Article

Enterprise Servitization: Practical Guidelines for Culture Transformation Management

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Abstract: We propose a framework based on ADKAR (awareness, desire, knowledge, ability, and reinforcement) with guidelines to manage the organizational culture change required for servitization—the transition of a company towards a product–service system (PSS) business model that provides cohesive delivery of products and services, increasingly supported on digital technologies. We departed from a systematic literature review across five academic databases, covering human and technological aspects, that confirmed corporate culture as one of the pillars of a successful transformation, along with relevant factors to account for. The results of this work have both theoretical and managerial implications. Companies can apply the framework to support planning implementation strategies that require a corporate mind shift. Finally, we identified directions for future servitization research.

Keywords: servitization; enterprise culture; PSS transformation; culture management

1. Introduction

In 2021, services represented more than 73% of the Gross Domestic Product (GDP) in the United States and the Euro area [1], and in 2019 they were responsible for 71% of the European Union's total jobs [2]. Since products became a commodity, providing services is a new way for enterprises to generate value, in a move called servitization or product–service system (PSS) [3]. Within this context, research in Service Science Management and Engineering (SSME) is growing in relevance [4]. Servitization is the process that supports the organizational operating changes to create value disruptively [5]. It is defined as the shift towards the PSS process and the organizational transformation it causes [3,6,7]. PSS can be classified as product-oriented, use-oriented, or result-oriented [8]. A few authors also discussed the sustainable product–service systems (SPSS) concept. They referred to sustainable design creation regarding the environment and resource use [8–11]. PSS are important vehicles to simultaneously increase competitiveness and foster sustainability [12]. They are estimated to have a lower environmental impact than other business models [13], as increasing the customer value by means of services instead of physical products reduces the consumption of raw materials [14]. That said, studies show that benefits are also possible across economic and social sustainability [15,16].

The PSS approach involves a business model that combines products and services as a deliverable. Researchers have studied it in the last few decades [17,18]. All the papers we analyzed indicate that organizational culture plays a significant role during servitization. Some authors cite organizational culture as one of the essential factors of success [18,19]. Furthermore, the IT department in an organization is an essential enabler of digital business models that focus on services [20].

The organizational culture concept is well discussed by relevant authors such as Erasmus and Weeks, 2012. However, only a few authors established a taxonomy of organizational cultures for servitization [18]. Individual autonomy, structure, support, identity, performance reward, conflict tolerance, and risk tolerance are the main characteristics of the organizational culture [21]. Authors argue that "*unless you change the way people think and act in relation to*

offering clients services as opposed to products, you have in effect changed very little" [4]. This implies that culture transformation relies on managing the human aspects related to the servitization strategy [4]. In this context, we conducted a systematic literature review focused on the corporate culture change to support managing the servitization process.

Leadership must be prepared to implement a servitization strategy effectively [6]. Managers are responsible for identifying opportunities and resources, leveraging the team's skills, managing knowledge, and generating revenues [6]. Erasmus and Weeks (2012) state that "*servitization entails a very fundamental change in thinking at all levels within an institution as to the way that things have traditionally been done*" [4]. One of the managers' roles is communicating at each level and reinforcing the corporate culture needed to realize the strategy [17]. In order to achieve this goal, organizations need to align the servitization strategy with the strategic projects [21].

The literature defines a corporate mindset as a pattern of common beliefs, symbols, attitudes, or assumptions shared by a group that can be changed over time [7]. Thus, we may explore how to build a mind shift in enterprises to support a service-oriented model. A collection of different theories grounds the complexity of organizational transformation. The literature emphasizes that the importance of corporate culture is aligned with the service-oriented model. However, little is mentioned about how companies should promote this change [19]. By considering the influence of corporate culture on organizational transformation and the relevance of service orientation in a global economy, our research objectives are:

RO 1: To propose a framework to support the change of enterprise culture;

RO 2: To identify processes, insights, and initiatives presented in the extant literature to drive the successful implementation of a PSS model.

The guidelines explored by researchers were consolidated into a proposed framework to support enterprises during the PSS process.

The remainder of this paper is structured as follows: first, we describe the research methodology. Then, we present the results of the data visualization and analysis of the literature review segregated by servitization, corporate culture, and guidelines for transformation. Next, we propose and discuss a framework to support the change in enterprise culture. Finally, we provide a conclusion with key contributions, research and managerial implications, limitations, and future research avenues.

2. Research Methodology

We performed a systematic literature review (SLR) to understand how to change organizational culture to a service mindset. We choose this approach to build a foundation for advancing knowledge related to corporate cultural transformation. We conducted the review as proposed by Webster and Watson, 2002 [22], considering the formulated research objective.

The search expression originally chosen was (("service design" or "servitization" or "servitisation" or "service-oriented") AND ("culture" or "mindset")). However, preliminary searches in Google Scholar indicated that "product-service systems" and "cultural" or "mindfulness" or "mind" or "design paradigm" or "barriers" were also relevant. Consequently, the final search expression adjusted with these insights is:

(("product-service systems" OR "service design" OR "servitization" OR "servitisation" OR "service-oriented") AND ("cultural" OR "culture" OR "mindfulness" OR "mind" OR "mindset" OR "design paradigm" OR "barriers")).

We performed the search in five scientific databases, aiming for comprehensive coverage of publications (EBSCO, AISeL, ScienceDirect, IEEE, and ACM). We executed the search from the last week of December 2019 until the first week of January 2020. The inclusion criteria are conference and journal papers, in English, in PDF format, and published since 2011, the date of the influential paper by Dirk Snelders about the relevance of technology in service design [23].

The initial full-text search returned 13049 entries. We performed a second step using the same keyword combination to fine-tune the results but restricted to the title, abstract, and keywords, resulting in 274 entries. Next, we eliminated six duplicates and analyzed the title and abstract of the other articles, excluding 242 papers because they used the search

terms in an out-of-scope context. Finally, we read the full text of the remaining 21 articles in detail. Figure 1 represents the search process.

Figure 1. Steps of the search process.

We identified, in the SLR, three other papers that are also literature reviews [3,9,10]. The first focused on comparing organizational transformation focused on data and analytics. The second and third papers were related to sustainable product–service systems (SPSS).

A recent study argues that "the question why some companies are successful with their servitization while others fail has not received a conclusive answer" [19]. We focused on the structural pillar—culture—to contribute to this gap in the literature.

Building on the outcomes of the SLR, we developed a framework using the ADKAR (awareness, desire, knowledge, ability, and reinforcement) model [24]. That can guide enterprises through cultural transformation to implement a successful service model.

3. Data Visualization and Analysis of Literature Review

The topic's relevance over the years is demonstrated in Figure 2a, showing a higher interest during 2011, 2012, and 2019. Figure 2b shows that most (85%) articles have been based on qualitative research. In addition, successful PSS transitions are cited in 38% of the identified papers.
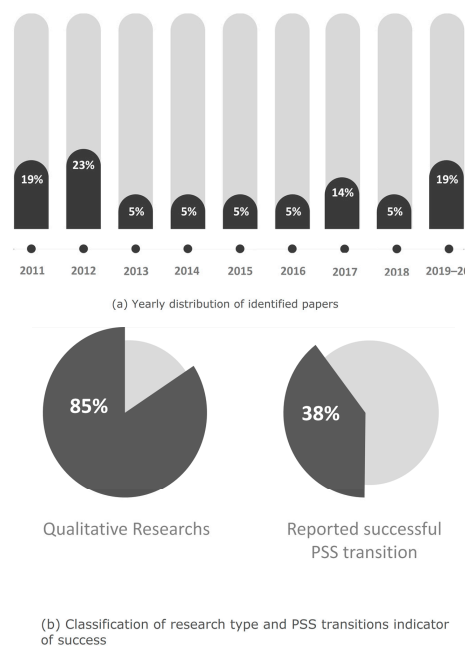

Figure 2. Data analysis for selected papers.

Table 1 shows the selected papers classified in terms of the year, type of research (e.g., qualitative, quantitative, or both), and type of organization (e.g., technology industry, manufacturing). It also shows if the article reported a case study (yes or no) and how the PSS transition occurred (success, failure, or both—for papers describing multiple cases). Finally, we provide a brief context for each article.

Table 1. Classification of identified papers.

Ref	The Context of How Servitization Was Implemented	Year	Type of Research	Type of Organization	Case Study	PSS Transition
Ho et al., 2011 [6]	Conceptual model and a framework to support service innovation and the need to transform the entire organization.	2011	Qualitative	Technology Industry	No	Not specified
Weeks and du Plessis, 2011 [21]	Business model developed for a servitization environment and investigation of the influence of organizational culture.	2011	Qualitative	Manufacturing	Yes	Not specified
Luo, 2011 [25]	Analysis of the people's relationship, scene, process, and touchpoint in service design.	2011	Qualitative	Not specified	Yes	Success
Li et al., 2011 [26]	The industry's service-oriented culture influences factors based on Tianjin's survey data.	2011	Qualitative	Not specified	Yes	Not specified
Ahamed et al., 2012 [17]	Influence of organizational factors to assist the implementation of firm servitization strategy.	2012	Qualitative	Electronic Industry	Yes	Not specified
Erasmus and Weeks, 2012 [4]	A complex adaptive systems perspective is proposed for managing the human aspects of the servitization strategy.	2012	Qualitative	Technology Industry	Yes	Not specified
Harmon & Laird, 2012 [27]	Service-transition process for high-technology product companies.	2012	Qualitative	Technology Industry	Yes	Success
Aier, 2012 [28]	Design problem of establishing service orientation in organizations in its design dimensions.	2012	Quantitative	General	No	Not specified
Schumacher, 2012 [29]	Personal experience on customer mindset from a management consultant.	2012	Qualitative	Manufacture	No	Not specified
Ceschin, 2013 [9]	Critical factors which contribute to the successful implementation of eco-efficient PSSs.	2013	Qualitative	General	Yes	Success and Failure
Dubruc et al., 2014 [30]	The corporate culture required during servitization through changes in practical, behavioral, and intellectual habits.	2014	Qualitative	SMEs	Yes	Failure
Lienert, 2015 [18]	An analysis of the organizational culture within servitization will be introduced.	2015	Qualitative and Quantitative	Technology Industry	Yes	Not specified
Hosono et al., 2016 [31]	Conceptual service design by assimilation of service modeling methods into conventional design practices of ICT systems integrator.	2016	Qualitative	General	Yes	Not specified

Table 1. *Cont.*

Ref	The Context of How Servitization Was Implemented	Year	Type of Research	Type of Organization	Case Study	PSS Transition
Schuritz et al., 2017 [3]	Organizational transformation and guidance on how to address transformation regarding the utilization of data and analytics.	2017	Qualitative	General	Yes	Not specified
Pessoa and Becker [8]	Analysis of the benefits and obstacles of PSS and proposes a self-assessment questionnaire.	2017	Qualitative	General	No	Not specified
Rosa et al., 2017 [32]	Commonalities and particularities of PSS design process models.	2017	Qualitative and Quantitative	General	No	Not specified
Peillon et al., 2018 [33]	Service and customer orientation of the corporate culture of a French manufacturing SME that has successfully developed product-related services.	2018	Qualitative	SMEs	Yes	Success
Lienert et al., 2019 [7]	Cultural facets and their potential role as enablers and inhibitors of servitization as perceived by actors.	2019	Qualitative	Technology Industry	Yes	Success
Yan et al., 2019 [11]	Conceptualization of servitization and the investigation of the servitization–performance.	2019	Qualitative	General	Yes	Success and Failure
Pacheco et al., 2019 [10]	Strategies to overcome barriers toward Sustainable Product-Service offering.	2019	Qualitative	SMEs	Yes	Success and Failure
Lexutt, 2020 [19]	Success factors, their interdependencies, and their causal role in leading to servitization success.	2020	Qualitative	Manufacture	Yes	Success and Failure

Most studies collected data from or were performed in a real organizational environment. The studies in small and medium enterprises presented specific barriers related to the lack of human and financial resources during the transition period [10,11,17].

Table 2 presents the theories identified in our SLR that ground the organizational culture change for the servitization process. The authors framed the resistance found during the mind shift and the complexity of managing the human aspects of a servitization strategy with the following theories.

Table 2. The theoretical foundation of organizational culture change for the PSS process.

Ref	Theory	Contribution
Lienert, 2015 [18]	Activity theory	Supports corporate culture transformation as a learning process.
Ceschin, 2013 [9]	Strategic niche management and transition management theories	Support transitions with disruptive innovations and propose to be experimented with within a controlled environment before extending to the entire organization.
Lienert, 2015 [18]	Theories of practice	Acknowledges that the individuals' corporate actions or events could alter the culture or the trajectory for servitization.

Table 2. *Cont.*

Ref	Theory	Contribution
Lexutt, 2020 [19]; Yan et al., 2019 [11]	Configuration and contingency theories	Combine configuration and contingency approaches to handle complex organizational environments. • Configuration: it considers ideas and values are reflected by organizational strategies, structures, and processes; • Contingency: it claims that there is not just one way to achieve organizational strategy.
Lexutt, 2020 [19]	Organizational theory	Considers strategy, structure, leadership, and culture as the core domains of organizations.

In the following subsections, we provide the results of our data analysis, considering two pillars of our study: servitization and corporate culture.

3.1. Servitization

We identified in the literature that culture, skills, and business model are the three main success factors in a servitization strategy [3,4,6,8,10,17,21]. In addition, most authors cite at least one of those factors connected to other factors, such as leadership, structure, and strategy.

We identified 11 potential barriers to PSS transformation in our analysis of the articles. We classified them as internal or external to the enterprise. Table 3 shows the concept matrix structured according to each barrier and the papers in which they are mentioned.

Table 3. Concept matrix for potential barriers that impact PSS transformation.

Authors	Internal Barriers									External Barriers	
	Culture	Skills	BM	Strategy	Management	Structure	Human Resources	Technology	Legal	Market	Customer Culture
Ahamed et al., 2012 [17]	X	X	X	X							
Lexutt, 2020 [19]	X			X	X	X					
Lienert, 2015 [18]	X			X	X	X					
Ho et al., 2011 [6]	X	X	X		X						
Lienert et al., 2019 [7]	X		X		X						
Erasmus and Weeks, 2012 [4]	X	X	X		X						
Ceschin, 2013 [9]	X	X							X		
Yan et al., 2019 [11]	X					X	X				
Schuritz et al., 2018 [3]	X	X	X	X		X				X	
Pacheco et al., 2019 [10]	X	X	X	X	X	X	X	X		X	X
Harmon and Laird, 2012 [27]				X						X	
Peillon et al., 2018 [33]	X	X			X						
Hosono et al., 2016 [31]	X							X			
Weeks and du Plessis, 2011 [21]	X	X	X								

Table 3. *Cont.*

	Internal Barriers									External Barriers	
Authors	Culture	Skills	BM	Strategy	Management	Structure	Human Resources	Technology	Legal	Market	Customer Culture
Dubruc et al., 2014 [30]	X					X	X				
Luo, 2011 [25]		X									X
Pessoa and Becker, 2017 [8]	X	X	X								X
Aier, 2012 [28]	X		X	X				X			
Li et al., 2011 [26]	X	X			X			X		X	
Rosa et al., 2017 [32]	X		X								
Schumacher, 2012 [29]	X	X			X						

Table 3 provides a comprehensive overview of servitization barriers and confirms the relevance of an adequate corporate culture to support a service-model transition. Culture is cited as a potential barrier to the servitization process in 18 of the 21 papers. A few papers also mention customer culture as a relevant barrier to a service-oriented approach [8,10,25]. Some authors argue that culture is one of the critical success factors for the servitization process [19]. The same authors cite a relationship between corporate culture, service strategy, and structure [19]. Furthermore, some papers mention other barriers, such as the design of the offering, revenue model, co-creation [3,27], communication [28], and financial aspects [10,11,17]. Organizations should adopt a culture open to changes. Employee resistance is a barrier to successfully implementing corporate strategy and projects [34].

We found two major approaches for service-oriented strategy, one of them considers services supporting the product (SSP), and the other services supporting the clients' actions (SSC). In some cases, a combination of both is used. From the SSP perspective, the service is treated in the business model as a product add-on [19]. The SSC approach is focused on providing services according to customer needs and expectations [10,11,19,27]. Both SSP and SSC need to be supported by organizational culture change; however, we did not identify specifics for each of them.

3.2. Corporate Culture

Enterprise culture is seen as an enabler of innovation and service-oriented business models [9]. Culture can be perceived by intangible challenges [18]. The corporate culture is formed by symbolic reminders (visible artifacts), behaviors, and mindsets (invisible beliefs that are shared) [11]. The authors cite seven notable features that are responsible for building the corporate culture, which are as follows: (1) individual autonomy; (2) company structure; (3) leadership support; (4) identity; (5) performance reward; (6) conflict tolerance; and (7) risk tolerance [21]. The corporate culture is formed by three tangible components, namely artifacts (e.g., dress code, rituals), values (explicitly shared by members), and assumptions (implicitly shared by members) [18,30].

The competing values framework (CVF) considers four orientations for organizational culture. The first is support orientation (SO), focusing internally and emphasizing flexibility. The second is innovation orientation (IO), focusing externally and emphasizing flexibility. The rule orientation (RO) focuses internally and emphasizes control, and the goal orientation (GO) focuses externally and emphasizes control [35]. We believe an innovation orientation is most suitable for implementing a service-oriented culture. Bel (2006) cites the need for connecting the organizational culture and business goals and practices. The correct implementation of processes and behaviors is mandatory for the company to achieve its strategic objectives.

The transformation of organizational culture can be supported by considering cognitive and psychological aspects [18], which is considered one of the main challenges in the corporate environment [18]. Two feasible alternatives are mentioned to transform the organization's mindset during servitization: (1) path creation, which uses corporate culture

as an enabler to pursue a strategy based on services, and (2) path dependence, in which the strategy relies on organizational culture change [18]. Table 4 presents the main factors needed for an organizational culture change, identified in the scope of this literature review.

Table 4. Matrix for the factors that impact organizational culture transformation.

Authors	Understand Current Culture	User-Centric	Managerial Commitment	Decentralization	Knowledge Exchange	Collaboration	Communication
Ahamed et al., 2012 [17]		X	X	X		X	X
Lexutt, 2020 [19]		X	X	X	X		
Lienert, 2015 [18]	X	X					
Ho et al., 2011 [6]		X	X		X		
Lienert et al., 2019 [7]	X					X	
Erasmus and Weeks, 2012 [9]		X	X				X
Ceschin, 2013 [9]					X	X	
Yan et al., 2019 [11]	X		X		X		
Schuritz et al., 2018 [3]		X		X		X	X
Pacheco et al., 2019 [10]			X				
Harmon and Laird, 2012 [27]		X					
Peillon et al., 2018 [33]	X		X		X	X	
Hosono et al., 2016 [31]		X	X			X	
Weeks and du Plessis, 2011 [21]		X	X				
Dubruc et al., 2014 [30]			X	X		X	
Luo, 2011 [25]		X					
Pessoa and Becker, 2017 [8]		X			X		
Aier, 2012 [28]			X		X		X
Li et al., 2011 [26]			X		X	X	
Rosa et al., 2017 [32]			X			X	
Schumacher, 2012 [29]			X				

The various factors are described by the authors as follows:

Understand the current culture: grounded on the theory of practice and activity theory, it represents the behaviors and actions that shape the corporate culture. It is possible to establish a strategy to promote the enterprise culture change [18];

User-centric: a service business model requires a service mindset focused on the customer needs, expectations, and behaviors;

Managerial commitment: leadership is indicated as one of the core domains for enterprises in the organizational theory. The leaders' commitment during the servitization process has an important role as motivators of the change [19];

Decentralization: contingency theory claims that there is no best way to organize an enterprise. Instead, the optimal structure relies on the organization's strategy. Decentralization is one of the factors that supports a service-oriented strategy [19];

Knowledge exchange: greater integration between operational areas is necessary for the PSS process, and knowledge transfer is relevant to achieve this purpose;

Collaboration: during service design, not only internal collaboration between business areas is mentioned as relevant, but a customer collaborative relationship is also important to support the co-creation of value for the service;

Communication: consistent and cross-functional communication between teams encourages informal communication to bring the involved parties together.

These are the main aspects that influence enterprise culture during a servitization transition. A previous study cites enabling innovative behavior of the individual members in the enterprise, with autonomy, risk preference, high error tolerance, and low levels of enterprise bureaucracy as relevant factors [26]. The concept of "T-shaped" professionals, as adaptive innovators with a service-oriented mental model, is also cited as an important

profile during this process [4,21]. A workforce with a multi-disciplinary profile can bring improvements to the service design process [4].

Leadership must operate as an enabler for a culture change, identifying the agents that may support this process [18]. The transition to a service-oriented model involves high investment; thus, preventing a "service paradox" is essential when the transformation does not generate the expected higher returns [11]. The "service paradox" is the non-achievement of the expected financial results by adopting servitization [11]. Creating a separate service enterprise is one possible strategy to build a strong service culture. A decentralized structure avoids resistance to change and conflicts between product and service businesses [3,4,10,19]. Another approach to establishing strategies is cluster analysis, which considers four different clusters according to the business value and IT efficiency. In this case, it is necessary to identify the current stage of enterprise service orientation (based on the business value and IT efficiency). After that, a strategy for how to move from one cluster to another can be designed [28].

According to previous research, 90% of enterprises fail to execute strategies effectively [21]. Thus, in Table 5, we detailed the seven factors from Table 4 (column 1) with the guidelines (column 2) identified in the literature review with positive influence during organizational culture change. The supporting theories in column 3 are as reported in the papers. Companies can apply the guidelines during the servitization process to support a successful implementation. In the next section, we developed a framework with these guidelines and propose how they could be applied.

Table 5. Factors of organizational culture change.

Factor	Guidelines	Supporting Theories
Understand current culture	Understand current culture and identify enabler agents to support the change [18].	Practice and Activity theories
User-centric	Use of design thinking approach [32]. Understand the customer perspective using model methods, such as personas, storyboards, laddering, experience map, actors' map, view models, scope models, and service blueprints [31], and customer journey maps [16,21]. Reinforce a customer-centric mission [17]. Train soft skills to support a good relationship with the customers [21]. Identify T-shape professionals to support innovative behavior [4,21].	Configuration theory
Managerial commitment	Support stakeholders responsible for service-oriented projects [28,29]. Identify and support behaviors favorable during the transition [4].	Organizational theory
Decentralization	Empower employees [30]. Give responsibilities and involve employees during the change process [17].	Contingency theory
Knowledge exchange	Share with new employees the company's history, business, technologies, and values [33]. Disseminate business knowledge [28]. Promote innovation behavior [26].	Not reported
Collaboration	Perform shared key performance indicators, mix product, and service teams [18]. Provide a mentor to newcomers to help them integrate [33].	Not reported
Communication	Communicate design decisions among stakeholders [28]. Manage communication between business and IT [28]. Develop communication at each level [17]. Train employees to develop communication, negotiation, and collaboration skills with partners, customers, and stakeholders [17].	Not reported

A few authors mentioned other factors, such as promoting innovative behavior of individual employees, the need for a low level of enterprise bureaucracy [26], and the financial aspects of the enterprise [10]. A successful transformation of corporate culture is necessary to achieve a service-oriented strategy. However, it is not enough on its own [19], and there is not just one model that fits all organizations. Organizational culture can be seen as a "learning process" over time, and it should be followed to ensure that actions and behaviors are aligned with the enterprise's purpose [9,30]. Organizational changes will be accepted if they are coherent with the different elements of corporate culture [30].

4. Results and Discussion

Digital transformation involves digitizing information, business models, and how people interact with digital technologies [36]. We claim that, with technological advances, continuous transformation may be required in the organizational environment. In order to embrace those changes, the organization needs to be adaptative and innovative. We can learn from the servitization process and the guidelines applied to organizational culture transformation, described in Table 5. Those guidelines could also support building an adaptative and innovative culture. Table 6 was adapted from Schuritz et al. (2018) [3]. They summarized the progress from the product-oriented to the data-oriented model, passing through the service-oriented model. The last column represents our proposal for an innovative organization.

Table 6. Transformation characteristics adapted from Schuritz et al., 2018 [3].

	Product-Focused Organization	Servitized Organization	Datatized Organization	Innovative Organization
Strategy	Product-focused strategy	Integrated product–service or service-focused strategy	Additional data strategy partner	Additional organization-wide innovation-led strategy
Customer Relationship	Short-term transaction-based relationship	Long-term relationships and new customer-facing roles;	Deep relationships (if data access is required) and new interfaces (API, Portal, Apps, etc.)	Anticipation of the user needs and customer's amazement
Culture	Product-oriented culture	Service-oriented culture	Data-driven culture	Adaptative and innovative culture
Skills and Capabilities	Manufacturing capabilities	Customer facing skills	Data science, IT infrastructure capabilities, and software development skills	Multi-disciplinary capabilities, problem-solving, creativity, and entrepreneurial skills

In our systematic literature review, we did not find any paper describing a complete process on how to implement a change in organizational culture during a servitization process. Therefore, from the perspective of our research objective and based on the factors and guidelines distilled in the previous section, we propose the framework represented in Figure 3. It aims to support the planning and steering of organizational culture change. It is based on the ADKAR model, a change management tool used to support organizations during disruptive transformations [24]. Our proposal consolidates the guidelines spread out in the articles. However, they were not experienced together. Thus, the results could be different from the ones identified in the scope of this literature review.
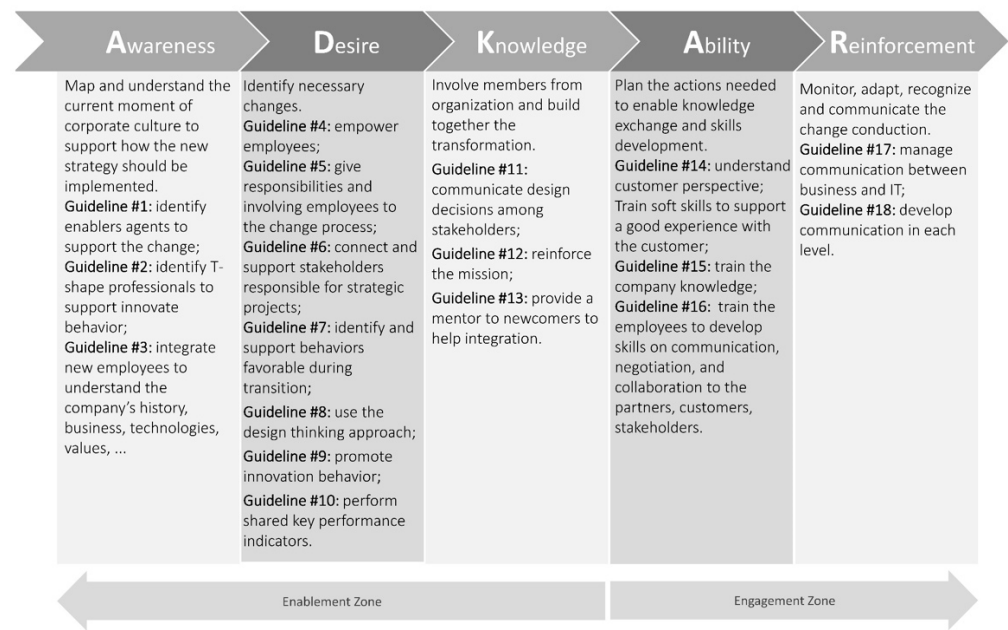
Figure 3. Framework to support the change of organizational culture.

The framework is preliminary, needs to be applied, and evaluated in a real organizational environment. However, we can deduce managerial implications. First, based on organizational theory [19], the business strategy, structure, and leadership need to be aligned and translated into the corporate culture. Second, the employees and leaders must be part of the cultural transformation process. The activity theory supports this as an ongoing learning process [18]. Lastly, the appropriate behavior and skills need to be identified and trained to reflect organizational culture strategy. The theory of practice indicates that organizational culture is formed by the individuals' actions [18].

Table 7 lists the references used to support the guidelines in Figure 3 as identified in the organizational culture transformation literature review.

Table 7. References used to support Figure 3's guidelines.

| Step	Item	References
Awareness	Identify enabler agents to support the change	Lienert, 2015 [18]
	Identify T-shape professionals to support innovative behavior	Erasmus and Weeks, 2012 [4]; Yan et al., 2019 [11]
	Integrate new employees to understand the company's history, business, technologies, values, etc.	Peillon et al., 2018 [33]
Desire	Empower employees	Dubruc et al., 2014 [30]
	Give responsibilities and involve employees in the change process	Ahamed et al., 2012 [17]
	Connect and support stakeholders responsible for strategic projects	Aier, 2012 [28]
	Identify and support favorable behaviors during the transition	Erasmus and Weeks, 2012 [4]
	Use the design thinking approach	Rosa et al., 2017 [32]
	Promote innovation behavior	Li et al., 2011 [26]
	Perform shared key performance indicators	Lienert et al., 2019 [7]

Table 7. *Cont.*

Step	Item	References
Knowledge	Communicate design decisions among stakeholders	Aier, 2012 [28]
	Reinforce the mission	Ahamed et al., 2012 [17]
	Provide a mentor to newcomers to help integration	Peillon et al., 2018 [33]
Ability	Understand customer perspective and train soft skills to support a good experience with the customer	Hosono et al., 2016 [31]; Yan et al., 2019 [11]
	Train the company's knowledge	Aier, 2012 [28]
	Train the employees to develop skills in communication, negotiation, and collaboration with the partners, customers, stakeholders	Ahamed et al., 2012 [17]
Reinforcement	Manage communication between business and IT	Aier, 2012 [28]
	Develop communication at each level	Ahamed et al., 2012 [17]

In the following, we detailed the five steps of the ADKAR model (awareness, desire, knowledge, ability, and reinforcement) [24]. We associated each step with relevant aspects identified in the literature review that supports a cultural transformation to implement a successful service model.
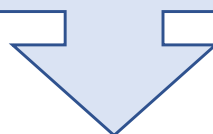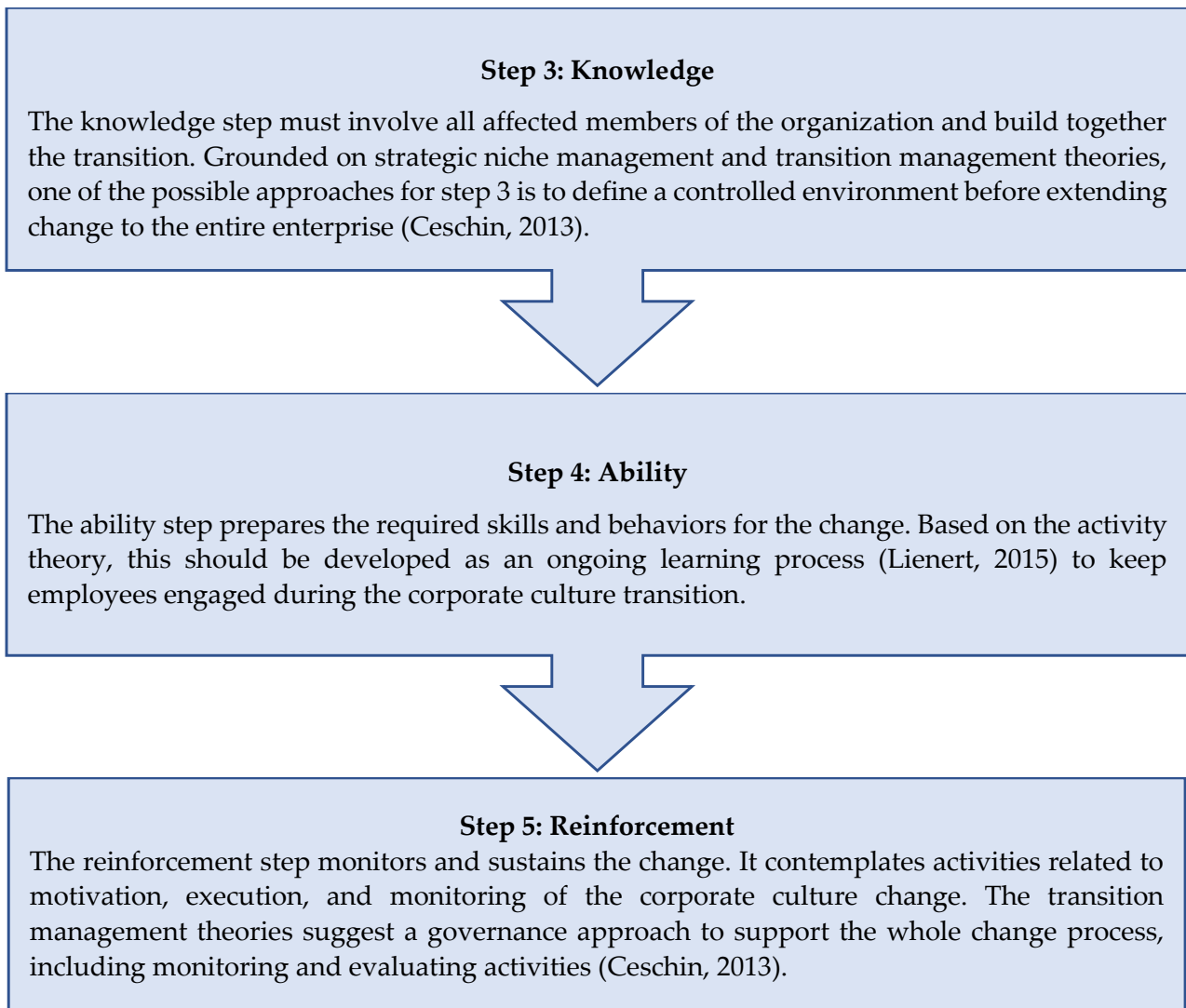
Step 1: Awareness

The awareness step focuses on understanding the current place of the enterprise. The configuration theory argues that the organization should adopt the strategy according to its characteristics (Yan et al., 2019). It is necessary to recognize the current moment of organizational culture and the need for change to move forward. The cluster analysis mentioned in the Corporate Culture section could be used to support this stage (Aier, 2012).
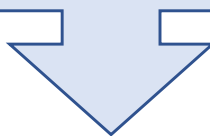
Step 2: Desire

The desired step is about how to motivate change among the involved parts. According to the theory of practice, organizational culture is influenced by individuals' actions and behaviors (Lienert, 2015). Therefore, identifying and encouraging favorable behaviors is relevant to engage employees during the corporate culture transition.

Step 3: Knowledge

The knowledge step must involve all affected members of the organization and build together the transition. Grounded on strategic niche management and transition management theories, one of the possible approaches for step 3 is to define a controlled environment before extending change to the entire enterprise (Ceschin, 2013).

Step 4: Ability

The ability step prepares the required skills and behaviors for the change. Based on the activity theory, this should be developed as an ongoing learning process (Lienert, 2015) to keep employees engaged during the corporate culture transition.

Step 5: Reinforcement

The reinforcement step monitors and sustains the change. It contemplates activities related to motivation, execution, and monitoring of the corporate culture change. The transition management theories suggest a governance approach to support the whole change process, including monitoring and evaluating activities (Ceschin, 2013).

5. Conclusions

We cannot underestimate the need for organizational culture change to achieve a successful service-oriented model [3]. Therefore, we consolidated the potential barriers to servitization and confirmed corporate culture as one of the essential aspects of a successful transition. After understanding what comprises organizational culture, we generated a matrix with its potential successful factors (Table 4). The matrix shows the main elements for culture change during the servitization process (knowing the current culture, user-centric approach, managerial commitment, decentralization, knowledge transfer, collaboration, and communication). Those factors can support not only a service-oriented culture but could also be applied to build an innovative culture. This feature is relevant to be prepared for future changes due to new trends, technologies, and approaches, such as data science.

5.1. Key Contributions

This paper contributes two matrices that provide potential barriers to a successful servitization process (Table 3) and the impact factor of organizational culture transformation (Table 4). Moreover, we consolidated the guidelines for each impact factor on organizational culture (Table 5). The proposed consolidation of the guidelines is, thus, a first original contribution in this respect. From the perspective of our research objective and based on the factors and guidelines, we developed a proposal framework using the ADKAR model to support implementing the change in the organizational culture (Figure 3).

We claim to be relevant to build an innovative culture in organizations to be prepared for ongoing changes in business and technology. Not only was the service model transformation necessary for some organizations, but future changes may be needed, such as a data-oriented model.

5.2. Research and Managerial Implications

Our work has both theoretical and managerial implications. From a theoretical point of view, we suggest further understanding cultural transformation guidelines used for the servitization process to build a broad corporate culture that embraces innovation. Cultural transformation is a learning process shaped by individuals' actions and behaviors. From a managerial point of view, the leadership needs to understand the relevance of aligning the corporate culture with the business model strategy. Moreover, managers have an important role in communicating and engaging all levels of the organization. Our results may support organizations in defining a better strategy based on their situation on the cultural transformation journey. Our proposal framework offers guidance to implement a change in corporate culture.

5.3. Limitations and Future Research

The SLR focused mainly on technology studies, even if this is a multi-disciplinary subject. Future research should address this limitation by comparing different perspectives. We also did not analyze how an organization's other core domains (strategy, structure, and leadership) could affect cultural transformation. Further, we did not consider how the findings could be influenced if applied to different enterprise sizes. Even some studies pointed to financial restrictions to implement disruptive changes in SMEs [10,11,17]. There is an opportunity for further studies to analyze how to implement a culture mind shift in organizations. We identified a few qualitative studies in the literature. Future work can study how each element of corporate culture may influence the results. Moreover, researchers may consider a socio-technical approach to investigate the influence of corporate culture on employee engagement. Only one article in the selected database stated the use of a socio-technical approach [9].

Our research did not implement the proposed framework in a real organizational environment. Future research related to changes in the corporate culture should experiment with this framework to contribute to further guidelines and validate its applicability. Moreover, we propose that future studies validate and improve the presented framework and guidelines in different corporate culture contexts, not only in a servitization process. In addition, as Lienert (2015) argued, there is an opportunity to establish a taxonomy of organizational cultures within servitization [18]. On a different avenue, other approaches to change could be experimented with. ADKAR assumes the consistent implementation of various individual changes. For PSS, many of these may run in parallel and in different stages, so it would be interesting to consider the Bridges Transition Model [37]. There are opportunities for incremental and confirmatory studies related to servitization [38]. Moreover, a recent concept of Digital Servitization has emerged, establishing a new trend when organizations use digital technologies in the processes and offerings related to servitization [39]. The combination of servitization and digitalization raises new challenges that should be addressed in future research.

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