Manufacturer's identity challenges when becoming 'Smart'

MANUFACTURER'S IDENTITY CHALLENGES WHEN BECOMING "SMART"

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ABSTRACT

Purpose: The present paper was set out to understand manufacturer's identity challenges when moving towards provision of product-service-software solutions.

Design/Methodology/Approach: This conceptual study uses illustrative cases to show certain aspects, challenges and practices regarding identity formation and building when manufacturers are becoming smart solution providers. The study builds on rich organization identity theory that is surprisingly underutilized in the extant digital servitization research.

Findings: The study suggests that when building and forming new identity, managers should be aware of potential issues, namely ambiguity among personnel, frustration among middle-managers, and confusion among key external stakeholders. This paper suggests that successful identity building requires dynamic capabilities not only inside the firm but across the boundaries, hence contributing to the crossroads of identity, capability, and digital servitization literatures.

Originality/value: For managers, this paper unfolds some useful practices how to mitigate identity inertia when managing strategic transition towards smart solutions.

KEYWORDS: Digital servitization; organizational identity; dynamic capabilities; organizational inertia; smart solutions

1. INTRODUCTION

Manufacturers have attempted to attain financial and strategic benefits (Gebauer et al., 2020) by becoming "smart". This transition from selling to pure products to provision of smart solutions i.e. convergence of products, services, and software (Huikkola et al., 2021a; Hsuan et al., 2021) has been termed *digital servitization* in the literature (Paschou et al., 2020; Sklyar et al., 2019). However, despite the increased interest towards this strategic change among researchers and practitioners, surprisingly little is yet known from the firm's identity perspective that addresses to the question: *"Who are we as a firm and what kind of a firm we want to be(come)?"* (Corley & Gioia, 2004). Changing identity poses key managerial challenge as identity can be described to be central, enduring and distinctive for a firm (Albert & Whetten, 1985), reflecting firm's DNA. Hence, changing identity is far from easy as old capabilities, routines and mindset may need to be dispelled (Huikkola, Kohtamäki & Ylimäki, 2022). At the same time, firm's key stakeholders such as personnel, investors, suppliers and clients typically view firm through the old identity lenses. To change firm's grand identity i.e. who we are as a company, firm must overcome several identity barriers such as mindset rigidity (Kowalkowski & Ulaga, 2017), identity ambiguity (Corley & Gioia, 2004) and capability mismatch (Töytäri et al., 2018). Furthermore, firms must shift their mindset (Huikkola et al., 2022) and obtain and develop new capabilities, processes and routines to overcome this organizational inertia (Lenka et al., 2018).

Purpose of this article is to understand challenges related to identity change when manufacturers pursue digital servitization strategies. To address this ongoing managerial challenge, we formulate a following research question: *What challenges manufacturer faces in its identity building and formation when it starts to provide product-service-software systems? How manufacturers overcome these challenges through development of dynamic capabilities?* This study contributes to the crossroads of organization identity theory, capability theory, and digital servitization literature by a) illustrating key challenges regarding identity change, and b) developing a framework of capabilities and practices required to master this change successfully.

2. THEORETICAL BACKGROUND

2.1 Digital Servitization

Manufacturers are transitioning from selling products to selling bundle of products, services, and software (Hsuan et al., 2021). This strategic transition has been termed *digital servitization* (Kohtamäki et al., 2019; Paschou et al., 2020), defined as a firm's logic change from products to solutions through the utilization of digital tools (Sklyar et al., 2019) that enable connectivity between the systems (Porter & Heppelmann, 2015). Incentives to pursue digital servitization strategies are related to achieving financial benefits and strategic advantages (Gebauer et al., 2020) but also avoiding falling into commoditization trap (Huikkola, Kohtamäki & Ylimäki, 2022), reminiscent of a "rat race" with declining sales and profits, typically associated with the nature of product business where differentiation becomes more difficult.

This strategic transition towards services and solutions, however, typically fails (Nebuloni et al., 2019; Reinartz & Ulaga, 2008; Ulaga & Reinartz, 2011; Visnjic et al., 2021) because of cognitive (Tripsas & Gavetti, 2000) and behavioral inertia (Lenka et al., 2018) related to managing this dual business model complexity (Visnjic et al., 2021). Moreover, manufacturers typically lack capabilities needed in smart solution business (Töytäri et al., 2018; Ulaga & Reinartz, 2011) as selling solutions differ from selling products (Kowalkowski & Ulaga, 2017; Schaarschmidt et al., 2021), development of smart solutions is different from new product development (Huikkola et al., 2022b), and orchestration of different development and delivery activities requires different processes and routines in smart solutions where systems are connected to each other (Porter & Heppelmann, 2015). In other words, firms need to change their mindset and overall business logic in order to pursue such a strategic change successfully (Kowalkowski & Ulaga, 2017). Thereafter, digital servitization affects manufacturer's identity i.e. who are we as a company.

2.2 Firm's identity challenges

Organizational identity accords with employees' self-reflective questions regarding the core of the firm's existence, such as *"Who are we as a firm?"* or *"Who do we want to be(come) as a firm?"* (Albert & Whetten, 1985; Corley & Gioia, 2004). Firm's identity thus refers to organization members' collective answers to the questions *"What kind of firm is this?"* and *"How our firm differs from others?"* These aspects of a firm's identity are based on the firm's history and are typically considered relatively enduring and rigid. Even though extant studies have considered identity to be a relatively stable cognitive structure (Narayanan et al., 2011), an increasing number of studies consider that identity is a dynamic process that can be altered (Gioia & Patvardhan, 2012; Vaara & Tienari, 2011). Furthermore, identity building and forming is considered socially constructed process where members of the firm make sense of the firm's (future) identity and give explanations what firm should be(come) (Huikkola et al., 2021b). Identity addresses also a firm's boundaries, i.e., how different stakeholders such as customers, investors, and suppliers think about what is firm's core and DNA. In general, identity ambiguity refers to confusion, uncertainty and misinterpretation of a firm's future image among members of the firm (Corley & Gioia, 2004). In the existing servitization literature (see e.g., Huikkola et al., 2020), identity change requires not only actions such as development and acquisition of novel capabilities but also top-management narratives that facilitate this identity change (e.g., in media or in different stakeholder events).

2.3 Firm's dynamic capabilities to build new identity

The dynamic capability theory explains how firms are morphing themselves (Danneels, 2011; Rindova & Kotha, 2001) by sensing (Eggers & Kaplan, 2013) and seizing (Ott & Eisenhardt, 2020) new underlying business opportunities, and modifying their assets to meet the expectations of an ever-changing

business environment (Sirmon, Hitt & Ireland, 2007; Teece, 2007). Hence, dynamic capabilities accord with managers cognitive ability to reframe firm's future position by analyzing its external environment and develop internal capabilities in a way that firm is competitive in both short and long-term. This duality, defined as *sequential ambidexterity* in the literature, indicates that managers need to be able to simultaneously balance between short-term profit pressures and long-term renewal requirements. In addition to modification of assets, firms need to change their modus operandi and routines to become different types of companies (Danneels, 2011). Hence, change must take place also in operational level and change how firm develops new solutions (Huikkola et al., 2021), operates in dyadic relationships (Töytäri et al., 2018), and positions within the ecosystem (Kohtamäki et al., 2019) through different mechanisms and activities (Huikkola et al., 2020).

3. RESEARCH METHODOLOGY

3.1 Research design

This study is largely a conceptual paper but utilizes illustrative case examples to showcase the challenges regarding identity change and capability development in the digital servitization context. The illustrative case examples are drawn based on our +10 year experience of studying how manufacturers pursue digital servitization strategies in practice. The study is qualitative in its nature, which is good when studying phenomenon that is novel and applying quantitative methods would not be appropriate. Studying challenges regarding identity formation in the digital servitization can be described to be such a novel and complex phenomenon that benefits from the utilization of qualitative research method.

3.2 Data collection & analysis

The data have been collected from different relatively large manufacturing companies since 2010 about digital servitization. We have engaged in project and consultancy work with them but also collected data for pure research purposes. The collected data include primary interviews but also extensive secondary data, including histories, annual reports, and other public documents such as investor meetings etc. Data have been structured into discourses regarding a) identity change, b) challenges regarding identity change, and c) practices applied to overcome these aforementioned challenges.

4. FINDINGS

4.1 Personnel ambiguity

Identity ambiguity is typical among personnel when firm is undergoing a strategic change (Corley & Gioia, 2004). Identity ambiguity refers to confusion, uncertainty and misinterpretation of a firm's future image and identity (Corley & Gioia, 2004). In our interviews, we have observed ambiguity among personnel especially when top managers have made bold statements such as *"we are becoming a software house"*. First, personnel have stated that there is no sense for them to become software houses as they are product companies by their DNAs. They have expressed that software house position would not be optimal for them but they should be companies that are able to bundle products, services, and software successfully. Second, interviewees have expressed their concerns that their capabilities are far away from the capabilities possessed by pure software companies. Moreover, their management practices and organizational routines are not designed to run software business successfully. Typically, software companies are much more agile than manufacturing companies because changes are easier to implement and there are no rigidities related to product manufacturing.

Even though some executives may find these statements from personnel discouraging, we say that these are rather encouraging and provide opportunities for framing the future positioning adequately. Hence, even though typical statement *"we are becoming a software house"* may seem to be a valid statement for an executive (see Huikkola et al., 2022), that sort of statement should not be said carelessly because personnel are aware of capabilities and routines needed for being and operating as

a (pure) software house. Instead, we suggest that executives include also the relevance of products and services under these statements (unless they are really about to become pure software houses). For instance by communicating following: *"We make great products. However, this is not sufficient anymore. We also service them and software makes our products even smarter. This integration of products, services, and software is our killer combo".* Executives should thus pay attention to how narratives are framed. Otherwise these types of statements are considered jargon or pure marketing speech among key internal and external stakeholders.

4.2 Frustration among middle-managers

The role of middle-managers has become increasingly important to manage strategic change successfully in large corporations. Middle-managers have been described being whether bottlenecks or facilitators when pursuing this type of a strategic change. When business models and earning logics are changed, executives should pay attention to cognitive inertia among middle-managers: How well they know and accept this new earning logic? Infamous example of this cognitive inertia is Kodak's inability to change its earning logic that was largely based on well-established razor-and-blade model. Even though Kodak possessed not only forward-looking executive group, they also invented digital camera in-house. Despite these efforts, the company failed because of market disruption. One explanation is that middle-managers were too comfortable with the old (and working) razor-and-blade pricing model and tried to fit digital camera into that model also. Typically, middle-managers have tendency to fall into "success trap" as was the case with the mobile phone manufacturer Nokia. Nokia focused on doing "right things" for too long (Doz & Kosonen, 2008). Breaking this path-dependency is difficult but many times mandatory. Middle-managers may be frustrated with the new business model as they do not understand how to earn with it or they may be too focused on old business logic, which has been proven to be successful. One way to overcome this is through establishment of separate organization structures that are independent and have profit-and-loss responsibilities. It must be remembered that incentives may be built based on old logic which may hinder this change. Putting old and new logics into "racing" can be a useful practice as long as this rivalry is not damaging the focal company. One way to take advantage of this racing is through specific strategic agility practice: measuring top executive team with the same KPIs for every executive (executive board being considered as a team). Hence, service business executive is interested in product sales and profitability and product business executive is interested in service sales and profitability. The aim of this management practice is to make organization less siloed but simultaneously take advantage of effectiveness of separate businesses. Hence, organization would be integrated from the top and separated from the bottom, following "dress organization structure".

4.3 Confusion among key external stakeholders

In addition to internal stakeholders, digital servitization affects external stakeholders' perception of the firm. In particular, investors are interested in new openings and growth opportunities that digitalization provides for the manufacturers. Thus, executives are typically interested in advancing such opportunities. The downside of this interest is that some investors are impatient and not ready to wait results of such initiatives. Some investors, on the other hand, may be conservative and value dividents over growth. For them, digitalization may seem too risky and investments in technology development potentially harm firm's current and established profitability level. Another key external stakeholder group is customers. Typically customers view focal companies through their products, services, and solutions. As an example, even though Nokia wanted to be a software and service company (this can be depicted from former Nokia CEO Olli-Pekka Kallasvuo's presentations), their customers (e.g., teleoperators) and end-users considered Nokia as a hardware manufacturer rather than as a software or service house. In addition, being service company also meant that Nokia started

to compete with their teleoperator customers. Hence, successful identity change should resonate with clients but also with suppliers and other contributors in the ecosystem (e.g., software developers). This requires active and ongoing communication which is truthful and open. Moreover, different management practices and routines may be needed to mitigate confusion and manage expectations among the external stakeholders.

4.4 Overcoming identity inertia

In order to overcome identity inertia, managers need to pay attention to few managerial issues. First, they need to obtain, acquire and develop new capabilities needed in digital servitization such as value-sales capability, new solution development capability, and orchestration capability (see Huikkola et al., 2022). Capability building requires changes also in firm's processes, routines, and activities. Second, managers need to focus on changing firm's mindset from product-oriented mindset towards customer-oriented mindset (Töytäri et al., 2018). To change this mindset, communication of the firm's direction and future position becomes vital. This communication needs to be active, truthful, and consistent with real actions i.e. firms must "walk-the-talk". Third, it is possible that firm will have sub-identities within the firm. Therefore, managers need to be aware of these sub-identities and consider how different organization structures facilitate identity building. For instance, R&D department may have strong product mindset and culture. Managers need to consider whether to separate solution and service development into separate unit (Kowalkowski & Ulaga, 2017) or integrate this development within the existing R&D department. In sum, dynamic capabilities consist of modification of capabilities, routines, processes, structures, and mindsets. Active communication enables firm to change its identity through these modifications and decrease potential identity barriers within the focal company. Figure 1 outlines the key challenges manufacturers face when building and forming new identity associated with smart solution provider and associated modifications to pursue this change.

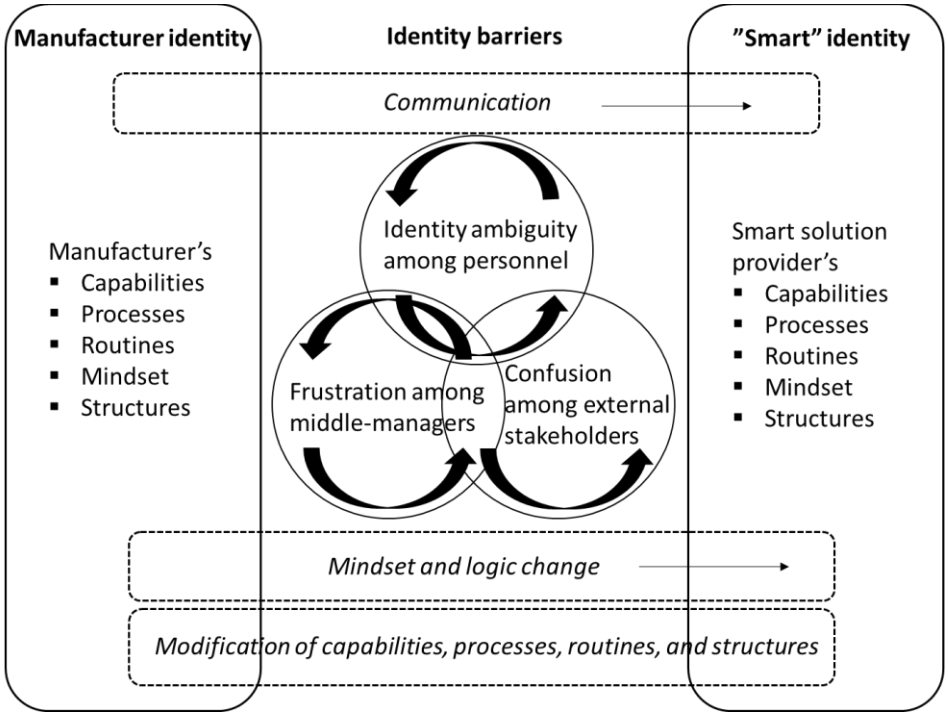

Figure 1: Identity challenges

5. DISCUSSION

5.1. Theoretical contribution

This study contributes theoretically to the crossroads of identity, capability, and digital servitization literatures by shedding light on key challenges regarding new identity building and formation. This paper extends the discussion of identity alteration among manufacturers when they servitize (see Huikkola et al., 2020; 2021b; Salonen & Jaakkola, 2015) by identifying key sources of identity inertia, namely personnel, middle-managers, and key external stakeholders. This paper acknowledges that identity formation is socially constructed process (Gioia et al., 2000) and thus, requires resources, processes, and practices to convince different stakeholders. The present study provides number of practices to mitigate possible inertia and ways to overcome these rigidities stemming from different stakeholders' distinct experiences and expectations.

5.2 Managerial contributions

For managers, our paper presents number of management practices to manage expectations related to new identity building and formation. Managers need to develop dynamic capabilities in order to alter their grand identity and overcome certain challenges regarding that identity alteration through exercising their dynamic capabilities. This dynamic capability includes modification of resources, processes, routines, mindset, and structures. These modifications need to be synchronized with communication initiatives ("walk the talk") to justify and legitimize the strategic-level identity change.

REFERENCES

Albert, S., & D. Whetten (1985). Organizational identity. *Research in Organizational Behavior* 7, 263–295.

Barney, J.B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management,* 17(1), 99-120.

Coreynen, W., P. Matthyssens & W. Van Bockhaven (2017). Boosting servitization through digitization: pathways and dynamic resource configurations for manufacturers, *Industrial Marketing Management*, 60, 42-53.

Corley, K.G. & D.A. Gioia (2004). Identity Ambiguity and Change in the Wake of a Corporate Spin-Off. *Administrative Science Quarterly* 49(2), 173-208.

Danneels, E (2011). Trying to become a different type of company: Dynamic Capability at Smith Corona. *Strategic Management Journal* 32(1), 1-31.

Doz, Y & M. Kosonen (2008). Fast Strategy: How Strategic Agility Will Help You Stay Ahead of the Game. Ft Press.

Eggers, J.P. and S. Kaplan (2013). Cognition and Capabilities: A Multi-Level Perspective. *Academy of Management Annals* 7, 295-340.

Gioia, D.A., M. Schultz & K.G. Corley (2000). Organizational Identity, Image, and Adaptive Instability. The *Academy of Management Review* 25(1), 63-81.

Gioia, D., and S. Patvardhan (2012). Identity as process and flow. In M. Schultz, S. Maguire, A. Langley, & H. Tsoukas (Eds.), *Constructing identity in and around organizationa*: 50–62. Oxford: Oxford University Press.

Gebauer. H. M. Paiola, N. Saccani and M. Rapaccini (2020). Digital servitization: Crossing the perspectives of digitization and servitization. *Industrial Marketing Management* 93, 382-388.'

Huikkola, T., Rabetino, R., Kohtamäki, M. & Gebauer, H. (2020). Firm Boundaries in Servitization: Interplay and Repositioning practices. *Industrial Marketing Management* 90, 90-105.

Huikkola, T., Kohtamäki, M., Rabetino, R., Makkonen, H., Holtkamp, P. (2021a). Overcoming the challenges of smart solution development: Co-alignment of processes, routines, and practices to manage product, service, and software integration. *Technovation*, In Press.

Huikkola, T., Einola, S., & Kohtamäki, M. (2021b). Typologies of Manufacturer Identities in the Age of Smart Solutions. In M. Kohtamäki, T. Baines, R. Rabetino, A. Z. Bigdeli, C. Kowalkowski, R. Oliva, & V.

Parida (Eds.), *The Palgrave Handbook of Servitization* (pp. 41–56). Cham: Springer International Publishing.
Huikkola, T., Kohtamäki, M. & Ylimäki, J. (2022a). Becoming a smart solution provider: Reconfiguring a product manufacturer's strategic capabilities and processes to facilitate business model innovation. *Technovation*, In Press.
Huikkola, T., Kohtamäki, M., Rabetino, R., Makkonen, H. & Holtkamp, P. (2022). Unfolding Simple Heuristics of Smart Solution Development. *Journal of Service Management*, 33(1), 121-142.
Hsuan, J., Jovanovic, M., Clemente, D. H. (2021). Exploring digital servitization trajectories within product-service-software space. *International Journal of Operations & Production Management*, In Press.
Kohtamäki, M., V. Parida, P. Oghazi, H. Gebauer & T. Baines. (2019). Digital Servitization Business Models in Ecosystems: A Theory of the Firm. *Journal of Business Research* 104, 380-292.
Kowalkowski, C. & Ulaga, W. (2017). *Service Strategy in Action*: *A Practical Guide for Growing Your B2B Service and Solution Business.* Publisher: Service Strategy Press.
Lenka, S., V. Parida, D. Sjödin & J. Wincent (2018). Exploring the microfoundations of servitization: How individual actions overcome organizational resistance. *Journal of Business Research* 88, 328-336.
Narayanan, V., L. Zane & B. Kemmerer (2011). The cognitive perspective in strategy: An integrative review. *Journal of Management* 37(1), 305–351.
Nebuloni G, D. Hernandez & P. Carter (2019). IDC Servitization Barometer: Charting Your Path to New Revenue Streams (IDC, London).
Ott, T.E. & K.M. Eisenhardt. 2020. Decision weaving: Forming novel, complex strategy in entrepreneurial settings. *Strategic Management Journal* 41(12), 2275-2314.
Paschou, T., M. Rapaccini, F. Adrodegari & N. Saccani (2020). Digital servitization in manufacturing: A systematic literature review and research agenda. *Industrial Marketing Management,* 89, 278-292.
Porter, M., & Heppelmann, J. (2015) How smart, connected products are transforming companies. *Harvard Business Review*, (October), 96–112.
Reinartz, W., & Ulaga, W. (2008). How to Sell Services More Profitably. *Harvard Business Review*, 86(5), 90–98.
Rindova, V.P. & S. Kotha (2001). Continuous "Morphing": Competing Through Dynamic Capabilities, Form, and Function. *The Academy of Management Journal* 44(6), 1263-1280.
Salonen, A. & Jaakkola, E. (2015). Firm boundary decisions in solution business: Examining internal vs. external resource integration. *Industrial Marketing Management*, 51, November, 171-183.
Schaarschmidt, M., G. Walsh and H. Evanschitzky. 2021. Hybrid Offerings Sales Capability: Conceptualization, Scale Developmentand Validation. *British Journal of Management*, 0, 1-24.
Sirmon, D., M. Hitt & R. Ireland (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. *Academy of Management Review*, 32(1), 273–292.
Sklyar, A., C. Kowalkowski, B. Tronvåll & D. Sörhammar (2019). Organizing for Digital Servitization: A Service Ecosystem Perspective. *Journal of Business Research* 104, 450-460.
Teece, D. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13), 1319-1350.
Tripsas, M. & GavettiG. (2000). Capabilities, cognition, and inertia: Evidence from digital imaging. *Strategic Management Journal*, 21(10), 1147.
Tronvoll, B., Sklyar, A., Sörhammar, D. and Kowalkowski, C. (2020) Transformational shifts through digital servitization, *Industrial Marketing Management*, 89, 293-305.
Töytäri, P., T. Turunen, M. Klein, V. Eloranta, S. Biehl & R. Rajala. 2018. Aligning the Mindset and Capabilities within a Business Network for Successful Adoption of Smart Services. *Journal of Product Innovation Management* 35(5), 763-779.
Ulaga, W. and W.J. Reinartz. 2011. Hybrid Offerings: How Manufacturing Firms Combine Goods and Services Successfully. *Journal of Marketing* 75(6), 5-23.
Vaara, E. & J. Tienari (2011). On the Narrative Construction of Multinational Corporations: An Antenarrative Analysis of Legitimation and Resistance in a Cross-Border Merger. *Organization Science*, 22(2), 370-390.

Visnjic, I., M. Jovanovic & S. Raisch. 2021. Managing the Transition to a Dual Business Model: Tradeoff, Paradox, and Routinized Practices. *Organization Science* (Article in advance) https://doi.org/10.1287/orsc.2021.1519

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