for the agile implementation of corporate strategies as a multidimensional relationship from initial actions and plan to the final success through target fulfillment. An organization's management system can address a specific function as well as an entire organization.

2.2 Theoretical Differentiation of Strategic Agile Management Systems in Use

To create a morphology for the evaluation of practically relevant strategic agile management systems, the systems used in practice are first identified. The different strategic agile management systems applied in the field represent the object of study to identify relevant features and characteristics in the further course of the study. Based on the definition of strategic agile management systems given in section 2.1, agile management systems that address and actively incorporate the design of the strategy are considered below. Neither agile management systems nor methods focusing on the operative implementation will be considered.

Among the pioneers of modern management, the theory is Drucker [13], who presented *Management by Objectives* (MbO) as a holistic approach to the strategic implementation picture. By translating business goals into personal goals for each employee through the direct link between top-level strategy and lower-level operational strategy a blueprint for multiple modern strategy agile management systems was built. Since the early 1990s, the *Balanced Scorecard* (BSC) has been based on the challenge of breaking down strategic objectives to the individual levels of an organization in the form of measurable indicators [14]. The *Objectives and Key Results* (OKR) approach is a continuous process that manifests itself through cyclical goal setting, assessment, and commitment to annual targets [15], built on the idea of MbO. Developed by Benioff and Adeler [16], the *Vision, Value, Methods, Obstacles, Measures* (V2MOM) approach specifically addresses the optimization of goals and strategies and promotes the alignment of an organization [16] and presents a further approach. The *Agile Objectives, Goals, Strategies, and Measures* (OGSM) typically align an organization for up to five years, addressing intra-organizational transparency and interdisciplinary communication [17]. It forms a strategic agile management system designed to guide companies in forcing an overall organizational alignment and linking long-term visions and strategies with short- and medium-term goals and measures [18]. Inspired by MbO, the *Hoshin Kanri* (HK) approach provides a transparent and measurable approach that aligns the continuous improvement cycles to force the agility of an organization [14] and achieve breakthrough goals as annual targets at the lower levels [19]. Finally, *the 4 Disciplines of Execution* (4DX) is the most recently developed approach, in which operational tasks focus the attention of managers on monthly and quarterly targets to achieve strategic goals [20]. However, this approach does not encompass all dependent elements of an organization, as only parts of the organizational environment are considered.

The approaches listed above form the common basis for a coherent comparison. In practice, the choice of selecting a strategic agile management system is based on the company's orientation, the skill set of the employees, and the target system. Choosing the suitable strategic agile management system is challenging for companies, as the theoretical basis is the starting point for the implementation and individual adjustment in the practical application.

3 State of the Art

3.1 Process of Literature Review

The conducted systematic literature review illustrates the relevance of the morphology, as a key element. Based on the cumulative approach, new knowledge is generated by interpreting and combining existing knowledge [21]. The literature review process is understood as the synthesis of a subject area that supports the identification of different research questions [22]. Both the validity of the search process and scientific rigor are central to the discovery of relevant sources and the reproducibility of the search process [21]. Implementation of this process is achieved by retrieving information from scientific databases [23], following the research process according to vom Brocke [21].

3.2 Results of the Literature Review

Within the scope of this research, the process is composed of a systematic literature search in three online databases as well as a keyword search and a forward-backward analysis [23]. The broad spectrum of scientific publications was covered using the three online libraries Scopus, Springer Link, and IEEE Explore, to support the identification of relevant works for the development of the morphology. Table 1 shows the selected queries that ensure the reproducibility of the systematic literature search. additional search strings were examined to identify further approaches. To identify related concepts, the search term "taxonomy" was added to the term "morphology".

Based on the identified queries, 158 publications were identified that offer a wide range of contributions on the topic. A review of the literature shows an absence of a morphology of strategic agile management systems based on their underlying theory. On the one hand, the papers cover a systems-based approach for organizations to achieve greater adaptability and thus agility yet provide little focus on the agile implementation of strategy [24–26]. On the other hand, specific fields, such as increasing the innovation capability of the R&D department [27], packaged enterprise systems [28], or a service-oriented portfolio [29], are explored in detail.

Table 2. Queries for the systematic literature review

Data Base	Queries	Number of publications
Scopus	TITLE-ABS-KEY (strategic AND agile management AND system AND taxonomy OR morphology)	16
Springer Link	"Strategic" AND "Agile Management" AND "System" AND ("taxonomy" OR "morphology")	116
IEEE Explore	("Abstract":Agile Management) AND ("Abstract":Strategic) AND ("Abstract":System) OR ("Document Title":Agile Management) AND ("Document Title":Strategic) AND ("Document Title":System) AND ("All Metadata":Strategic Agile Management Systems) AND ("All Metadata":taxonomy OR "All Metadata":morphology)	26

The characteristics generally show overlap. However, they do not cover the entire complexity of implementing corporate strategy through strategic agile management systems. This underlines the importance of the research question addressed above. Hence, this paper offers additional insights for science and practice through the aggregated view of strategic agile management systems based on the theoretical framework. Collaboration in Society 5.0 can be deepened by strengthening the collaborative approach through the alignment of a shared understanding of strategy.

3.3 Research Approach: Morphology Development

To answer our research question, the paper strives for the development of morphology. A morphology is concerned with the structure and arrangement of parts of an object and is applied to provide conceptual guidance to the research object [30]. To develop the morphology, the authors apply seven steps with a focus on the empirical-to-conceptual approach from Nickerson et al. [31]: 1) define meta-characteristics, 2) determine ending conditions, 3) decide on an empirical-to-conceptual or conceptual-to-empirical approach, 4) identification of sub-set of objects, 5) identification of common characteristics, 6) grouping of characteristics and 7) test for ending conditions. Based on the step-by-step approach of Nickerson et al [31], the morphology was designed using the empirical-conceptual approach.

4 Morphology Development

Based on the strategic agile management systems in use, eight different features and corresponding characteristics were identified to describe strategic agile management systems. Concerning the underlining theoretical framework and other authors in this field, the features and characteristics are explained below (see Figure 1). The morphology forms the basis for the systematic analysis and the selection and comparison of the

various strategic agile management systems regarding the theoretical foundation. The morphology unfolds its potential in its holistic form, with the core lying in the combination of the features and characteristics. Interaction and interdependencies must be considered in the overall context.

Features	Characteristics		
Superordinate focus	Purpose, Vision, Mission, Strategy		Strategy
Incentives for employees	Intrinsic motivation		Extrinsic motivation
Level of objective-precision	Personal level	Team level	Corporate level
Structure of the goal-setting process	Top-Down		Sideways (Top-Down und Bottom-Up)
Reflectionprocess of attainment	All levels		Executive level
Risk propensit of objective setting	Ambitious	Risik-averse	Nonspecific
Type of objective setting	Qualitativ	Quantitativ	Combination of qualitativ and quantitativ
Time dimension	Specific		Nonspecific

Fig. 1. The strategic agile management system morphology

(1) Superordinate Focus

The corporate strategy determines the direction of the company's actions. Based on the differentiation between strategy definition and strategy [32], there are two ways in which strategic management can derive the objectives. On the one hand, the derivation of purpose, vision, and mission, the strategy is understood as an overall picture. On the other hand, the defined strategy exclusively serves as the starting point for implementing in an agile way. The strategic agile management system is structured on an overall understanding, which is mutually dependent [16, 33].

(2) Incentives for Employees

There are two ways in which the agile management system can enhance the motivation of employees in their day-to-day work. Firstly, the system can be extrinsically motivated, usually driven by direct monetary stimuli [34]. Secondly, employees can be incentivized using intrinsic motivation. Additionally, such participation reduces the uncertainty of one's role and, consequently, the commitment to the organization [35].

(3) Level of Objective-Precision

The degree of detail in the specification of objectives is broken down to different levels in the organizational structure. A greater level of detail can increase employee loyalty and commitment [36]. The theories examined above break down the goal definition based on a tree structure from the corporate level [14] through the team level down to the personal level [15, 17]. A strategic agile management system theory deviates here from the practice implementation and is frequently adjusted in practice [37].

(4) Structure of the Goal-Setting Process

The goal-setting process is based on the organizational levels, with the corresponding theories distinguishing between the two approaches. On the one hand, a top-down approach is chosen, which focuses on reflection processes within the organizational level [14]. On the other hand, the top-down approach is extended by a bottom-up reflection [15, 33]. Although the MbO approach forms the starting point for the reflection, the feedback is not reflected explicitly at higher levels. In later approaches, this extension was actively integrated [20].

(5) Reflection process of Attainment

The reflection process of attainment is related to the structure of the goal-setting process, given the degree of participation in the reflection. Transparent communication at all levels leads to a great expenditure of resources. In addition, collaboration reduces the uncertainty of one's role and, as a result, commitment to the organization [35]. If synchronization takes place at the management level, implementation is leaner due to fewer communication channels. At the same time, less employee involvement reduces the level of self-commitment.

(6) Risk Propensit of Objective Setting

Essential for identifying with the organization is an intensive examination of the organizational goals, which does not occur with a simple distribution of tasks [38]. Objectives should be defined distinctively and explicitly, leaving no uncertainty for misinterpretation by the individual. The scientific literature shows a consensus on the benefits of defined specific goals for performance and goal commitment [39, 40]. Individual theories examine the definition of goals in greater depth and can be divided into ambitious and risk-averse objectives.

(7) Type of Objective Setting

The objectives defined in strategic agile management systems can be distinguished between qualitative and quantitative objectives [41]. This distinction arises in the precise terms of definition and may differ in individual details. Quantitative objectives are understood as objectively measurable goals, while qualitative objectives are understood as difficult to measure and quantify directly. With qualitative objectives, transferred criteria are usually used to achieve measurability [33]. By combining qualitative and quantitative goals, subjectivity can be reduced without excluding subjects [16, 20].

(8) Time dimension

The agile management system is characterized by flexible adaptation to the dynamic environment, with tasks being aligned in different time segments. The length of these cycles or segments is specified or is determined individually and therefore nonspecific. Predefined cycles or periods are usually quarterly [15, 20].

Collaboration in Society 5.0 is focused differently on the individual features and corresponding characteristics. the example of Level of Objective-Precision shows that breaking down the strategy to team level challenges collaboration in a different way than it does to the personal level. the insights of the morphology support the targeted selection of the strategic agile management system, considering collaboration in society 5.0.

4.1 Visualization of OKR Morphology

Based on the example of OKR, the suitability of the theoretical principles can be examined for an organization. For visualizing the proposed model, the strategic agile management morphology is applied to describe OKR (see Figure 2).

Features	Characteristics		
Superordinate focus	Purpose, Vision, Mission, Strategy		Strategy
Incentives for employees	Intrinsic motivation		Extrinsic motivation
Level of objective-precision	Personal level	Team level	Corporate level
Structure of the goal-setting process	Top-Down		Sideways (Top-Down und Bottom-Up)
Reflection process of attainment	All levels		Executive level
Risk propensit of objective setting	Ambitious	Risik-averse	Nonspecific
Type of objective setting	Qualitativ	Quantitativ	Combination of qualitativ and quantitativ
Time dimension	Specific		Nonspecific

Fig. 2. OKR described in the strategic agile management system morphology

According to Doerr, the OKR approach not only specifies which goals are to be achieved but also how these goals can be achieved [33]. The OKR approach starts with the strategy, which is derived from the overarching mission, vision, and purpose using a pyramid structure. Breaking down the objectives and key results from the purpose paves the way for intrinsically motivated employees who can assign the daily work to the overarching picture [15]. Based on the OKR theory, objectives and key results are broken down from the corporate level to the team level and down to the individual level. To implement these, the structure of the goal-setting process is first mirrored top-down and then mirrored bottom-up with the inclusion of employee feedback in a V-shape. This encourages transparent communication at all levels, with ambitious goals targeted using so-called moonshots [15]. The objectives and corresponding key results are broken down into quarters [33] and determined in an agile manner quarterly. Qualitative objectives are broken down into key results, which are measurable and quantitative [15]. Using the example of OKR, the model's successful use along the features and characteristics is visualized.

5 Conclusion

In this paper, we have shown that for the purposeful selection and implementation of strategic agile management systems, a distinction based on their underlying theoretical foundation is required. By conducting a systematic literature review, it was determined that there is no systematic overarching model that differentiates strategic agile

management systems based on the theoretical foundation. Therefore, a morphology was developed using features and characteristics to close the research gap and answer the research question, what are the relevant features and characteristics that differentiate strategic agile management systems, applied in practice on the theoretical foundation are. The morphology contains eight features with corresponding characteristics. Based on the theoretical foundation, the morphology provides the foundation for the systematic analysis and comparison of the different strategic agile management systems. As a result, the core of morphology lies in the combination of the characteristics and properties in their holistic form, interdependencies being considered in the overall context. The application of morphology was exemplified by the strategic management system OKR

One major advantage of the model is its expandability to include potential new strategic management systems in use by extending the characteristics of the morphology without great challenges. Furthermore, the extension of the characteristics to include the company-specific adaptation of the strategic agile management systems provides a perspective for further research e.g., the bottom-up structure of the goal-setting process may offer a characteristic that is necessary for practice.

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