Jonne Seppänen

# BUSINESS CAPABILITY APPROACH FOR PRODUCT EXPERIENCE MANAGEMENT

UNIVERSITY OF JYVÄSKYLÄ
FACULTY OF INFORMATION TECHNOLOGY
2022

# ABSTRACT

Seppänen, Jonne
Business capability approach for product experience management
Jyväskylä: University of Jyväskylä, 2022 88 pp.
Information Systems, Master's Thesis
Supervisor(s): Pulkkinen, Mirja

Product experience management (PXM) is novel concept that has made its inception in recent years. PXM focuses on enabling good product experiences across customer journeys to create commitment and thus competitive advantage. It originates from product information management (PIM) and has resulted as an outcome of endeavors for differentiation in competed markets. Due to its origins, the existing market paradigm is rather technology-centric, and concrete structures and characteristics of it are still vague due to its novelty. This study enlightens the concept by examining the full extent of PXM addressing also the other relevant aspects in addition to technology which justifies the research for this topic. A firm theoretical knowledge base was constructed through which the relevant aspects to be considered in the comprehensive PXM approach were constituted. They were utilized in the later phases of the study where the main objective of constructing an artifact was fulfilled. The artifact, PXM business capability model, was designed and developed following the design science research methodology (DSRM) and TOGAF® (The Open Group Architecture Framework) principles. The constructed business capability model illustrates the full extent of PXM in a form of business capability map. It covers the necessary PXM business capabilities in sensing, seizing, and transforming aspects for ensuring the standpoint for competitive advantage and business success in long term. PXM business capability model was developed as a part of this study in real business environment enabled by information technology service sector case company. The model was demonstrated and evaluated through the real business issue cases to ensure its validity and utility for enhancing PXM understanding as a guiding principle. As a conclusion, the business capability model was stated to be sufficient to help solve the identified business issues and represent a comprehensive illustration of PXM.

Keywords: product experience management, product information management, business capability modeling, business capability map, competitive advantage

# TIIVISTELMÄ

Seppänen, Jonne
Tuotekokemuksen hallinta liiketoimintakyvykkyyksien näkökulmasta
Jyväskylä: Jyväskylän yliopisto, 2022, 88 s.
Tietojärjestelmätiede, Pro Gradu -tutkielma
Ohjaaja(t): Pulkkinen, Mirja

Tuotekokemuksen hallinta (PXM) on viime vuosien aikana syntynyt uusi konsepti, joka keskittyy hyvien tuotekokemusten mahdollistamiseen koko asiakaspolun ajan tavoitteena luoda sitoutuneisuutta ja siten kilpailuetua pitkällä aikavälillä. PXM pohjautuu kaupallisen tuotetiedon hallintaan (PIM) ja se onkin syntynyt erottautumistekijäksi kilpailuilla PIM-markkinoilla. Konseptin alkuperästä johtuen markkinoilla vallitseva ajattelutapa on varsin teknologiakeskeinen, ja sen konkreettiset rakenteet ja ominaispiirteet ovatkin vielä jäsentymättömiä, mikä perustelee tämän tutkimuksen tarpeen. Tämä tutkimus jäsentää konseptia tutkimalla tuotekokemuksen hallinnan kokonaisvaltaisuutta ottamalla kantaa myös muihin oleellisiin näkökulmiin teknologian lisäksi. Tutkimuksessa muodostettiin kattava teoreettinen pohja, jonka tuotoksena esitettiin oleelliset näkökulmat kokonaisvaltaisen PXM lähestymistavan saavuttamiseksi. Näkökulmia hyödynnettiin tutkimuksen myöhemmissä vaiheissa, joissa tutkimuksen päätavoitteena ollut PXM kyvykkyysmalli rakennettiin. Kyvykkyysmalli suunniteltiin ja kehitettiin DSRM (design science research methodology) ja TOGAF® (The Open Group Architecture Framework) periaatteita noudattaen. Rakennettu kyvykkyysmalli kuvaa tuotekokemuksen hallinnan kokonaisvaltaisen olemuksen kyvykkyyskartan muodossa. Se kuvaa välttämättömät PXM liiketoimintakyvykkyydet havainnoinnin (sensing), haltuunoton (seizing) ja muutoksen (transforming) näkökulmista pitkän aikavälin kilpailukyvyn huomioimiseksi. PXM kyvykkyysmalli kehitettiin osana tätä tutkimusta oikeassa liiketoimintaympäristössä IT-palvelusektorin yrityksessä. Kyvykkyysmalli havainnollistettiin ja arvioitiin oikeissa liiketoimintatapauksissa sen validiteetin, käyttökelpoisuuden ja ohjaavana periaatteena toimineen ymmärryksen kasvattamisen varmistamiseksi. Lopputulemana kehitetty kyvykkyysmalli todettiin riittäväksi ratkaisemaan tunnistetut liiketoiminnan ongelmat ja esittämään kokonaisvaltainen kuva tuotekokemuksen hallintaan vaadittavista eri liiketoimintakyvykkyyksistä.

Avainsanat: tuotekokemuksen hallinta, tuotetiedon hallinta, liiketoimintakyvykkyyksien mallintaminen, kyvykkyyskartta, kilpailuetu

## FIGURES



## TABLES

## ABBREVIATIONS

| | |
|---|---|
| CX | Customer experience |
| CXM | Customer experience management |
| CRM | Customer relationship management |
| PX | Product experience |
| PDM | Product data management |
| PLM | Product life cycle management |
| PIM | Product information management |
| PXM | Product experience management |
| ERP | Enterprise resource planning |
| MDM | Master data management |
| DSR | Design science research |
| DSRM | Design science research methodology |
| TOGAF® | The Open Group Architecture Framework |
| GS1 GDSN | Global Data Synchronization Network |
| ETIM | European Technical Information Model |

# TABLE OF CONTENTS

# 1 INTRODUCTION

This design science research examines product experience management (PXM) from utilitarian value perspective. In practice, the selected approach represents the abilities of a company manufacturing or distributing products to help its customers or other stakeholders to succeed with the products by providing all the necessary resources and insight for a good experience to happen. Through the good experiences, commitment and strong relationships can be built when competitive advantage could be obtained.

PXM as a concept has made its inception in recent years but concrete structures and characteristics of it are still vague and relatively unknown. Nowadays, its origins in the concept of product information management (PIM) can be clearly seen in the market as a rather technology-centric paradigm. This study will specifically aim to illustrate the full extent of PXM addressing also the other relevant aspects in addition to mere technology. This study involves an information technology service sector case company which seeks to develop its understanding and services related to PXM. The case company has business issues related to PXM understanding, offering development, and market awareness increasing. Thus, the case company provides an excellent environment for developing the concept of PXM further when the acquired results can be demonstrated and evaluated in the authentic environment.

The main objective and guiding principle of this study is about enhancing the understanding about PXM due to its novelty. Other relevant objectives of this study are acquiring the sufficient theoretical knowledge about the core concepts related to the topic, constructing an artifact according to design science research (DSR) principles to provide practical support for the case company operations, demonstrate the artifact in practice for evaluating the results, and communicating the outcome through this master´s thesis report. In addition, the following research questions are aimed to be answered.

- What is product experience management about, and what kind of aspects does it involve?
- What kind of business capabilities are needed for product experience management in product-based companies?
- How business capability approach for product experience management can support case company´s business development?

The first question focuses on acquiring an understanding of relevant business aspects that should be considered in a comprehensive approach for PXM. This question will be answered through the examination of the existing studies and summarization of the findings. The second question relates to the illustration of full extent of PXM, and it will be answered through the artifact construction and its illustration. The third question was set to examine the artifact´s utility in practice to solve relevant case company business issues, and it will be answered through the demonstration and evaluation of the artifact.

Due to the novelty of PXM concept, a firm theoretical knowledge base was first needed to support later phases of this study. Previous studies related to topics of customer experience, customer experience management, product experience, and business capabilities were examined. It was soon found that the existing scientific studies about PXM were few when also some commercial materials were utilized. Certainly, it´s not optimal for the credibility of the study but on the other hand, they provide a great depiction of how the topic is being discussed currently in the market sense. Theoretical knowledge was built by searching and examining relevant papers, books, and similar publications utilizing the common tools such as Google Scholar and Scopus. Used keywords related to the mentioned topics were for example “customer experience management”, “customer experience development, “product experience”, “business capability approach”, and “business capability modeling”. In addition, some renowned papers were already familiar to the author from other contexts, and they were also utilized. In general, without a specific set guidelines, the papers with a good number of citations were preferred but also some more recent papers without extensive publicity were also utilized to have some fresh aspects. The previously mentioned commercial materials consisted of sales materials, blogs, and other similar materials from PXM and PIM technology platform providers and experts.

The formed knowledge base was utilized in the artifact development to enhance PXM understanding and solve identified case company business issues. The development followed the guidelines of design science research methodology (DSRM) process presented by Peffers et al. (2007). The approach was first planned after which objectives for the artifact were set. Then, it was designed, developed, demonstrated, and evaluated according to DSRM principles. The first versions of the artifact were based on the theoretical knowledge base but during the development it was revised utilizing the practical insight from the case company. The case company business issues provided the test cases where the constructed artifact was demonstrated and evaluated with action research methods until the artifact satisfied the set objectives. In the end, the results were concluded and discussed.

This study proceeds as follows. First, the theoretical knowledge base is constructed in the sections two, three, and four. The section two focuses on unraveling the concepts of customer experience, product experience, their management, and relations. The section three examines different types of business capabilities and their characteristics for supporting the business capability approach of this study. The section four summarizes the findings from the previous studies and provides relevant PXM aspects for approaching it from business capability perspective. The section five introduces the research methodology utilized in this study by presenting the scope, case description, and the research process for this study. The main outcome of this study, the constructed PXM business capability model and its development, demonstration, and evaluation is addressed in the section six. The section seven discusses the conclusion, contributions, limitations, credibility, and future research related to this study. In the end, in the section eight, this study is summarized.

# 2 PRODUCT EXPERIENCE AS A PART OF TOTAL CUSTOMER EXPERIENCE

First, it is important to understand, how product experience is currently considered and how is it positioned in relation to customer experience. Therefore, in this section, customer experience and its management as concepts are addressed after which product experience and its management is examined more closely to support later phases of the study.

## 2.1 Customer experience

It is often stated that the customer is the king or queen. Indeed, as Verhoef et al. (2009) present, customer experience (CX) can be considered as one of the central elements in successful businesses. The role and significance of customer experience management (CXM) has been highlighted, and many companies consider it as a crucial part of strategic management. (Verhoef et al., 2009) CX is simply seen as a capability to drive profit and growth (Witell et al., 2020). For a long time, a change has taken a place when the paradigm shift first from consumer brands to customer relationship management (CRM) and later to compelling CXM has occurred (Maklan & Klaus, 2011). Nowadays, customers confront a vast range of solution alternatives to choose from. Many different commercial channels exist and movement between them is made rather easy for customers looking for a solution to their problems and needs. At the same time, customers face harder and harder decision-making between all the different alternatives that are provided. (Meyer & Schwager, 2007) It´s a typical phenomenon that most customers know and are keen to inform what they *don´t want* but on the other hand they are not able to express what they *do want*. In this context, every business is to consider, how the customers can be won for their side. (Grønholdt et al., 2015)

CX can be considered as a holistic concept regarding its nature. Often, it is treated as a concept of total experience when the whole customer journey from searching to purchasing, from purchasing to consuming, and from consuming to

after sales in different channels is covered. During the journey, CX is about customer´s cognitive, affective, emotional, social, and physical interactions with the seller. From seller´s perspective, experience-enablement is two-fold. First, there are things that seller can have an effect such as service, atmosphere, assortment, and price. Second, there are things that seller cannot influence such as social environment and personal motive for purchasing. (Verhoef et al., 2009) Customers may also have a positive experience but if they end up feeling it as their own personal achievement, the experience does not likely enhance customers´ opinion about the seller. Same context may also provoke different effects depending on customers´ objectives. (Puccinelli et al., 2009)

CX reflects customer´s holistic, cognitive, and emotional experience of the perceived value. In addition to product features and good service level, perceived utilitarian value of a company´s offering influences CX. Further, the company´s capability to hone its promises and deliver them has an impact on the total experience. CX also has a factor of time, when it typically lasts for some time, and occurs in different channels. In the end, CX is eventually about behavior. (Maklan & Klaus, 2011) CX is also expressed as customer´s cognitive and affective perception of encounters with a company. These encounters may be direct, such as a visit in company's ecommerce, or indirect, such as a recommendation from other customer. (Klaus & Maklan, 2013) A similar kind of definition is provided by Meyer & Schwager (2007) who present CX as internal and subjective responses customers have with a company including both direct and indirect contacts. The direct contacts are considered as contacts that are caused by a customer during a purchasing journey. The indirect contacts are presented as unplanned encounters with the company´s products in channels like advertising, news or heard through grapevine. (Meyer & Schwager, 2007) For direct contacts, encounters are not definitely derived just from utilitarian needs but are also conducted just for fun, sociality, or intellectual stimulation, too (Puccinelli et al., 2009). Simply, CX can be also put as a statement of "how customers perceive their interactions with your company" (Manning, 2010). Indeed, customer´s total experience is a synthesis of all direct and indirect touchpoints (Grønholdt et al., 2015).

## 2.2 Customer experience management

Perceived value was one of the aspects presented for CX. It is indeed noticed that companies can compete best when their offering includes both functional and emotional benefits. If an emotional bond between a company and customers can be established, it is very hard for competitors to intervene. Therefore, companies seek to systematically apply the principles and tools of CXM to create these emotional bonds. As experience is about interaction, these bonds are very difficult for competitors to copy when competitive advantage can be achieved. (Berry et al., 2002)

CX connects to every part of company´s offering. Still, only few organizations consider how the different decisions affect CX. Often, different

organizational parts have also totally different points of view, what good CX in their business is. (Meyer & Schwager, 2007) Based on Berry et al. (2002), companies that lack the sensitivity to customers´ experiences totally or for most parts are vulnerable to diminish the value of their offering. On the other hand, based on Meyer & Schwager (2007), successful brands can shape customer experiences by embedding fundamental value propositions covering all the aspects of their offering. Further, based on Verhoef et al. (2009), exceptional experiences are also possibly seen as an enabler for competitive advantage.

CX should be considered as an important strategic objective (Maklan & Klaus, 2011). CXM is seen as a strategy of seller to build the customer experience in a way where both customer and seller have their benefits. Whereas customer relationship management (CRM) focuses on past, CXM pursues current state understanding and future excellence. (Verhoef et al., 2009) Taking care of customer is a process in which every organizational entity cares about a good CX, and in which a company´s top management tries to find balance between the experience enhancement efforts and bottom line. (Meyer & Schwager, 2007) Organizations should be able to form a strong motif for the experience they desire to be create. This motif should reflect the core values and brand strategy of the company. If achieved, the motif can serve as a pole star for all experience management efforts. Organization´s goal should be providing the right set of resources for customers for experience creation. Competency cannot be built overnight, however. (Berry et al., 2002) It is also to be remembered that an indispensable prerequisite for a great experience is founded in the understanding of customer´s real needs (Grønholdt et al., 2015).

CXM cornerstones for sufficient competence have also been discussed in the literature. Based on Grønholdt et al. (2015), at the strategic level, for example top management involvement, clear target setting for CX and alignment with the brand´s promise are mentioned. Further, having an insight of customers activities, understanding the different touchpoints, strong customer focus and innovation driven by customer insight are some aspects considered. Also, having a right mindset within employees and related operations is seen important. (Grønholdt et al., 2015) Similarly, Kamaladevi (2010) supports the strategic importance by promoting active and continuous CXM leadership at all organizational levels aligned with the strategic objectives. CXM should also be seen as an organization wide endeavor with cross-functional ownership. Also, customer understanding, CX measuring and experience design before implementation are mentioned as best practices. (Kamaladevi, 2010) Based on Witell et al. (2020), managing business partners is also a crucial element ensuring the good CX. If company´s products for example are sold through the partner network, it should be ensured that the partners are properly trained and managed. Otherwise, they may operate in a way that does not meet the customer expectations which may lead to dissatisfaction towards the product brand. Therefore, a supplier should seek to minimize such conflicts. They also promote the importance of considering the different needs of relational customers and transactional customers. Relational customers tend to be more long-term focused and keen on finding just the right solution

and confidence with the help of others. Transactional customers operate in short term and are strongly focused on the efficient shopping process and transactions. They see themselves as experts and try to make a good deal. (Witell et al., 2020)

## 2.3 Customer experience development

Customer satisfaction is a sum of positive and negative customer experiences. It is often measured but measuring does not tell how to achieve it. Reflecting own activities is not enough, either, because CX is not just due to good brand communication or offering. Customers must be monitored and analyzed to develop their experiences. (Meyer & Schwager, 2007) Based on Johnston & Kong (2011), some of the drivers for CX development are increasing customer satisfaction and thus loyalty, increasing trust, building of emotional bonds, and creating competitive advantage. In addition to benefits for customer and organization, CX development also creates benefit for organization´s employees. CX development helps them to change their mindset to understand better both the customer and the impact of their own work. This will lead to commitment, satisfaction and even to pride. Later, this also benefits the organization in the long run. (Johnston & Kong, 2011)

First, it is to be recognized that customer experience is not designed but it is co-created with customer (Vargo & Lusch, 2004). The co-creation involves both sides when experiences are created through interactions across different touchpoints (Verhoef et al., 2009). The touch points represent the direct contacts either with a company´s offering or with related representations of it by the company or third parties involved (Meyer & Schwager, 2007). The elements of each touch point form the context while actual activities make it possible to unfold the experience itself (Teixeira et al., 2012). Some of the elements can be designed, and are thus under direct control of a company, but some elements, such as customer´s social environment, are not (Verhoef et al., 2009). When designing and developing CX, the holistic nature of it must be honed, and all the elements and touchpoints are thus to be covered (Berry at al., 2002).

For developing CX, companies must understand customer´s journey. This understanding should cover the journey from the first expectations to the assessments after the actual moment of experience. By developing knowledge based on this understanding, companies can create and orchestrate specific clues that answer to customers´ emotional needs and expectations. If conducted well, customers may form a deep preference for a specific experience, and thus prefer to choose one company over another also next time. The first step to acquire knowledge and start developing the experience is to observe customers and discuss with them about their experiences. Then, a deeper understanding of the clues that are needed in different encounters with the company can be achieved. (Berry et al., 2002) Also Johnston & Kong (2011) express the importance of involving customers in the experience development. Instead of addressing them just as information providers, engaging them actively in forums or directly in

development teams is encouraged. (Johnston & Kong, 2011) Understanding customers is seen to enhance customer satisfaction and business performance, too (Puccinelli et al., 2019).

What are the different steps for creating and developing customer experience? Johnston & Kong (2011) present a ten-step roadmap for improving CX, and it is presented in Figure 1.

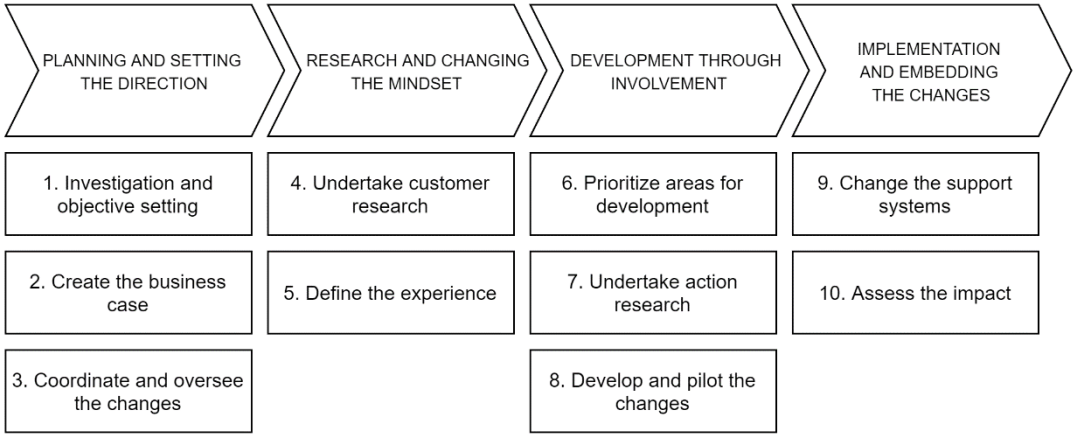


FIGURE 1 Ten-stage roadmap for improving customer experience. Modified from Johnston & Kong (2011).

The first phase of the roadmap focuses on setting the direction for the development with related objectives, creating the business case and acting. The second phase aims for acquiring knowledge of what kind of experience should be created. The third phase emphasizes engaging customers into development and creating the actual changes. The fourth and final phase covers the implementation and assessing the actual impact of the changes. (Johnston & Kong, 2011)

## 2.4 Product experience

Product experience (PX) relates closely to CX, and it is often considered as a subset of total customer experience. For example, Garret (2010) states that user experience is the experience that the product creates for a user which implicates this close connection (Garret, 2010). It has also been presented that CX is a blend of actual product and the emotions it evokes while engaging the organization across any touch point (Berry et al., 2002). PX can also be considered from its physical appearance point of view when PX is about a set of affects concluding from an interaction between a user and a product. Then, PX is about aesthetics, meanings, feelings, and emotions. (Desmet & Hekkert, 2007)

In this study, PX is considered more from utilitarian value and its creation point of view. This kind of view involves addressing the interaction between a

seller and a customer, and the seller´s process of providing sufficient resources for the customer for a good PX in different channels and touchpoints. In this way, PX is not only about product´s design and quality, but also about helping customers to find right solutions for their problems and getting most value out of their purchases. In this sense, as Berry et al. (2002) also notice, managing PX is about the capability to provide right clues to customers for them to succeed with the products. This kind of competency involves successful orchestration of capabilities to provide such clues to meet or exceed the customer expectations. (Berry et al., 2002) It is also mentioned that development in dynamic digital, physical, and social realms increase the need for customized product experiences. These experiences should be based on encompassing customer´s cognitive, emotional, social and value responses to the organization´s product offering over the life cycle from pre-purchase to post-purchase phases. (Bolton et al., 2018)

## 2.5 Management of product experience

As better product experiences are trying to be enabled, product brands confront an essential need to provide high-quality contextualized product information during the whole customer journey (Goaland, n.d.). Product information indeed is one of the key enablers for a good PX. Where traditional concepts of product data management (PDM) and product life cycle management (PLM) focus on product development and manufacturing related product data (e.g., Kropsu-Vehkapera et al., 2009; Stark, 2015) product information management (PIM) covers the product information needed for marketing and selling purposes of company´s products. Specific PIM system solutions are utilized in companies to manage this information to cover different needs in varying touchpoints for both customers and employees alike. The main goal of PIM is to provide accurate and up to date product information for a consistent customer experience in different touchpoints. (Abraham, 2014)

PIM and related technology solutions have existed for some time already, but according to Walker (2018), transformation is happening. Based on Bordelon (2020), PIM covers efficient and effective commercial product information enrichment and contextualization well, which helps to acquire consistent high-quality customer experiences in different channels. However, nowadays it is more and more about personalized interaction with the brand than just about a high-quality data. (Bordelon, 2020) The role of high-quality data is still emphasized, and it is seen that errors in data may be fatal for product presentation optimization for digital channels (Muños, 2020). Managed, consistent and complete product information is in a key role, when the modern purchasing journey of customer is considered. Still, mere product information is only the foundation for product experience. (Informatica, n.d.) Management of data is no more enough but its optimization is also needed (Thierhoff, 2019). Concluded, PIM is not just enough anymore (Bordelon, 2020).

Product experience management (PXM) is a novel concept that has its inception in some of the PIM solution providers´ new positioning to presented product information and PX concept. Some of the reasons are mainly commercial when these PIM vendors presumably try to differentiate themselves from their competitors. Based on that background, PXM is also seen as extended PIM where special focus on content analysis, personalization, contextualization, automation, and optimization has been set. (Walker, 2018) According to Muños (2020), PXM presents an *emergence of a new process* which transforms the way how traditional and digital commerce are being organized. It is about management of products considering how they are presented for customers and how related efforts are organized. PXM is seen as a management method which aims to adapt the product content for all different channels for users to find right answers for their needs. PXM is thus addressed as a foundation for modern omnichannel strategy. (Muños, 2020) It also has a strong link to CXM, and PXM is addressed as a product adaption of it. Based on this, PXM is seen as provisioning of unique product experiences to form emotional links to products. (Goaland, n.d.)

Most likely due to the new positioning with a background in PIM, several companies see PXM strongly as a data-driven concept with a touch of contextualization and personalization. For example, technology platform provider Contentserv (n.d.) presents PXM as "onboarding, management, and enrichment of product information that is delivered in context, and personalized based on the channel, locale and need of your customer – ". Further, a syndication platform provider Productsup (2021) relies on standardization, optimization, and distribution of data to different channels, and promotes the goal of great overall shopping experience by providing relevant high-quality data to different touchpoints. Informatica (n.d.) also adds customer and supplier data into the mix to link transactional and interactional data for providing relevant and contextualized content. They also propose contextual data from location and devices as a part of PXM, and necessary integrations to data sources such as CRM and ERP. (Informatica, n.d.). Still, for example Bordelon (2020) highlights that PXM is primarily a mindset to help to achieve the next level differentiated customer experiences. It´s not a tool or a specific platform but the experience that encircles the product. (Bordelon, 2020)

## 2.6 Structures for product experience management

Even if most of the solution providers approach PXM only with technological system and platform solutions, they also discuss about the different key areas and capabilities needed for PXM. For example, Muños (2020) presents three different key areas for PXM development. First, a knowledge of company´s products is required to know, how to build appropriate experiences around them. Second, CX is to be the guiding principle for all development activities. Third, appropriate technological tools are needed to support managing and delivering PX. (Muños, 2020) Considering a bit more technical point of view, Bordelon (2020)

lists three main components for PXM. First, data is needed for creating an understanding of customers and their behavior. Further, enrichment and enhancement for product information is required by the means of PIM and related tools. Last, delivery platforms, such as ecommerce, syndication tools, and different marketplaces are needed for making the product experience real and alive. (Bordelon, 2020) PXM is also seen as a platform consisting of onboarding the product information from different sources, product content creation, management of that content, enrichment of content and its syndication to the different destinations. (Thierhoff, 2019) In addition, Bordelon (2020) adds that PXM is about multiple platforms working together.

## 2.7 Summary

In this chapter, the existing literature was studied to understand, how product experience (PX) is positioned in relation to customer experience (CX). Both CX and PX were briefly discussed, and characteristics of their management structures were addressed. The findings indicated the close relation of these two concepts, and they are seemingly setting requirements for the businesses to have certain capabilities to deliver competitive and impactful experiences for their customers. Therefore, in the next chapter, the concept of business capabilities is addressed to understand what should be especially considered when a business capability approach for a company is taken.

# 3 BUSINESS CAPABILITIES

In this chapter, business capabilities are examined to understand their related key structures and concepts. Then, acquired understanding can be utilized in the later phases of this study when a business capability approach supporting the delivery of competitive and impactful product experiences is designed. First, business capabilities in general is addressed. After that, specific types of business capabilities and related structures are discussed.

## 3.1 Business capabilities in general

*Capability* can be stated as an organization´s ability to assemble, integrate, and deploy valuable resources. This could be done in combination or copresence of resources. (Bharadwaj, 2000) Business capability is also considered as an ability to beat competitors. This requires successfully utilizing unique and difficult-to-copy resources and assets. Therefore, a business capability is about the identity of a firm as experienced by both the organization and its customers. (Brits et al., 2006) Business capabilities involve an IT-aspect, too. For example, in case of digital sales channels, the role of information technology is vital for different organizations to enable good product experiences. As stated by Bharadwaj (2000), an IT capability of a firm is about the ability to mobilize and deploy IT-based resources mixed or co-present with other resources and capabilities (Bharadwaj, 2000). All in all, business capabilities focus on *what* the business does instead of *how* the different capabilities are used to deliver business value (The Open Group, 2018a) For enabling business capabilities, the following components presented in Figure 2 below are needed.

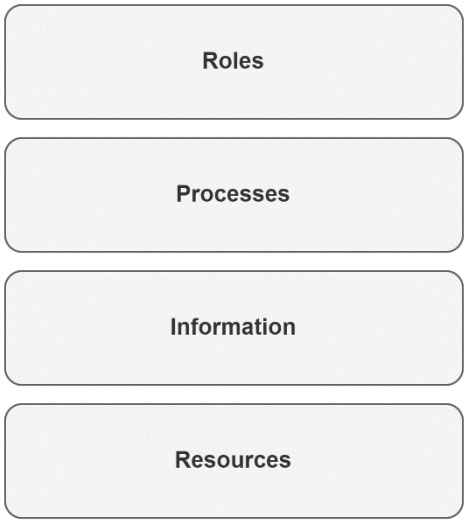


FIGURE 2 Business capability components. (The Open Group,2018).

Roles represent different actors, stakeholders, business units or partners who are part of delivering the specific business capability. Processes involve the core processes within the capability. Information represents the necessary business information and knowledge needed to enable the business capability. (The Open Group, 2018a) Resources can be roughly classified into three distinct categories. *Tangible resources* consist of financial capital and physical assets of the firm, such as equipment. *Intangible resources* include for example assets such as brand image and product quality. *Personnel-based resources* encompass different knowledge assets such as technical know-how and organizational culture. (Grant, 1991) Further, in case of IT-based capabilities, *tangible resources* consist of the physical IT infrastructure components, *the human IT resources* comprise the technical and managerial IT skills, and *the intangible IT-enabled resources* involve for example knowledge, customer orientation, and synergy (Bharadwaj, 2000).

If business and its development is approached from the capability perspective, the key point is to recognize the firm as an organization possessing different capabilities and strategies. These organizational capabilities can be roughly divided into two interconnected categories of ordinary capabilities and dynamic capabilities. (Teece, 2019) *Ordinary capabilities* tend to be operational and functional by their nature focusing on supporting technical efficiency in productive activities, such as payroll. The ordinary capabilities do not typically assess if the actual outputs are supporting the competitive needs of a firm or not. (Teece, 2007) As Lee et al. (2015) present, the ordinary functional capabilities facilitate the higher-order dynamic capabilities for composing and decomposing different organizational resources for competitiveness and responsiveness for market changes (Lee et al., 2015). *Dynamic capabilities* are thus considered generally more strategic in nature (Teece, 2019). They are widely considered to incorporate the processes which enable organizations to create competitive advantage and

business performance over time (Wilden et al., 2013). The concept of dynamic capability involves the development, utilization and protection of organizational competences and resources to answer changing needs of an operating environment. Dynamic capabilities are seen to consist of organizational, technological, and functional capabilities and their successful integration. (Augier & Teece, 2009; Teece, 2018) Capabilities may also be hierarchical when specialized functional capabilities are integrated to more extensive functional capabilities. For example, very specific marketing-related capabilities may form the overall marketing capability. Further, these capabilities may integrate to form cross-functional capabilities when they extend across the different internal business verticals. (Bharadwaj, 2000)

Both ordinary and dynamic capabilities include two types of routines. First, there exist routines for performing individual tasks. Second, there are routines that coordinate those individual tasks. The latter routines indicate that capabilities require coordinated effort by individuals. Thus, organizational capabilities and their evolvement rely strongly on those individuals and on the teams they form. Any coordinated activity does not yet constitute a capability but for qualification, it is expected to work in a reliable manner. When the time comes and some activities can be stated as capabilities, this is only the beginning. It is only a point of minimum level of functionality that enables reliable, repeated performance of an activity. (Helfat & Peteraf, 2003) However, if the focus is strongly set on achieving excellence in ordinary capabilities, meaning driving the efficiency, there is a possibility that dynamic capabilities are undermined through the diminished organizational flexibility. In the changing market conditions, a determined chasing of efficiency and productivity may blur the need of change for new products and processes the market needs. Therefore, the best possible ordinary capabilities are most likely insufficient to ensure that a firm will be the winner in continuous games of success and survival. It is thus to be understood in companies that doing ordinary things right is no replacement for doing the right things in market effectiveness sense. (Teece, 2019)

## 3.2 Ordinary business capabilities

Ordinary business capabilities are operational and functional by nature (Teece, 2007). These capabilities comprise the ability to utilize different resources to conduct an activity from a functional aspect (Freitag et al., 2011). Such activities, for example production of a specific product, are enabled through the capabilities which exploit routines to manage the tasks required for the activity (Helfat & Peteraf, 2003). Ordinary business capabilities are indeed about the ability to execute the core functions to achieve business success. They comprise and illustrate different applications, roles, skills, and other assets to perform such functions. (Aleatrati Khosroshahi et al., 2018)

Utilized resources may be tangible or intangible assets which can be developed and effectively controlled (Teece, 2019; Helfat & Peteraf, 2003; Bharadwaj,

2000; Grant, 1991). The resources consist of the skills of people, equipment, and the collective skills of an organization. With the resources, deployable services can be generated. The way a firm´s resources are organized and coordinated is seen at least as important to competitiveness as for the content of the actual resources. It is to be noticed, however, that resources are not capabilities. For example, wrong people in a specific project do not create the capability to make things happen. (Teece, 2019) Still, these organizational resources, utilized in coordinated sets of tasks, serve the purpose of achieving desired end-result (Helfat & Peteraf, 2003) .

In contrast to business processes, business capabilities do not illustrate the specific activities needed for a concrete result. They capture an abstraction of a business function to describe what an organization does instead of delving into how, why, and where the activities are happening. Ordinary business capabilities can be thus considered as a particular ability that a firm may possess or exchange to achieve a specific purpose in operational and functional level. They are built to concentrate on what the business is and what it does instead of focusing on how they are used to deliver business value. (The Open Group, 2018a) Therefore, an ordinary business capability is kind of a loosely coupled group of assets that targets to provide the capability to run the business (Aleatrati Khosroshahi et al., 2018). As stated, these ordinary capabilities are enough in certain time window, but they do not ensure the long-term competitive advantage in a changing operating environment. There, dynamic capabilities are needed. (Teece, 2019)

## 3.3 Dynamic business capabilities

The dynamic capability approach has conquered firms and taken its place as a leading perspective in strategic management context (Di Stefano et al., 2010). In rapidly digitizing world the one and only sustainable source of competitive advantage is based on the speed and ability of companies to identify and answer changing customer needs. Organizations can obtain this kind of organizational agility and other dynamic capabilities through the capability building processes where lower-level functional capabilities are integrated. (Lee et al., 2015)

The dynamic capability approach tries to explain how different firms can acquire growth and survive in a changing environment. The dynamic capability concept comprises the creation, extension, integration, modification and deployment of different resources and assets to achieve these goals. At the same time, competitive threats and business transformation for the changing needs should be handled. (Teece, 2010) Dynamic capabilities are seen to help companies to renew their operating model by building and renewing resources and reconfiguring them for delivering the necessary changes for the market to stay competitive (Pisano & Teece, 2007). Strong dynamic capabilities enable high business performance. This can be achieved by developing new products and processes, with a help of change-oriented organizational culture and with long-term thinking addressing operating environment changes and technological development.

Dynamic capabilities allow firms to make expectations and hypotheses about the evolution of consumer behavior, business challenges and technologies. This allows firms to validate them and further implement changes by rearranging assets and activities. (Teece, 2019)

## 3.4 Dynamic business capabilities structures

Teece et al. (1997) present that organization´s competence and dynamic capabilities base on organizational processes which are strongly affected by positions and co-evolutionary paths. They present positions as a current specific set of assets including for example technologies, relations, and customers. Further, paths represent strategic alternatives and the presence or absence of dependencies. (Teece et al., 1997) Later on, it has been stated that dynamic capabilities can be informally partitioned into three different aspects. First, dynamic capability is about the capacity of firm to sense threats, opportunities, and customer requirements. (Teece, 2007) It reflects the explorative approach which ambidextrous organizations entail to respond flexibly to market changes (Lee et al., 2015). *Sensing* is about exploring different technological opportunities, probing the market environment, understanding, and hearing customers, and scanning the business ecosystem elements such as partners, competitors, and complementary assets (Teece, 2007). Overall, the capability to sense different ways of operating is required so that actual decisions between different options can be made (Teece, 2019).

As soon as different ways of operating have been identified, seizing of them is up next. *Seizing* is about the mobilization of resources to answer new opportunities and capture value for the business out them. (Teece, 2007) Where sensing reflected the explorative approach, seizing can be compared to exploitative approach while trying to answer market needs in a flexible way (Lee et al., 2015). Seizing involves the implementation of chosen business model to answer sensed opportunities and threats. It may be about satisfying customer or shaping the market for more beneficial form but in any case, it is about capturing the value for the business. Rearranging the resources and assets benefit from having appropriate top-level knowledge, motivated employees, and organizational culture. Also, secure funding will allow needed investments. Strong relationships with ecosystem partners such as customers and suppliers will certainly help, too. (Teece, 2007)

Acquiring growth and staying competitive involves continuous renewal of organization. *Transforming* is therefore needed, and especially leadership skills, balancing between new opportunities with radical changes and regular smaller changes, and regular strategic alignment with the ecosystem are considered as valuable aspects to consider. (Teece, 2007) Leadership models call especially for the capabilities for asset management, business agility, entrepreneurial touch, and future-looking attitude (Teece, 2019).

Based on Teece et al. (1997), some of the basic capabilities needed for dynamic capabilities in general are sufficient capability for internal and external

coordination, learning at both organizational and individual level, reconfiguration and transformation of resources, and strategic positioning based on learning, internal and external processes, and specific assets (Teece et al., 1997). Also, Bolton et al. (2018) present that organizational learning is required, and especially when exceptional customer experiences are required to be delivered. Further, they emphasize capabilities for connectivity, consistency of elements, and superior service design in case of good customer experiences in business environment. The capability for connectivity entails appropriate technical infrastructure and data sources to make relevant data accessible when systems should be seamlessly integrated to customer activities. They also promote the capability to co-create experiences with customers for them to be contextually relevant. Also, understanding of customers´ diverse goals, resources and capabilities was presented as a potential required capability. (Bolton et al., 2018). In addition, it is stated that IT-based capabilities enable the creation of flexible and responsive processes to meet the demands of customers in varying external environments with characteristics of hostility, dynamism, and complexity (Chen et al., 2014).

## 3.5 Summary

In this chapter, the existing literature was studied to understand business capabilities, their structures, and characteristics. It could be found that different types of business capabilities exist, and a capability itself is mostly about abilities to assemble, integrate, and deploy different types of resources. Further, also different capabilities could be integrated in favor of achieving organizational agility and competitive advantage. In the next chapter, the findings from chapters two and three are synthetized to constitute the relevant business capability aspects for supporting the later phases of this study.

# 4 BUSINESS CAPABILITY APPROACH FOR PRODUCT EXPERIENCE MANAGEMENT

The existing literature was studied to understand, how PX is positioned in relation to CX. Both CX and PX were briefly discussed, and characteristics of their management structures were addressed. Based on the findings and implications for different capabilities required by the businesses for better product experiences, the concept of business capabilities and their structures were examined more closely. Both ordinary business capabilities focusing on operational and functional aspects and dynamic capabilities as a transformative source of competitive advantage were discussed. In this chapter, based on the findings and suggestions from the existing literature in chapters two and three, summarized review of PXM and possible business capability approach for it is presented. Further, relevant aspects for PXM business capability approach are summarized.

## 4.1 Review of product experience management today

It was emphasized in the literature that development in dynamic digital, physical, and social environments increase the need for customized product experiences. These experiences were presented to be based on encompassing customer´s cognitive, emotional, social and value responses to organization´s product offering over the life cycle from pre-purchase to post-purchase phases. (Bolton et al., 2018) Undoubtedly, a good product and customer experience are some of the cornerstones of successful businesses. Without a good service, providing the right solutions for the needs and care, many customers are more likely to walk next door or click the next search result in Google. The existing literature clearly stated the importance of good total customer experience and its role as an enabler for competitive advantage. (e.g., Verhoef et al., 2009; Grønholdt et al., 2015)

Management of CX and its development were also addressed quite extensively in the previous studies. The need for analyzing and development (e.g., Meyer & Schwager, 2007) of CX was found obvious. CXM as a concept was

mostly considered as a holistic approach covering the whole customer path (e.g., Verhoef et al., 2009), and it´s strategic role to drive exceptional experiences and to win customers was also emphasized (e.g., Grønholdt et al., 2015; Verhoef et al., 2009; Berry et al., 2002). Most studies considered CX to build around interaction, behavior, and perceived value. Direct and indirect confrontations in different touchpoints, and building emotional bonds were some of the key aspects presented. (e.g., Maklan & Klaus, 2011; Klaus & Maklan, 2013; Manning, 2010; Meyer & Schwager, 2007; Grønholdt et al., 2015; Berry et al., 2002)

PX was discussed in the existing literature to some extent but in comparison to CX, findings were less. It was often discussed in parallel with CX and considered for example as its sub-set (e.g., Garret, 2010). Many studies also focused on physical appearance and aesthetics of products (e.g., Desmet & Hekkert, 2007) which can also be thought as an aspect for PX, but not in the sense considering the focus of this study. However, some studies supported author´s experience-based perceptions about PX as an enabler for utilitarian value, problem-solving and bonding with the company through interaction. For example, Berry at al., (2002) present that PX is about capability to provide the right clues, meaning resources, to customers for them to succeed with the products. Bolton et al. (2018) add that PX should be fostered through the whole customer journey, and the experience itself should base on customers´ cognitive, emotional, social and value responses to company´s product offering.

What is PXM about then? The previous academic studies were few or even non-existent, which was partly anticipated based on author´s professional experiences. As Walker (2018) expressed, the novel concept of PXM originates for its part from PIM solution providers´ new positioning in tightening competition of marker leadership. PXM is thus often presented as extended PIM with special focus on content analysis, personalization, contextualization, automation, and optimization (Walker, 2018). The role of product information in good customer experiences is emphasized (e.g., Goaland, n.d.; Abraham, 2014) but it has also been discovered that mere product information is only the fuel and foundation for PX, and its optimization is needed. (e.g., Informatica, n.d.; Thierhoff, 2019; Bordelon, 2020) However, when the commercial delivery of PXM concept by different technology companies, basically PIM vendors, is examined more closely, the actual manifestation of PXM in practice remains still rather vague. Several companies (e.g., Informatica; Contentserv; Productsup) promote the importance of PXM and its positive effects on sales and CX but provided solutions are basically different technology platforms with strong focus on product data. As Muños (2020) presents, technology is needed for management and delivery of product experiences, but it is only one part of it.

For now, it indeed seems that concept of PXM is strongly built around provided system solutions marketed as PXM or PIM platforms. Many vendors present valuable insights about product experiences and discuss PXM business-wise but presented approaches for better product experiences are strongly technology driven. Technologies themselves are important enablers for almost any business endeavor but as discussed earlier based on the existing literature, customer and

product experience is mostly about humane interaction. Then, mere technological solutions most likely do not present the necessary business capabilities for enabling compelling product experiences for customers. Technology is a great enabler, but it is only an asset supporting the enablement of a capability. Based on this, it seems that it´s worth of investigating the concept of PXM from business capability perspective more thoroughly.

## 4.2 Business capability approach for product experience management

It was stated in many studies (e.g., Lee et al., 2015; Teece, 2019) that the speed and ability of companies to react to changing needs in a rapidly changing dynamic environment is one of the rare means to keep up competitive advantage for survival and business success. Nowadays, we are operating in dynamic connected environment with multiple channels for interaction and thus for experiences. In this world, business is more and more about identity politics where individual needs are to be met for engagement and business success. The number of different options in a form of products has grown vast making it easy for customers to look for other alternatives for their needs. Then, engagement and good experience is crucial to build long-lasting relationship to enable more sales, growth, and competitive advantage. Companies, whose business is based on products, should most likely be then interested to aim for better product experiences to engage their customers. For this to happen, different business capabilities are obviously needed to enable and manage compelling product experiences.

As Brits et al. (2006) concluded, business capabilities are about the ability to beat competitors by utilizing different resources and assets that are unique and difficult to copy. (Brits et al., 2006) A capability was specifically stated as an organization´s ability to assemble, integrate, and deploy these resources and assets (Bharadwaj, 2000). Resources could be tangible, such as IT-infrastructure, intangible, such as customer orientation, or human-based, such as skills (Grant, 1991; Bharadwaj, 2000). In addition to resources, business capabilities also involve the elements such as roles, processes, and information. (The Open Group, 2018a) Based on the existing literature, it´s obvious that good customer experiences and product experiences are needed if companies are to survive and compete. Considering product business in general, basic core functions for managing the products through their life cycles are standard requirements for business. Product development, manufacturing, purchasing, marketing, selling and other core functions make the business run overall. As Aleatrati Khosroshahi et al. (2018) present, such ordinary business capabilities involve different resources such as applications, roles, and skills for them to perform. In PXM sense, supporting systems such as PIM platforms mentioned in literature, product contents and people involved are thus needed as resources to enable these ordinary capabilities.

However, even the best resources do not save from extinction. As Teece (2019) points out, resources are not capabilities. Therefore, for example a good product itself, stellar images or certain system solutions do not guarantee a good PX if market responsiveness is bypassed. As Teece (2019) continues, determined chasing of efficiency and excellence in ordinary capabilities may hinder organizational flexibility to operate in the changing market conditions and even blur the needs for a change to meet market requirements. Thus, being a champion in efficiency and productivity in ordinary capabilities is most likely insufficient to ensure that a firm stays competitive and delivers compelling customer experiences. Based on author´s experiences from real business cases, many traditionally operating companies tend to behave just like Teece (2019) presents when the focus is set strongly on internal process efficiency and productivity. For example, CX is not often seen worth investing since products are considered stellar and are seen to sell themselves as these companies tend to argument the topic.

Dynamic capabilities and their structures were studied based on the existing literature. Concluded, they are considered to be mostly about organizational renewal and reconfiguration to acquire growth and survive in changing environment. (Pisano & Teece, 2007) For making great product experiences happen, provisioning the right resources for interaction with customers is needed. Therefore, organizations should possibly achieve dynamic capability for creating, extending, integrating, modification and deployment of appropriate customer and product experience related organizational resources and assets, as e.g., Teece (2010) presents. With these kinds of capabilities, companies operating in product business could follow and match the evolution of consumer behavior, business challenges and technologies. Further, needed changes could be then validated and implemented by rearranging assets and activities. (e.g., Teece, 2019)

The business capability perspective could provide an interesting approach for PXM for companies to stay competitive in changing environments. As the existing literature presents, dynamic capabilities are considered as abilities to identify and answer changing customer needs while seeking competitive advantage. (e.g., Lee et al., 2015) Reflecting back to the findings in PX and its role in seeking competitive advantage, approaching PXM from business capability perspective could totally make sense. As the existing literature states, the concept of dynamic capability involves the development, utilization and protection of organizational competences and resources to answer the changing needs of operating environment. (e.g., Augier & Teece, 2009; Teece, 2018) Therefore, the first logical step could be to identify organizational competences, meaning capabilities, that are needed in organizations to deliver compelling product experiences. In addition to this, integration of these capabilities should be most likely also examined to achieve responsiveness to market changes, as Lee et al. (2015) propose.

## 4.3 Business capability aspects for product experience management

PX and its management could be considered as a rather multifaceted phenomenon based on the existing literature. When taking a business capability approach and looking for key competencies needed, different aspects are thus to be considered. As discussed in the previous chapter, PXM could be approached from business capabilities perspective. For adequate PXM business capabilities, first logical step would be to identify different basic capabilities needed so that those could be further integrated. In this chapter, different aspects for PXM business capabilities are constituted based on the findings from the existing literature.

### 4.3.1 Dynamic capability aspects

Relevant to the nature of PXM, dynamic capability main aspects of sensing, seizing, and transforming (e.g., Teece, 1997; Teece, 2007; Teece, 2019) could provide appropriate guidelines for covering the needed elements for PXM.

For *sensing*, the existing literature proposed capabilities such as sensing threats, exploring technological opportunities, probing the market environment, understanding customer requirements, and exploring the business environment for opportunities. In short, it could be put as identifying different ways of operating so that decisions between the different options can be made. In PXM sense, this would basically mean a constant evaluation of market positioning, scouting of new ways of experiencing products, analyzing customer behavior, and exploring new business opportunities and partnerships. For delivering compelling product experiences and therefore enabling customer engagement, capabilities for sensing and sufficient capacity to drive them seems critical. If we do not know what kind of experience matters, how could we do it right?

*Seizing* stands for mobilization of resources to answer identified opportunities and capture the business value out of them. It is about implementing chosen approach by rearranging organizational resources and assets. In PXM sense, seizing would be about enabling, creating, and delivering the specific resources for interaction so that desired experiences could be enabled. In practice, this could include for example preparation of the actual product content, integration to new touch points, reorganizing business teams, or implementing new technologies to support new ways of experiencing products.

Non-recurring performances are not enough if sustained competitive advantage, growth and customer satisfaction are being aimed. Organizations need to renew when *transforming* is required. This means sufficient leadership skills, balancing between radical changes and regular changes and capability to align with the ecosystem in strategic sense. For PXM, this sets requirements for organization-wide understanding of the promise of PXM, identifying focus areas in product assortment with a need for different kinds of change, and management practices to make them happen.

### 4.3.2 Strategic aspect

Existing literature highlighted the importance of strategic management for both CX elements and organizational capabilities. (e.g., Verhoef et al., 2009; Witell et al., 2020; Grønholdt et al., 2015) Experience altogether should be seen as an important strategic objective (Maklan & Klaus, 2011), and clear target setting reflecting the brand is suggested (Grønholdt et al., 2015; Johnston & Kong, 2011). Obviously, desired experience should be defined (Johnston & Kong, 2011) when it could provide a strong motif and guiding principle for all development activities (Berry et al., 2002; Muños, 2020). Before that, sufficient knowledge of company´s products are needed so that appropriate product experiences could be designed (Muños, 2020). Also, the current strategic position with specific assets should be understood so that different paths presenting strategic alternatives can be formed (Teece et al. 1997). When developing experience capabilities, a proper business case is suggested (Johnston & Kong, 2011), when sufficient funding for investments is in place. (Teece, 2007) In strategic sense, aiming for good CX is said to be a process in which top management tries to find balance between the experience enhancement efforts and bottom line. Therefore, a process also involves monitoring the changes so that their outcome and effect can be evaluated. (Meyer & Schwager, 2007)

Considering PXM, it seems obvious that certain strategic management capabilities are needed to guide an organization´s actions towards the desired experiences and thus ensuring competitiveness. First, both customer and product experience should be considered in strategic planning so that necessary investments will be secured. Before the target setting and action plan, it is required that a clear vision for PX exist. Not all products are similar nor with same strategic priority when organization should have a capability to classify and prioritize the products for experience development investments. When sufficient knowledge of products exists, targeted experiences can then be designed. Then, a gap analysis against current position could be made which would possibly reveal organization´s capacity to answer the set experience level. After that, different development paths to desired outcome could be formed. As the existing literature propose, a proper business case is needed so that investments can be secured. However, enhanced experience may be hard to measure with raw numbers when objective soft measures may be needed. This could also set some requirements for the needed capabilities.

### 4.3.3 Leadership aspect

Leadership skills were also identified as an important aspect to be considered. At high-level, long-term thinking is proposed to ensure that the focus will be set in the future instead of evaluating only the existing outcomes. (Teece, 2019) While trying to form an overall picture of experience and its development, identifying issues that can be affected and the issues that cannot be affected (Verhoef et al., 2009) could also be important. Then, actual development activities can be focused on the right areas. Altogether, understanding of how different decisions affect

CX is also mentioned in the existing literature. (Meyer & Schwager, 2007) Having a right mindset among employees seems also important aspect when aiming for a good experience (Grønholdt et al., 2015). As Meyer & Schwager (2007) express, aiming for a good experience involves every organizational entity to care about the experience, which indicates requirements for good leadership to get everyone on board. Further, based on Kamaladevi (2010) experience leadership should be active and continuous at all organizational levels, and it should align with the strategic objectives. Managing the experience should be seen as organization-wide endeavor with cross-functional ownership. (Kamaladevi, 2010) It is also about a coordination of change (Johnston & Kong, 2011). Even an entrepreneurial touch is mentioned as one capability for good leadership approach for achieving dynamic capability (Teece, 2019).

As Bordelon (2020) states, PXM is primarily a mindset to help achieve the next level experiences. Having a right mindset most likely involves a clear vision, right type of people and leadership. In PXM sense, a clear overall picture could enable leading the total experience covering both internal and external parties. Leadership capabilities in PXM could involve identifying the best choices and moments to make an impact for better experience. Some of the development initiatives are explorative by nature and some more exploitative. Leadership skills are thus needed to find appropriate balance between them. Further, a capability to make involved people to foster CX in every moment would possibly be in place. Leadership also involves aligning the different activities with set PXM objectives. Sometimes, it is about deciding what should not be done and the strong leadership obviously helps in this. Finally, as CX and PX are the result of joint-actions of product stakeholders, cross-functional ownership should be probably enabled to make PXM everyone´s business.

### 4.3.4 Organizational aspect

Organizational aspects for capabilities were also identified from the existing literature. Organizational capabilities and their evolvement are seen to involve coordinated efforts by individuals when capabilities strongly rely on individuals and teams they form. (Helfat & Peteraf, 2003) A change-oriented culture seems to have positive effect on dynamic capabilities. Further, skills of people and appropriate top-level knowledge are seen important. (Teece, 2007; Teece 2019) Also, top management involvement is considered important for experience development (Grønholdt et al., 2015) It was also found that experience development possibly helps involved people to change their mindset to understand customers and the impact of their own work better which generates commitment, satisfaction, and motivation. (Johnston & Kong, 2011) Organizational learning (Bolton et al., 2018), capability to hone customer promises (Maklan & Klaus, 2011) and innovation driven by customer insight (Grønholdt et al., 2015) were also mentioned as organizational aspects relating to experience and capability development.

The existing literature seems to highlight the fact that capabilities, both ordinary and dynamic ones, are strongly dependent on culture, people, and their skills. In PXM context, a change-oriented culture possibly helps to accept the fact

that organization need to be readjusted along the changes in customer behavior since experience is about interaction in the end. Involving people to change initiatives, may it be implementing a new PXM platform for example, most likely helps people to digest the change and may even uplift their mindset as Johnston & Kong (2011) described. People obviously need to have sufficient skills to create appealing product content and tune the resources for experience in different touchpoints, but it could be even more important that skills are being developed to match the requirements set by customers.

### 4.3.5 Customer understanding aspect

Great experiences base on the understanding of customer´s real needs (Grønholdt et al., 2015). Understanding the customers and their journeys for better experience is highlighted in the existing literature on many occasions. (e.g., Grønholdt et al., 2015; Kamaladevi, 2010; Berry et al., 2002; Johnston & Kong, 2011) Also, identifying the different types of customers, such as relational and transactional ones, is promoted (Witell et al., 2020). Understanding customer needs and using this insight for organizational development is seen beneficial for both customer satisfaction and business performance (Puccinelli et al., 2019).

Experience is about interaction when right elements are necessary to be provided for experience co-creation. For PX, this obviously means that we should acquire understanding of what customers need and how could we help them succeed with the products. As previous studies indicated, customer understanding play a central role in experience development which certainly sets requirements for PXM capabilities approach. Organizations could benefit having a capability to sense the moments when they must be ready to provide the right resources for enabling a good experience. Understanding of customer goals and the path they take is then certainly required. In the end, customers are individuals and humans which needs to be understood in a company designing and enabling the experiences. Thus, service design methods could possibly bring some new aspects to consider in experience development.

### 4.3.6 Experience aspect

Experiences base on interaction. Still, designing experience before implementation is mentioned as one good practice to ensure customer satisfaction. (Kamaladevi, 2010) In practice, this means creating and orchestrating specific clues, the resources, to match customer emotional needs. Experiences are seen to be about functional and emotional benefits, and experience design focus on creating related emotional bonds. Experience design should consider the holistic nature of CX when all the different touchpoints should be covered. (Berry et al., 2002) In addition to defining the desired experience, different development activities should be prioritized before implementation, and outcomes evaluated in the end. (Johnston & Kong, 2011) Altogether, experience should be measured to ensure desired results (Kamaladevi, 2010). As Maklan & Klaus (2011) simply express,

the total experience is highly dependent on company´s capability to hone and deliver its promises.

PXM aims for ensuring and delivering compelling product experiences throughout the customer journey when capabilities related to the experience itself are most likely required. As discussed in the previous studies, it is to be understood that experiences are about creation of emotional bond when capabilities for human-centric approach could be needed. Ensuring practical value, delivering the promise, and helping customers should apparently be enabled with these capabilities. Also, experiences are not always instant but grow over the time along the change in behavior when capabilities for long-term continuous development are evidently in place. Before the development, desired experience level should be defined as the previous studies indicated so that investments can be directed for the enablement of right resources.

### 4.3.7 Ecosystem aspect

No organization operates in a bubble. The existing literature provided ecosystem as one potential aspect to be considered. For example, Witell et al. (2020) stated that business partner management is also a crucial element when a good CX is trying to be achieved. Strong partner relationships could provide a potential added-value factor for competitiveness. In PXM, understanding the ecosystem could then help to identify business partners that align with company´s objectives both in pure business aspect and ensuring customer success with a good experience. For instance, for total experience, it could be necessary that partner´s capabilities to serve customer in a way which supports product brand´s image should be enabled and ensured.

### 4.3.8 Context aspect

Products are confronted in different contexts by different kinds of people. Therefore, it is obviously necessary to identify these confrontation moments and characteristics of them so that appropriate resources for experiences can be provided. In experience sense, these encounters with the firm and its resources are discussed on many occasions in existing literature. (e.g., Klaus & Maklan, 2013; Meyer & Schwager, 2007; Puccinelli et al., 2009; Manning, 2010; Grønholdt et al., 2015) These encounters are considered to be direct, such as communication with customer service, or indirect, such as a recommendation from a friend (Klaus & Maklan, 2013; Grønholdt et al., 2015; Meyer & Schwager, 2007).

Operating environment changes force PXM practitioners to continuously optimize the different activities. As Muños (2020) states, adapting the product content to match the needs of customers is required. Further, as Bordelon (2020) reminds, PXM is about personalized interaction with the brand instead of just providing high-quality data. Considering the existing literature, it seems that understanding the context where interactions with the company products occur is important. Multiple direct and indirect confrontations should also most likely guide the mindset for addressing suitably the issues that can be affected and the

ones that cannot be affected. Thus, strategy to handle the different touchpoints, such as sales channels, and their experience characteristics could provide benefit for successful PXM.

### 4.3.9 Technology aspect

Right assets are needed to acquire an ability to execute the core functions for enabling product experiences. Therefore, technology should also be considered. As Walker (2018) stated, PXM has a strong background in PIM when technological capabilities related to managing and sharing product information are also relevant for PXM. Based on Abraham (2014), specific PIM system solutions are nowadays utilized to manage commercial product information for covering all the needs across different touchpoints. Therefore, for managing one of the key pieces for PX, product information, such appropriate supporting solutions seems necessary. In PXM sense, Thierhoff (2019) promotes the platform thinking covering the product information onboarding, content creation, enrichment, and management, and syndication to different platforms. Further, based on Walker (2018), PXM is also seen as extended PIM with capabilities for content analysis, personalization, contextualization, automation, and optimization. This could also indicate the need for technological solutions supporting such needs.

Experiences occur across different touchpoints when the delivery of sufficient resources should be ensured. Bolton et al. (2018) propose the capability for connectivity which entails appropriate technical infrastructure to make relevant data accessible and seamless integration to customer activities. In practice, in PXM sense, this could mean data delivery and integration to the different touchpoints to make them work properly together for enabling seamless experience. Also, integration to important ecosystem business partners could benefit the overall approach. Indeed, Bordelon (2020) suggest that collaboration of different platforms is required in PXM. Further, he states that delivery platforms such as ecommerce, syndication tools and different marketplaces are needed. This seems reasonable since somehow the resources should be expressed in the touchpoints so that interactions leading to experiences could occur. In total, it seems that IT-based capabilities are crucial for success. Based on Chen et al. (2014) these capabilities enable the creation of flexible and responsive processes to meet the demands of customers in varying external environments with characteristics of hostility, dynamism, and complexity.

### 4.3.10 Data aspect

With the background in PIM, PXM certainly involves aspects related to data. Productsup (2021) promotes the goal of great overall shopping experience by providing relevant high-quality data to different touchpoints. Since PXM is about the products and their success management, product data and information management are presumably some of the key success factors. Therefore, capabilities for managing product data and information through the product life cycle and customer journey are most likely needed. Since PIM should build on top of solid

base enabled by master data management (MDM) and PDM (Abraham, 2014), sufficient capabilities in such concepts are obviously needed for successful PXM. In total, high-quality contextualized product information, its enrichment and enhancement are seen necessary. (e.g., Goaland, n.d.; Bordelon, 2020) As Walker (2018) presents, content analysis, personalization, contextualization, automation, and optimization are also necessary for product experiences when data management capabilities related to them are accordingly needed. Further, quality of data (Muños, 2020) should be concerned.

PX is about interaction with the customer and other product stakeholders. Therefore, data is needed to create understanding of customers and their behavior so that right clues can be provided for experience co-creation. (Bordelon, 2020) For the best experience, relevant and contextualized content is must, when linking the interactional data with transactional data about customers and suppliers could provide a great benefit. Further, contextual data for example from sales channels or business partners could be valuable addition for enabling perfect experiences. (Informatica, n.d.)

## 4.4 Summary

In this chapter, review of PXM current standing, possibilities for approaching it from business capability perspective, and relevant aspects to be considered in it were addressed. Based on the findings, PXM is still currently strongly technology-led concept when a holistic approach and required business capabilities for delivering compelling product experiences are still unstructured. This supported the initial hypotheses about the current state of PXM. Thus, it was further discussed if PXM could be approached from business capability perspective to provide more comprehensive structure and holistic approach for the concept for business benefits. Based on the findings in chapters two and three, it seems to be convenient to take a business capability approach for PXM. Therefore, possible relevant aspects to be considered in that approach were discussed and summarized to support later phases of this study. Based on the variety of aspects identified it seems that versatile and comprehensive approach for PXM is possible to be built. Next, methodology for constructing the artifact is introduced.

# 5 RESEARCH METHODOLOGY

The research methodology of this study is introduced in this chapter. First, the research scope, objectives for the research and actual research questions are presented. Next, the background of this study, business problems to be solved, and the case company are introduced. After that, the chosen research method, design science research (DSR), and the research process approach utilizing design science research methodology (DSRM) process model are illustrated. In the end, applying the DSRM model for this study context is presented.

## 5.1 Research scope and objectives

The main topic of this study addresses PX and its management. However, as PX can be considered in many ways, a more specific approach was taken for this study. More precisely, the scope was limited to construct the required internal business capabilities of product manufacturers, distributors, and sellers to provide competitive product experiences for their clients, end-customers, and other relevant product stakeholders despite the channel or touchpoint where the products are being confronted. From product stakeholder perspectives, PX in this study context is considered as a kind of circumstances where a stakeholder interacts with a product. Interactions may include for example searching, seeing, comparing, buying, using, or disposing products. These interactions may happen anywhere anytime during the customer journey and product life cycle. In this case, PX was then considered as having sufficient resources to succeed with the products. PX was not considered from product´s physical appearance, design, and aesthetics point of view in this study. Summarized, PX in this study is defined as below.

*Product experience is about interaction where value is aimed to be created for both parties. Product manufacturer or other product distributor aims to create optimal*

*environment for the interaction by understanding stakeholder behavior. On the other hand, stakeholders deliver their needs, feelings, and previous experiences for the interaction.*

This study was conducted utilizing design science research (DSR) methodology. Due to the nature of chosen methodology, the case company and its identified business issues were the main influencers for the actual content and thus also for the objectives of this study. Therefore, the environment of the study may limit the study and its results in generalizability. The study involved many problems and objectives derived from both theory and practice. From theory perspective, the topic with described PX aspect is rather new when the number of previous studies and existing literature were limited. Still, the approach to answer identified challenges involved first creating a theoretical knowledge about the core concepts of the topic based on existing literature. The core concepts included CX and PX, their management, and business capability approach for a firm. In practice, product experience management (PXM) is currently strongly information system driven concept. Further, the constant evolution of practical methods to solve related digitalizing world challenges also had an effect to the content in a form of setting reasonable objectives. Based on this, following initial objectives for this study could be set.

- Acquiring sufficient theoretical knowledge about the core concepts of PXM and business capability approach to support artifact construction
- Constructing an artifact to provide practical support for the case company operations
- Demonstrating and evaluating the artifact for adequate validity and reliability
- Providing answers and help for the case company problem
- Answering set research questions
- Communicating the results respecting the guidelines for a scientific publication

The main outcome of this study, the artifact, consists of a reference business capability model for PXM for which the acquired theoretical knowledge in addition to author´s and case organization´s practical insight was utilized. It could be clarified that the constructed artifact of PXM business capability model does not depict the case company PXM capabilities, but PXM capabilities needed in product-based companies in general. Based on the objectives and expectations for the outcome, the research questions were the following.

- **RQ1**: What is product experience management about, and what kind of aspects does it involve?
- **RQ2**: What kind of business capabilities are needed for product experience management in product-based companies?

- **RQ3**: How business capability approach for product experience management can support case company´s business development?

**RQ1** was set to understand, what PXM is about, and what kind of business aspects should be considered to acquire a holistic approach for related business development. Existing literature was utilized to find answers for the first question. **RQ2** was set to construct what kind of business capabilities comprise PXM so that business success and good experiences could be acquired in product-based companies. This question was answered through the artifact construction and its illustration. **RQ3** was set to examine how the built artifact serves in practice when case company´s PXM practices are trying to be developed for enabling better product experiences for its clients. The third question was answered through the demonstration and validation of the constructed artifact.

## 5.2 Case description

Design science research is about creating practical utility and additional knowledge (Hevner et al., 2004). Practical aspect involves solving real-world problems when an appropriate business case is in place. In this study, the practical aspect was approached solving the case company business issues. This chapter describes the background of this study, identified business issues in the case company, related expectations, and the case company introduction itself.

### 5.2.1 Background and business problems

This study was conducted for a stock-listed case company which operates in information technology service sector. The company provides solutions and services for digital business development. The company´s digital transformation and business design offering provides solutions for digital strategy, business design, innovation, and enterprise architecture. Service design and software development offering provides services for design, ecommerce, data, cloud-native solutions, mobile applications, IoT, agile development and product experience management. Platform and life cycle services provide support for solution maintenance and continuous development. The company employs over 600 professionals in two different countries and has a turnover of approximately 50 million euros per year.

PXM solutions are a recent addition to the case company´s offering. Knowledge and the team for these solutions were acquired through a company acquisition process. After the merge, the first version of PXM offering was published and it has been evolving ever since. Currently, the offering consists of solutions for PIM systems, digital media asset management (DAM), system integrations, e-publishing and related consulting. The team responsible for

delivering these solutions has a vast experience in the field of PIM in retail, wholesale, and industry. This study focused on developing this business area capabilities.

The market in the field of PIM solutions was experienced rather crowded and contested. It had also been noticed in the case company that most solution providers approach the topic with very system-centric thinking in which the technology itself, for example a PIM system for managing commercial product information, is promoted, and promised to generate more conversion, sales, and better experiences. System-centric thinking was also confronted in company sales where potential clients were experienced very keen to buy systems instead of aiming to develop their knowledge and capabilities for better experiences as a whole. The case company had tried to differentiate itself from its competitors with a special focus set on compelling story about the product experience and its meaning for the business. Still, provided solutions had mostly been based on technology implementation and process development for PIM. With the new offering, the paradigm shift towards PX instead of mere product information had been taken, but PXM as a concept was still considered vague and understanding of it inadequate. This hampered developing the offering and associated story further. Similarly, the potential clients were experienced to struggle finding an appropriate approach to develop their product information and PXM practices. Further, the value of good PX itself for clients´ business was often unclear. To summarize the issues that were to be considered in this case, they are listed below.

- How PXM should be approached internally in the case company to enhance the understanding of the topic?
- What business aspects could be considered in the development of PXM offering to create competitive advantage?
- Could it be possible to expand the awareness of market with presenting new aspects for PXM and achieve a visionary role for the company?

The first issue reflects the need for having a sufficient knowledge about the product experience management aspects so that business and the offering can be developed accordingly. The second issue derives from a need to differentiate in the maturing market and to provide competitive solutions. The third issue bases on the need to change the market paradigm from system-centric to value-centric thinking and ambition to chase the market leader position in PXM solutions and knowledge.

### 5.2.2 Approach and case company role

The initiative for this study in the case company was made by the author. For the credibility of this study, it should be noted that the author is working in the case company. However, the case company had a real interest to develop their practices when it did not have any reason to avoid transparency and truthful depiction of the current issues. It was understood in the company that this

approach provides the most value for the organization. Considering the objectives, prevailing paradigm in the market is trying to be changed when conducting this study as objectively as possible benefits both the company and the market awareness development.

The specific approach for this study evolved during the time. First, the initial ambition of the author was to do market survey about the current state of product experience and its management among the companies basing their business on products. However, it was soon understood that the initial knowledge about PXM characteristics was too vague. Then, the focus was set to first approach the topic from existing literature point of view, make first constructs, and then validate the made assumptions against the market. The continuous evolvement of business in the case company also affected the final approach which ended up being a design science research focusing on identifying required business capabilities for PXM. With identified PXM business capabilities, the case company is able to assess the PXM capabilities of its clients operating with products.

The study was being conducted in close collaboration with the team responsible for PXM solutions. They did possess the best knowledge about the market, current methods, and paradigms, which supported having a good environment for the research. As the main objective of this study was to construct an artifact to provide practical support, the natural role for the case company was to operate as a testing environment. Extensive knowledge and experience of related solutions in the case company provided a major benefit for example in validating the adequate capabilities for the constructed model. In general, having a such case company for this study was valuable due to its natural agile characteristics in continuous development and in finding new ways to do business. This supported the nature of design science research and thus enabled good possibilities for success.

## 5.3 DSR methodology and research process

Design science research (DSR) was chosen as the research method for this study. In this chapter, principles of DSR and its application to practice are introduced.

### 5.3.1 Design science research

This study was conducted with DSR methods. In the DSR paradigm a designer aims to solve relevant human problems by creating innovative artifacts. At the same time, new knowledge is contributed to scientific evidence. The created artifacts are considered as both useful and fundamental when trying to understand identified problems. (Hevner & Chatterjee, 2010) Created innovations present the ideas, methods, capabilities, and other constructs which can be utilized to approach information systems analysis, design, implementation and use effectively and efficiently (Hevner et al. 2004). Considering the history, the DSR paradigm

originates from engineering and artificial sciences (Simon, 1996). In this case, the problems were relevant business issues that would be solved through a constructed reference model. At the same time, new knowledge about PXM would be contributed to expand its evidence. Information technology is also a key part of the topic when the constructed model would support its appropriate use in the area of PXM. Therefore, the chosen research method was a good fit for the needs of this case.

As for any research method, several different frameworks and guidelines exist also for DSR. One of the most popular set of guidelines for DSR is presented by Hevner et al. (2004) and it was also utilized in this study. These guidelines cover all the essential aspects for DSR and that is why they were chosen to support the guidelines for this study. Based on the guidelines of Hevner et al. (2004), the guidelines of this study are presented below in Table 1.

TABLE 1 Design science research guidelines of this study.

| Guideline (Hevner et al. 2004) | Guideline for this study |
|---|---|
| **Design as an Artifact** | Design a reference business capability model for PXM in a form of viable artifact. |
| **Problem relevance** | Solve relevant problems derived from case company business. |
| **Design evaluation** | Demonstrate and evaluate the created business capability model utility, quality, and efficacy in practice in case company business operations. |
| **Research contributions** | Provide new knowledge and insight about product experience management through the designed artifact and its communication. |
| **Research rigor** | Ensure that designed model solves the identified issues and covers all the essential aspects. |
| **Design as a search process** | Develop the artifact in iterations in close collaboration with the case company acknowledging the identified issues |
| **Communication of research** | Present the results of the study for the relevant interest groups representing both practice and theory. |

Presented guidelines were created to ensure that the approach of this study will hone the essential aspects of design science research. During the study, research was regularly reviewed and aligned with the set guidelines. However, if changes in the research and its methods were to occur during the research, readiness to adjust the guidelines appropriately was maintained.

### 5.3.2 The research process

The research process for this study was guided by the presented guidelines and other existing DSR theory. In general, DSR process can be roughly divided into three phases of problem identification, solution design, and evaluation. (Offermann et al., 2009) During the years, different approaches have been presented (e.g., Takeda et al., 1990; Nunamaker et al., 1991; Offermann et al., 2009) but in this study, the design science research methodology (DSRM) model presented by Peffers et al. (2007) was utilized. It is a commonly accepted framework for successfully carrying out design science research. Based on Venable et al. (2017), the DSRM model is a good choice if extensive adaptation to daily use is needed. Considering the characteristics of this study in a form of dynamic case company, and the artifact aiming for both internal and external benefits, the chosen method was well justified. Based on the DSRM model, the specific approach for this study is presented below in Figure 3.

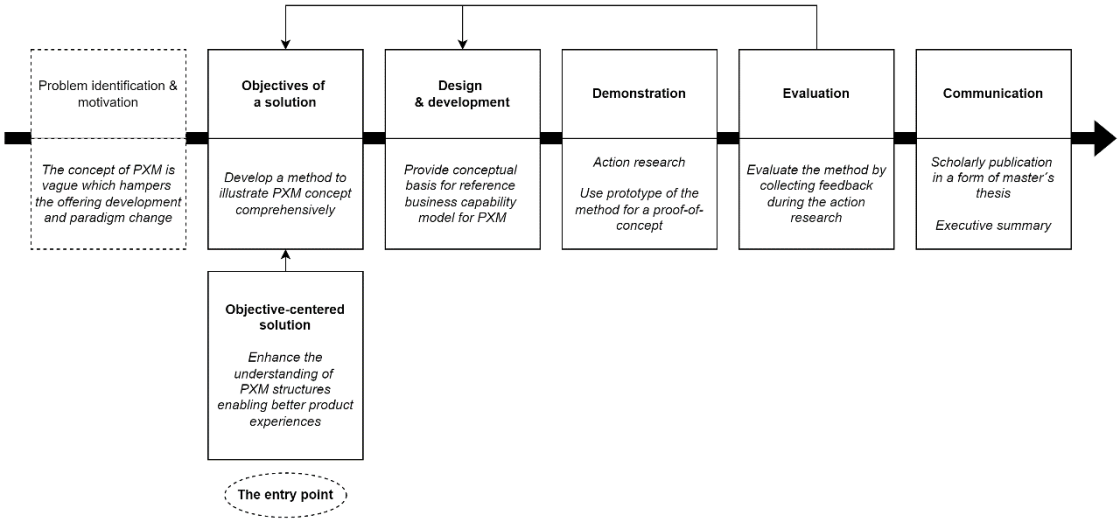


FIGURE 3 Design science research method approach of the study in nominal order.

As Hevner & Chatterjee (2010) point out, research methods, such as above, are only valid if they are successfully applied to specific situation and issue context. Therefore, every design science research should have a certain level of creativity. (Hevner & Chatterjee, 2010). As presented by Peffers et al. (2007), the DSRM model allows starting almost at any presented step depending on the research approach. In this case, the problems to be solved were derived from the case company´s prior experiences in PXM development when an objective-centered approach was taken. The identified problems driving the solution were introduced in chapter 5.2. Since problems were already identified, the entry point for the solution development in this case could be set on the phase of setting the objectives for the solution. The solution development process covering the design and development, demonstration, evaluation, and communication is addressed more closely in the next chapter.

## 5.4 Applying the DSRM model for the artifact construction

The specific end-goal of a design science research is an artifact. These artifacts may be constructs, models, such as abstractions and representations, methods, instantiations such as prototype systems, or better design theories. (Hevner & Chatterjee, 2010) In this study, the main objective was to construct a reference model for PXM business capabilities to enable better understanding of the concept among different organizations. Further, the created model was also aimed to help the case company in its business development. In this chapter, the process for constructing the mentioned model will be enlightened.

### 5.4.1 Objectives of the solution

The issues to be solved through this design science research derived from prior experiences in the case company introduced in chapter 5.2. The issues were confronted both in internal business development and in offering the solutions for the clients. The specific problems had already been identified, and development of solutions was justified to be valuable for the company. Some development activities for example related to PXM offering were already progressing. Therefore, an objective-centered approach was taken in this study when the development of artifact started with the second step in the DSRM model which consists of setting the objectives for the solution. The main objective for driving the solution could be considered as

> Enhance the understanding of PXM structures enabling better product experiences.

In practice, this meant that the research aimed for constructing an artifact which would help different stakeholders to understand what kinds of elements constitute successful PXM. Based on Peffers et al. (2007), the objectives should be derived from problem specifications which entails having the knowledge about the state of problems, current solutions, and their efficacy. The author was working in the case company already before the study and the knowledge had then already been shared. Thus, the current state was well understood already at the preliminary stages of this study. Therefore, the objective setting for the solution could be made in a way which supported aligning the objectives with identified issues. The initial qualitative objectives were made by the author, but they were iterated and revised based on the feedback acquired from the case company. The objectives of the solution are introduced in chapter 6.1.

### 5.4.2 Design of artifact

The next step after the objective setting was the actual design of PXM business capability model, the artifactual solution of this study. As Peffers et al. (2007) state, this phase involves determining the functionality and structure of constructed artifact. For the PXM business capability model design, it was thus first necessary to find appropriate design principles which would support the set objectives. Based on the objectives, it was identified that the best way to present the model could be something of a visualization. As enhancing the understanding was considered as a main objective driving the solution, a visualization would then best enlighten the concept of PXM in its early phases. Therefore, the design of artifact involved finding an appropriate visualization method especially suited for business capability modelling.

According to The Open Group (2018a), business capability model represents the complete, stable set of business capabilities of an organization. The typical output of the modelling process is a business capability map which illustrates all the business capabilities at an appropriate decomposition level with logical grouping into different categories or perspectives. (The Open Group, 2018a) Based on the set key guiding principle, *enhancing the understanding*, business capability map was therefore chosen as a visualization method for the PXM capability model. The depicting characteristics of business capability map were seen feasible to support visualizing the constituting elements and necessary perspectives of PXM for enhancing the general understanding of it. Further, business capability map was also seen to support the set objectives´ qualities such as comprehensiveness, clearness, informativeness, and coverage of different aspects. Thus, the design principles of PXM business capability model followed the ones of business capability mapping. (e.g., The Open Group, 2018a). The design of developed artifact is presented in chapter 6.2.

### 5.4.3 Development of artifact

Guided by set objectives and chosen design principles, construction of the PXM business capability model was the next activity following the chosen DSRM approach. The aim for the development phase was to provide a conceptual basis for the PXM business capability model so that it could be accordingly demonstrated, evaluated, and further developed if needed. As business capability map was chosen as a visualization method for the model, the development was basically founded on capturing and documenting the business capabilities that constitute the full extent of PXM. Further, these business capabilities were organized in a logical manner for clear presentation. The development of PXM business capability model was conducted by retelling TOGAF® -standard (The Open Group, 2018a) principles for business capability modelling. Through capability-based planning focusing on discovery, planning, and enablement of strategic business capabilities, enterprises are able to ensure that business strategy drives the business from a top-down approach. (The Open Group, 2018b) Therefore, the selected approach supports perfectly the PXM capability modeling to ensure that

competitive advantages through product experiences can be achieved. As indications for previous comprehensive PXM modelling were nonexistent, relying on such standard was considered as a good approach for being thorough enough. Then, a bit more reliability and credibility for the constructed model could be possible achieved.

The development started from theoretical perspective. As Peffers et al. (2007) presented in the DSRM context, a knowledge of theory is required as a resource when moving from the construct objectives to design and development activities. In this study, the theoretical knowledge was acquired based on the previous studies, and relevant PXM aspects were summarized as a result. These aspects were utilized for a top-down approach as high-level building blocks for the first versions of the model. Basically, this meant that first captured business capabilities reflected solely the previously summarized theoretical perspectives. After the first revisions, for a more bottom-up approach, the model was revised with information and feedback acquired from the case company representatives. People representing PXM solution architecture, enterprise architecture and sales supportive roles were involved in different occasions where developed model and its content was discussed.

After the preliminary relevant PXM capabilities reflecting both theoretical and practical perspectives were captured and documented, they were stratified and levelled according to TOGAF® -standard business capability modeling principles. *Stratification* in TOGAF® approach represents the process of organizing the individual capabilities accordingly within appropriate categories, tiers, or layers. Through the stratification, focal perspectives for further analysis and activity planning can be provided. In practice, through stratification the different capabilities can be classified into different groups based on their nature so that they can be more easily assessed. Further, *levelling* in TOGAF® approach is about decomposing the top-level business capabilities into more detailed level. (The Open Group, 2018a) As presented by Bharadwaj (2000), specialized capabilities may integrate to form more extensive capabilities. For the PXM business capability model, stratification was conducted with considerations of dynamic capability structures and PXM aspects identified from previous studies. For more specific illustration, the captured business capabilities were then specified through levelling by decomposing them into level two capabilities. Then, a more comprehensive and granular overview of PXM capabilities could be provided. As scoped out earlier, specific roles, processes, information, and resources for the capabilities were not specified in this study even if some of them came out during the development. The development of constructed artifact is illustrated more closely in chapter 6.3.

As soon as the constructed business capability model was seen feasible enough, it was demonstrated and further evaluated as depicted in the following chapters. As typical for DSRM, feedback loops from demonstration and evaluation phases could instate a need for further construct development before new demonstrations and evaluation. In case of this study, the needs identified from

these phases were only minor and mainly cosmetic when it was more about fine-tuning than complete overhaul.

### 5.4.4 Demonstration and evaluation of artifact

As soon as a solution has been designed and developed, it is time to evaluate if it solves the problem and meets the set objectives. Evaluation is seen crucial in DSR, and it involves demonstrating the utility, quality, and efficacy of the designed artifact with appropriate evaluation methods. (Hevner et al., 2004)

Evaluation in DSR is conducted due to many reasons. First, it has a promotional role to increase the adoption of the constructed solution among the organization and reassure that solution works. Second, it is required for scholarly acceptance when the evaluation aims for reviewing the solution´s validity, giving it an official status, and accepting it as science. Third, evaluation has a practical role to provide feedback that the solution really works in real life to guide future development. Fourth, evaluation ensures that differing perspectives of stakeholders will be covered. (Hevner & Chatterjee, 2010) A similar purpose and goals of evaluation are presented also by Venable et al (2016). They further add a consideration of the complexity beyond the simple achievement of constructed artifact´s main purpose in environmental utility. Basically, evaluation involves multiple different criteria which should be approached with appropriate evaluation methods. They also propose evaluating the side effects the construct may revoke, and the knowledge outcomes by observing why the solution works or not. (Venable et al., 2016) All in all, evaluation in DSR is about the comparison of built artifact´s functionality and utility with set solution objectives. (Peffers et al., 2007)

In this study, the approach for demonstration and evaluation followed the specific steps presented in the DSRM model. As depicted in the model, demonstration involves actually using the developed artifact for its intended purposes. Due to the nature of this study, the case company context provided a good opportunity for viable testing environment. Therefore, the demonstration was conducted in the case company utilizing the built artifact for solving the identified business issues. The first issue related to enhancing of PXM understanding in the company when the demonstration was about sharing, presenting, and reflecting the content of model during and after the development. The second issue was about the offering development when the demonstration focused on revealing new opportunities for the PXM offering through evaluating it with the help of constructed model. The third issue constituted the need for creating better PXM awareness for the market when the demonstration was realized as utilizing the model and its contents for marketing activities. Based on these demonstrations, feedback for additional development and revisioning was collected. The demonstration of constructed artifact is discussed more thoroughly in chapter 6.4.

Even if the demonstration and evaluation phases are separated in the DSRM model, both phases directly relate to artifact testing and were thus conducted in parallel with a similar logic in this case. Various possible ways to test the artifact in design science research has been introduced in the literature. As Venable et a. (2016) state, the pathways, and trajectories in DSR projects vary according to the

needs and available resources which gives rise to different evaluation strategies. For example, Peffers et al. (2012) propose DSR evaluation methods such as presented in Table 2 below.

TABLE 2 Design science research evaluation methods. (Peffers et al., 2012).

| Method | Description |
|---|---|
| **Logical argument** | An argument with face validity. |
| **Expert Evaluation** | Assessment of an artifact by one or more experts. |
| **Technical Experiment** | A performance evaluation of an algorithm implementation using real-world data, synthetic data, or no data, designed to evaluate the technical performance, rather than its performance in relation to the real world. |
| **Subject-based Experiment** | A test involving subjects to evaluate whether an assertion is true. |
| **Action Research** | Use of an artifact in a real-world situation as part of a research intervention, evaluating its effect on the real-world situation. |
| **Prototype** | Implementation of an artifact aimed at demonstrating the utility or suitability of the artifact. |
| **Case Study** | Application of an artifact to a real-world situation, evaluating its effect on the real-world situation. |
| **Illustrative Scenario** | Application of an artifact to a synthetic or real-world situation aimed at illustrating suitability or utility of the artifact. |

Considering the research topic and the set scope of this study, not all introduced methods could have been naturally used in this study. For example, technical experiment for technical performance evaluation would not have supported the primary objectives set for this study. In addition, using multiple methodologies for covering multiple perspectives would simply take too much time. Certainly, in optimal situation evaluation would be conducted as thoroughly as possible.

In the end, the evaluation approach in this study focused on promotional and practical purposes as mentioned as potential criteria in the existing literature (e.g., Hevner & Chatterjee, 2010; Venable et al. 2016). In practice, it meant that the evaluation in this study was about the comparison of built PXM business capability model against the set objectives and its applicability to solve identified business issues. Therefore, observatory participation through the case studies was considered as the best fit for evaluating the model during the demonstration and thus feeding the development of the model until it satisfied the business needs. The main factor favouring the selected method was the fact that the author acted as a participant in the research. All in all, evaluation in this study aimed to prove that the constructed model enables enhancing the understanding of PXM

as it was also the main guiding principle for the model development. Other criteria for the evaluation could have also been utilized but the chosen focus was seen sufficient for achieving feasible solution for real-world problems. The evaluation of constructed artifact is discussed in chapter 6.5.

### 5.4.5 Communication of artifact

The next step after the demonstration and evaluation of the construct is about communicating the results. As one of the guidelines presented by Hevner et al. (2004) state, conducted design science research must be presented effectively for both technology-oriented and management-oriented audiences. Based on Peffers et al. (2007), also researchers and scientific community in general should be covered in communication. The communication itself should cover the problem and its importance, illustration of the artifact, its utility and novelty in practice, the rigor of it design and contribution to both practice and scientific knowledge. (Peffers et al., 2007)

In this study, the communication of artifact was mainly conducted through this report especially for the scientific community. The illustration of the artifact construction in the following section will follow the steps of DSRM process as Peffers et al. (2007) propose for scholarly research publications. From the practical aspect, more business-oriented presentation of the constructed model in a form of executive summary was also provided for the case company later on. Next, the constructed artifact, its development, demonstration, and evaluation are discussed.

# 6 PRODUCT EXPERIENCE MANAGEMENT BUSINESS CAPABILITY MODEL

The main objective of this study was to construct a reference business capability model for product experience management (PXM). With help of the model, a wider understanding of PXM both in the case company internal and external affairs is aimed to be acquired to enhance business performance and market awareness. The previous sections of this study have outlined the model, its purposes, and the identified problems it aims to solve. In this section, as fit for the DSRM model, the objectives set for the model, the constructed model itself, and demonstration and evaluation of the model are addressed. The communication of this study will be mainly conducted through this study as a whole when it is not specifically addressed in this section.

## 6.1 The objectives for PXM business capability model

The main business problems in the case organization related to increasing the internal understanding of PXM, using that understanding to develop the PXM offering, and enhancing the market awareness of PXM significancy in business performance. Therefore, the main objective for the constructed artifact was naturally something that could help to solve these problems. However, the general lack of understanding for PXM due to its novelty as a concept was also driving the target setting. In practice, the objectives for the solution were derived from case organization business problems, and from PXM aspects synthetized from the previous studies.

As DSRM suggests, the objectives for the construct should be derived from the problem specifications (Peffers et al., 2007). Therefore, the identified case company business problems served as a primary source for the objectives of PXM business capability model. The first business problem addressed the internal approach for enhancing PXM understanding in the case organization. Based on this, it was stated that for enhancing the understanding the model should be

comprehensive enough, clear enough, and its relationship to other business functions should be obvious. The second business problem illustrated the development needs of case organization´s PXM offering and relevant aspects to be considered in it. Therefore, it was identified that the model should be practical enough, the relevant PXM aspects and their role should be clearly identifiable, and that the model could be used to conduct for example a gap analysis for focusing on the right aspects in the offering. The third identified business problem depicted the need for increasing the market awareness through presenting new aspects for PXM. It was identified that the same key objectives of those set for internal understanding enhancement apply also for the market aspect. The only addition was that the model should be able to be simplified if needed so that stakeholders with different maturity would be able to digest the key message. Practically, this would also apply to internal affairs in some cases. In general, from the case organization perspective, the model should be practical, distinct, and informative.

In addition to the objectives derived from business problems, the previous studies about CXM, PXM, and business capability approach had a major role in the constructed model objective setting. Even if the existing literature about PXM was scarce, a comprehensive synthesis about the relevant aspects required to be considered in PXM was able to be created. Therefore, it was set as an objective for the model that it should cover all the necessary business capability aspects that were identified from the existing literature. Especially in this case where the concept of PXM is rather new and widely unstructured, these identified aspects have a major effect to the actual content and structure of the model. Therefore, they were seen necessary to be addressed. Thus, it was stated that the model should consider the aspects of dynamic capabilities such as sensing, seizing, and transforming in addition to identified relevant PXM aspects such as strategy, leadership, organization, customer understanding, experience, ecosystem, context, technology, and data.

If reflected to the general objectives of this study, the study aimed to construct an artifact to help different stakeholders to understand the elements constituting successful PXM. Therefore, in the target setting for the model and while developing the model *enhancing the understanding* was considered as a key guiding principle for the whole process. PXM as a concept is a novel one when a sufficient understanding is first required so that real life benefits can be later acquired. Even if this study produced a model to enhance that understanding, it is to be noted that it is only the first step for a new paradigm.

## 6.2 The design of PXM business capability model

As a main result of this study, the business capability model for PXM was constructed. The objectives discussed in the previous chapter guided the design and development of the model. In this chapter, the constructed model, its design, and

the elements constituting the model are presented. First, the overview of the model is illustrated after which its main parts are being inspected in more detail.

### 6.2.1 Overview of the PXM business capability model

The constructed PXM business capability model is presented in this study as a business capability map, which was identified as a typical visualization method for business capability modeling. In business capability modeling, individual business capabilities need to be structured in a logical way to communicate them appropriately with the right amount of detail. As a result of PXM business capability modeling, the perspectives of sensing, seizing, and transforming were constituted in the model. Concerning the business capability approach for PXM and its role in seeking competitive advantage through stellar product experiences, these dynamic capabilities perspectives (e.g., Teece, 2007) were seen as great cornerstones for the model and for the capability stratification. With these set perspectives, it was ensured that each crucial aspect of dynamic capabilities was considered when the specific PXM capabilities were modeled. As a result, different identified functional PXM capabilities were stratified under these perspectives in the constructed model. The modeling was conducted from the physical products perspectives. Certainly, for service products and digital products the approach would most likely differ.

For more granularity, distinct presentation, and better communication, each level one business capability was decomposed to more detailed level. The resulted PXM business capability model and its key structures with business capabilities depicted at level one is presented in Figure 4. Each presented perspective with the according business capabilities and actual development of the model will be discussed in more detail in the following chapters.

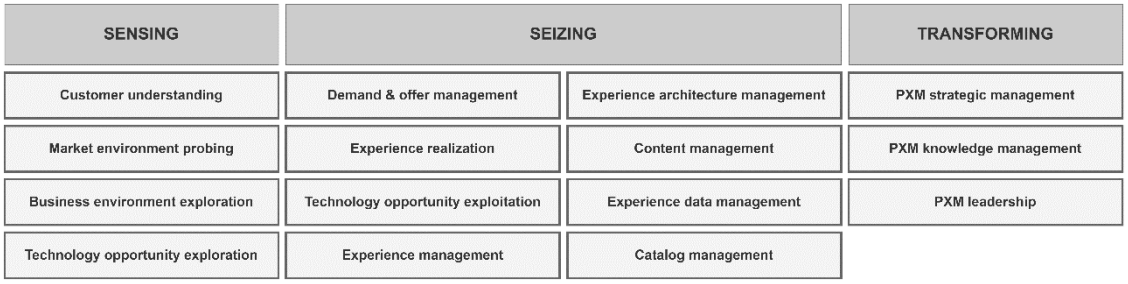


Figure 4 PXM business capability model.

The main objectives of this study involved enhancing the understanding about PXM and its different aspects. Further, it was in interest to find out what kind of business capabilities are needed for competitive PXM. Based on these guiding principles, the presented level of illustration was seen feasible to fulfil the requirements of the first construction of the novel concept of PXM. Certainly, such a visualization may contain only a limited amount of information but on the other hand, all the necessary business aspects could be covered. As discovered from the existing literature, enabling each of the presented individual capabilities

involves specific roles, processes, information, and resources. For the generalizability, these components were not specified for the constructed capabilities in this study since for example processes and resources vary a lot depending on the industry and the business model of an organization. Since the case company has clients in different industries, the utilization of model for example in assessing clients´ PXM capabilities is in any case tailored for each specific case.

The content of the model is based on gathered understanding from the existing literature and from the case company. The details such as case company role in model development are discussed in chapter 6.3. The first versions of the model were constituted based on the theoretical knowledge and discovered aspects after which additions and changes were applied during the development and as a result of demonstration and evaluation phases. The development, demonstration and evaluation of this model are discussed more precisely in their specific sections. Further, as the model aimed to depict the PXM capabilities in general, it may also contain information that is not useful for very specific use cases. It was designed to provide an overview to PXM when it is suggested to be used as a framework within which more specific approaches in different contexts can be taken.

### 6.2.2 Sensing capabilities

The first perspective of the PXM business capability model was defined as *sensing*. As discovered from the existing literature (e.g., Teece, 2007; Lee et al., 2015; Teece, 2019) sensing reflects the capability to reach out in technological, market, customer, and business environment sense. Through sensing, understanding of opportunities and threats in these aspects is sought. In the created PXM business capability model, the identified sensing capabilities focus on enabling the understanding of company´s customers and their needs, market trends and company´s position in the market. Further, understanding of business ecosystem actors and company´s role in the ecosystem, and technological opportunities both internally and externally are involved. The sensing aspect with the associated decomposed PXM business capabilities is presented in Figure 5 below.

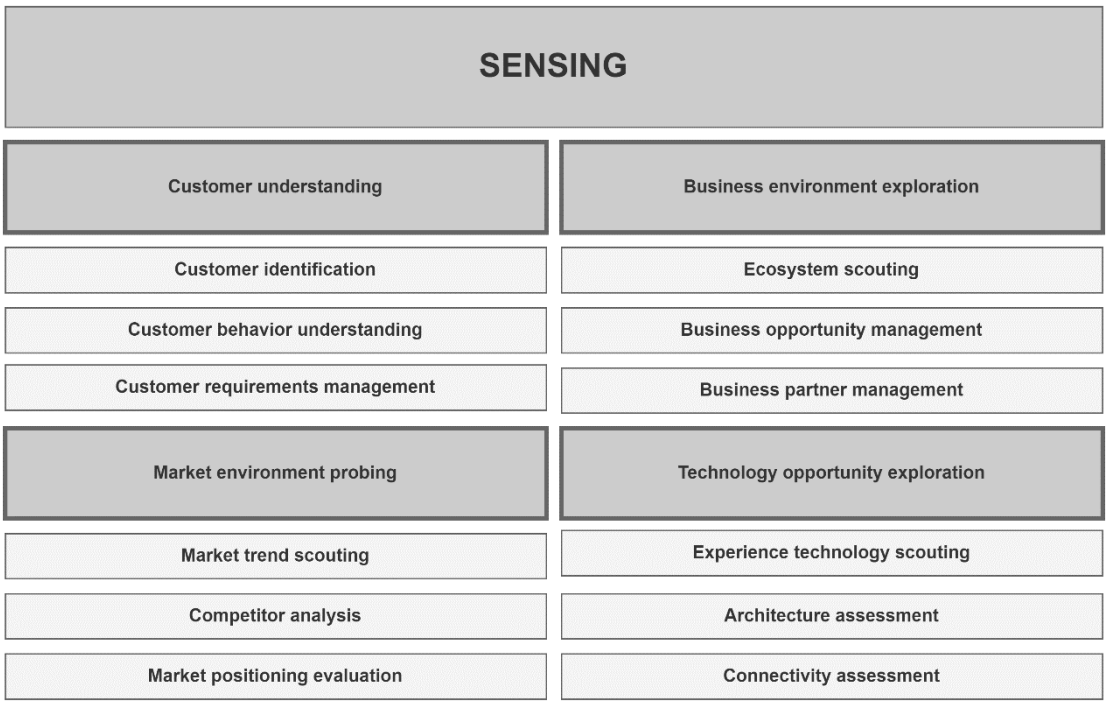


Figure 5 The sensing capabilities of the PXM business capability model.

The first presented PXM sensing capability is *customer understanding* which was also identified as a specific aspect to be considered in PXM based on the existing literature. It is to be noted that a customer in this case represents any major external stakeholder, such as retailers, partners, or end customers, interacting with company products. This capability was further decomposed into three level two capabilities. *Customer identification* is the ability to identify key customers and stakeholders that interact with company products. As product experience is about interaction, by identifying the customers the company is willing and aiming to serve the right focus in experience enhancement efforts can be then set. Next, *customer behavior analysis* is the ability to gather, analyze and use data to understand customer behavior so that key product-related patterns to be supported can be identified. By having the ability to understand customer behavior, a better match to needs can be achieved when reorganizing the company resources through seizing capabilities. Further, *customer requirements management* is the ability to identify key customers´ and stakeholders´ informational and operational needs related to company´s products and transform them into requirements to be answered. This ability will be in a key role to enable making the right choices while arranging the company resources and assets to match a new situation.

The second presented PXM sensing capability is *market environment probing* which was also referenced within the strategic aspect for PXM sourced from the existing literature. Also, this capability was again decomposed to three level two capabilities. *Market trend scouting* refers to an ability to explore and understand market environment dynamics and trends to find potential future paths and positions for the company and its product offering. *Competitor analysis* is the ability

to benchmark and analyze the product experiences provided by competitors to set guidelines for experience enhancements efforts in the company while seeking the competitive advantage. Further, *market positioning evaluation* represents the ability to identify and evaluate the company´s current position in the market for guiding the target setting for its product-related operations.

The third PXM sensing capability is about *business environment exploration*. Based on the existing literature, the ecosystem aspect was identified to be addressed in PXM when related capabilities were a logical addition to the model. Three level two capabilities were constituted where the first one, *ecosystem scouting,* expresses the ability to explore and understand the surrounding business ecosystem, its different business actors, their relationships, and company´s role in it. With this capability, company is able to understand better in what kind of position it is business-wise in relation to the other ecosystem actors. Then, product tactics can be better optimized, and new partnerships created. Further, *business opportunity management* represents company´s ability to identify and foster new product-related business opportunities in the surrounding ecosystem. For example, a manufacturing firm could implement direct-to-consumer (D2C) strategies if such an opportunity was seen feasible. Further, *business partner management* is the ability to manage business partner communication, collaboration, and integration. A manufacturing company could sell its products through the retailer network when it should be able to ensure that the retailers have sufficient capabilities to sell manufacturer´s products the best way possible for common business success.

The fourth and final PXM sensing capability is about *technology opportunity exploration.* As summarized from the existing literature, the technology aspect plays a significant role for example in product information management, platforms, connectivity, and integrations. Therefore, technological capabilities were a natural part of the constructed model. For technological exploration, three level two capabilities were modeled. First, *experience technology scouting* represents the ability to explore and identify appropriate experience technologies supporting company´s needs, objectives, and guidelines for enabling product experiences. For example, it could involve discovering AR (augmented reality) technology opportunities for enhancing digital product shopping experiences. Second, *architecture assessment* expresses the ability to explore and understand existing technologies, system dependencies, scalability, future-proofness, and potential limitations of digital architecture of the company. It may be for example about assessing the product data architecture for the system role overhaul or understanding the enterprise architecture mapping the business and information technology together to ensure efficient product business. Third, *connectivity assessment* embodies the ability to evaluate company´s technological connectivity to external or internal systems, stakeholders, or businesses. For example, it could involve assessing the API-capability (application programming interface) of the company for enabling product information flows through modern system integrations with business partners.

### 6.2.3 Seizing capabilities

The second perspective of the PXM business capability model illustrates the *seizing* aspect. Where the sensing capabilities target to identify and understand different opportunities and threats, the seizing capabilities should exist to answer them. This is achieved through the implementation of new way of operating and by rearranging the company resources and assets. (e.g., Teece, 2007; Lee et al. 2015) Considering product experience and its management, the seizing capabilities in the created business capability model represent the abilities for enabling, creating, and delivering the specific resources for experience interactions so that desired level of product experience can be enabled. Therefore, the seizing capabilities in the model do for example cover matching of customer needs with a company offering, management of various experience touchpoints, creation of required product content, application of feasible experience technologies, delivery of experience resources, data management and management of actual experience design and operations. The seizing aspect of PXM business capability model with the associated decomposed business capabilities is presented in Figure 6 below.

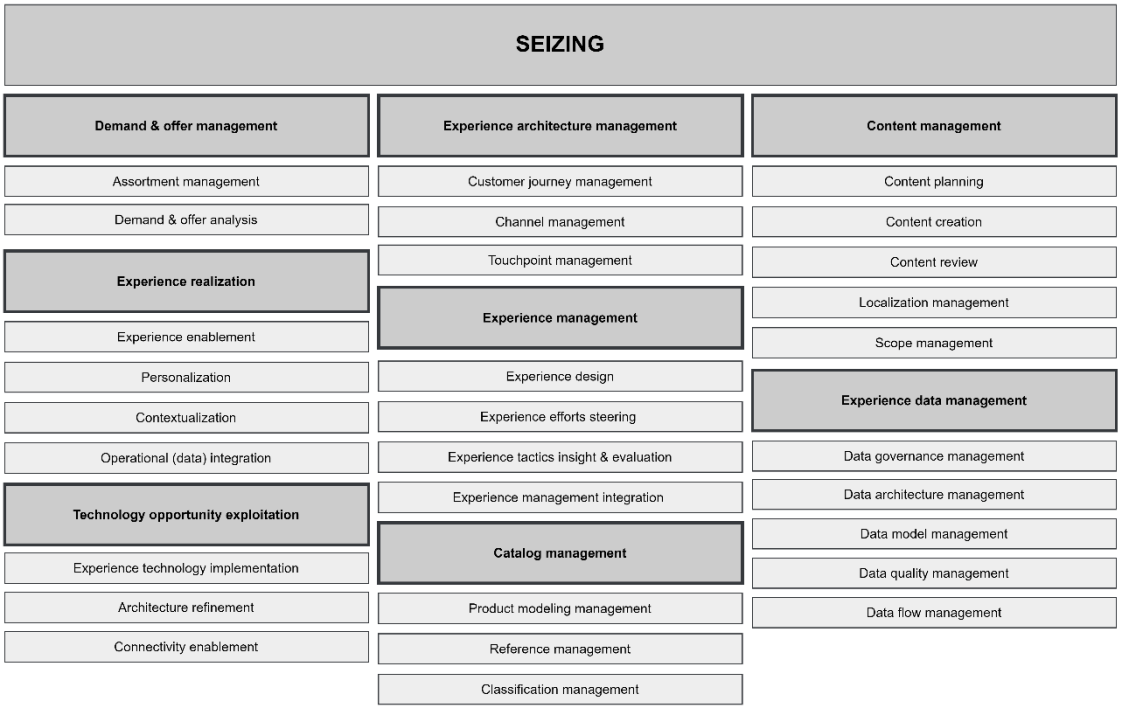


FIGURE 6 The seizing capabilities of the PXM business capability model.

The first PXM seizing capability, *demand & offer management,* enables matching the customer needs with the company product offering and vice versa. For its part, it reflects the strategic, customer understanding, and experience aspects identified from the existing literature. The first level two capability, *assortment management,* is the company´s ability to design, steer, and manage the company product offering so that it answers target customers´ needs, and thus enables a

good experience in that sense. For example, if the target customers represent normal average citizens with transaction-focused characteristics, high-end products are not most likely the best fit. The second level two capability, *demand & offer analysis,* presents the ability to conduct continuous analysis of the match between customer expectations and the company product offering. For instance, acquired feedback from customer service and different kinds of market studies could prove to be valuable to ensure this fit.

The second PXM seizing capability constitutes the *experience architecture management.* It represents the PXM aspects of customer understanding, experience, and context identified from the existing literature. It is about the ability to have a comprehensive view over customer journeys, channels, and touchpoints to guide the delivering of targeted experiences. Companies with multiple sales channels and target markets need to have an overview of their product experience touchpoints so that required consistent actions can be taken. If new channels are for example targeted, the overall picture needs to be considered to fit them in. The first associated level two capability, *customer journey management,* is the ability to identify, illustrate, and manage all the key customer journeys to guide product experience enhancement efforts. For example, B2B and B2C customers may operate differently when these journeys and their requirements for appropriate experiences need to be considered. The second level two capability, *channel management*, presents the ability to choose and manage all the necessary product channels to guide the enablement of appropriate experience resources for the channels. A channel in this case represents for example digital sales channel such as ecommerce, brick-and-mortar store, retailers or print publishing. Further, the third level two capability, *touchpoint management,* expresses the ability to identify and manage all the key product experience touchpoints to deliver appropriate resources for the experience interaction. For example, ecommerce in Finnish language for Finnish market has obviously different needs than international marketplace platform with many actors.

For having a unified product experience across the different channels and touch points, some level of governance and steering is certainly required. The third PXM seizing capability, *experience management*, was therefore set to cover this required aspect. Reflecting to the existing literature, the capability for experience management references to the identified relevant PXM aspects of experience, leadership, and organization. The first associated level two capability, *experience design,* represents the ability to design the compelling product experiences reflecting the needs of customers and company business vision. Further, the specific channel, touchpoint, product, and context specific characteristics should be considered in the design. For example, a product with a high business-priority in ecommerce with high price and technical complexity sets different needs for the product experience design in versus to a commodity product sold on brick-and-mortar store shelves. Further, the second level two capability, *experience effort steering,* refers to the company ability of prioritization and assignment for different endeavours aiming to create, develop, or enhance product experiences. For example, there might be strategic level decisions to step up the game in certain

product categories when the conducted activities should be taken into practice. The third level two capability, *experience tactics insight and evaluation,* is the ability to continuously evaluate the impact of conducted experience efforts and their outcomes. This could for example mean to find out if the enhancements for the product experience in a certain product category for a new B2B sales channel were worth it, and if such efforts would be seen feasible also for the future. The fourth level two capability, *experience management integration,* is about company´s ability to align PXM with other customer experience development related activities. For example, a company may be launching to a totally new market with a new digital sales channel when the product experience aspect should be considered in parallel with other development activities such as front-end development, customer journey mapping, and information exchange.

Where the PXM sensing capability of technology opportunity exploration sought to understand the current state, technological possibilities, and threats, the fourth PXM seizing capability, *technology opportunity exploitation,* expresses the ability to act for reorganizing technological assets for the new target state according to the company objectives and guidelines for product experience actualization. Thus, the first level two capability, *experience technology implementation,* is the ability to seize the benefits of new technologies by implementing them into use. For instance, typically 3rd party marketplaces utilize specific product feeds when these feeds need to be formed. Therefore, a company could implement a syndication platform which is specialized to generate these feeds based on company´s product data. Further, the second level two capability, *architecture refinement,* illustrates the company´s ability to refine digital architecture layers, involved logical entities and their relationships, existing technologies and systems dependencies, information flows, and other architecture aspects. For example, there could exist monolithic solutions which prevent agile changes to the architecture for expanding to new sales channels. Then, the capability to rethink and reorganize the architectural assets would be in place. Next, the third level two capability, *connectivity enablement,* expresses the company´s ability to carry out the required technological changes to enable connecting internal or external parties. In practice, an ecosystem partner such as retailer could have an interest to order products and acquire related product information directly using their own systems. Then, a company should be capable of providing appropriate interfaces for making this integration possible if the business partnership is seen valuable to be further developed.

The moment of truth for all the hard work in favour of better experiences lies in the actual capability of making the experiences happen. The fifth PXM seizing capability, *experience realization,* depicts the capability to deliver the experiences in person and in context with agile manners in dynamic environment. In practice, this means the ability to enable sufficient resources, such as product information, in different touchpoints so that experience interactions have resources to consume. The first decomposed level two capability, *experience enablement,* is about the ability to enable new experiences through continuous integration and delivery. For example, if new marketplace channels are seen fit for the company

objectives, there should be a capability to generate a necessary product feed with the appropriate content and integrate it, both technology and business-wise, to the new marketplace. The second level two capability, *personalization,* is the ability to personalize the product experience in a touchpoint according to stakeholder preferences and characteristics. For example, customer data could be utilized to suggest additional services and product recommendations based on customer´s previous activities. Further, the third level two capability, *contextualization,* is the ability to consider the context in which a product is represented and confronted, and tailor the experience based on it. For example, for commodities such as food, the pack shot images could be optimized for ecommerce purposes. In supermarkets, customers can pick up the food can and see the details in the package, but in digital channels it is not possible as such. Therefore, specific pack shot images highlighting the most important facts, such as serving amount, could be designed to promote a product physically out of reach. In the end, the fourth and final level two capability is about *operational integration*. As found in the existing literature, product experience is only a subset of total customer experience, when its integration to the other product-related operations within the total customer experience domain should be ensured. For example, delivery and tracking of products may not be, at least in this study´s scope, directly considered as a part of PXM since they reflect more the operational side of business than the product itself. Still, they and other customer experience elements should be considered when the product experience for the whole customer journey is being enabled.

The data aspect was also emphasized in the existing literature when it was seen necessary to be included in the constructed model. Certainly, data is a key component for each business capability (The Open Group, 2018a), but a specific focus for its management was also seen feasible. Therefore, the sixth seizing capability, *experience data management,* illustrates the necessary abilities of a company to ensure that experience data, such as product data, is up to standards supporting the product experience enablement. Associated level two capabilities cover the data managements aspects of governance, data architecture, data model, data quality, and data flow. *Data governance management* represents the ability to master the required organizational structures, owners, policies, rules, process, and metrics for the end-to-end life cycle of experience data. Further, *data architecture management* is the ability to drive models, practices, and standards which define the collecting, storing, organizing, integrating, and implementing of experience data. For the modelling, *data model management* expresses the ability to identify, analyse, and model the experience data requirements to support business needs across the system and technology landscape. In quality sense, *data quality management* is the ability to maintain and ensure the accuracy, consistency, completeness, integrity, and timeliness of experience data. Finally, *data flow management* is about the ability to map, illustrate, and enable the required experience data flows between the different systems.

Further, the seizing aspect involves the management of product catalogue. While assortment management focuses on answering to the question of what products to sell to match the market needs, the seventh seizing capability, *catalog*

*management,* seeks to enable how the product catalog should be structured in a way which supports the different business scenarios. The first decomposed level two capability, *product modelling management,* illustrates the ability to model products in an appropriate way to support both internal management and usability in commercial purposes. For example, individual sellable products may constitute a sellable bundle or some individual sellable products, typically called variants, are to be grouped together under a model product due to their shared characteristics. In addition, logistical packaging hierarchies or product configurators may have their touch on the modelling needs. Further, the second level two capability, *reference management,* represents the ability to model and develop the relationships between the different products and other related components. For example, in heavy industry, it would be crucial information for a repairer to know the fitting spare parts so that a machine can be fixed appropriately. Further, e-tailers desire to show additional products alongside the other products similarly to physical stores when references to up-sell, cross-sell or accessories products need to be handled. The third and final level two capability, *classification management,* is the ability to develop and maintain the classificational structures and classification of products into them to support both internal and external needs. For example, product categories can be used to find the right products, guide the business reporting, or even support ecommerce navigation trees. Some product standards, such as GS1 GDSN (global product data synchronization) or ETIM (international classification standard for technical products) also utilize their own classifications.

The previously discussed capabilities mostly focused on abilities for managing products structures, strategic fit with the market, data, technology, and experience management aspect itself. As identified from the existing literature, the background of PXM originates from product information management. As further acknowledged, high-quality contextualized product information, its enrichment and enhancement are necessary for PXM when they were also involved in the constructed model. For the model, the eighth seizing capability of *content management* was thus added. It covers the ability for enabling all the necessary product experience content, such as product information, required to meet the needs of different customer journeys, channels and touchpoints. In addition to mere product information, content may be for example additional information about the product brand, standards, certificates, or product designer. For clarification, content management was decomposed to five level two capabilities. First, *content planning* is the ability to prioritize, design, and schedule the appropriate product experience content for different types of products. For example, a premium brand product most likely needs lots of compelling content about the product itself but also about the brand. On the other hand, a basic screw could be just fine with an image and a compact short description. Second, *content creation* expresses the ability to execute the created plans by onboarding, enrichment, and creation of the required product experience content. Depending on the industry, some of the content elements such as product information may be acquired from external sources, and some of the elements may be created in-house. Further,

some of the elements, such as customer reviews with photos, are created by the customers themselves. Typically, the external sources can provide the hard facts such as technical specifications of a product when in-house enrichment and content creation can focus on textual descriptive content reflecting the brand message. To ensure successful publishing and selling of products, a capability for *content review* is also suggested in the model. With an ability to review the created experience content, its quality and consistency across the channels can be approved, and the desired level of experience enablement thus ensured.

The content management involves also covering the varying needs of different channels and touchpoints. The level two capability of *localization management* is about the ability to enable appropriate localized product content for each touchpoint with specific needs. In practice, this means for example the required translations for product descriptions, but it can also mean the management of some locale-specific content such as certain product information needed in different countries due to legislative reasons. Another level two capability, *scope management*, further represents the ability to identify and enable context specific alterations of certain product experience content. For example, for a good experience, it may be reasonable to provide different versions of a product description to B2C and B2B customers for the best experience. In addition, the brand of a product may be for instance presented differently in different countries depending on the local markets.

### 6.2.4 Transforming capabilities

The third perspective of the PXM business capability model expresses the *transforming* aspect. Where the sensing and seizing capabilities focus on identifying, understanding, and answering different opportunities and threats for product experiences and their management, transforming is about ensuring continuous renewal of an organization to stay competitive. (e.g., Teece, 2007; Teece, 2019) In the constructed capability model, the transforming capabilities focus on enabling continuous business transformation through the strategic management of PXM, PXM knowledge management and leadership. Therefore, the involved capabilities cover themes such as strategic visioning, performance management and business integration for PXM. Further, management of PXM knowledge and leadership with a future-looking attitude are also present in the model. The transforming aspect of PXM business capability model with associated decomposed business capabilities is presented in Figure 7 below.

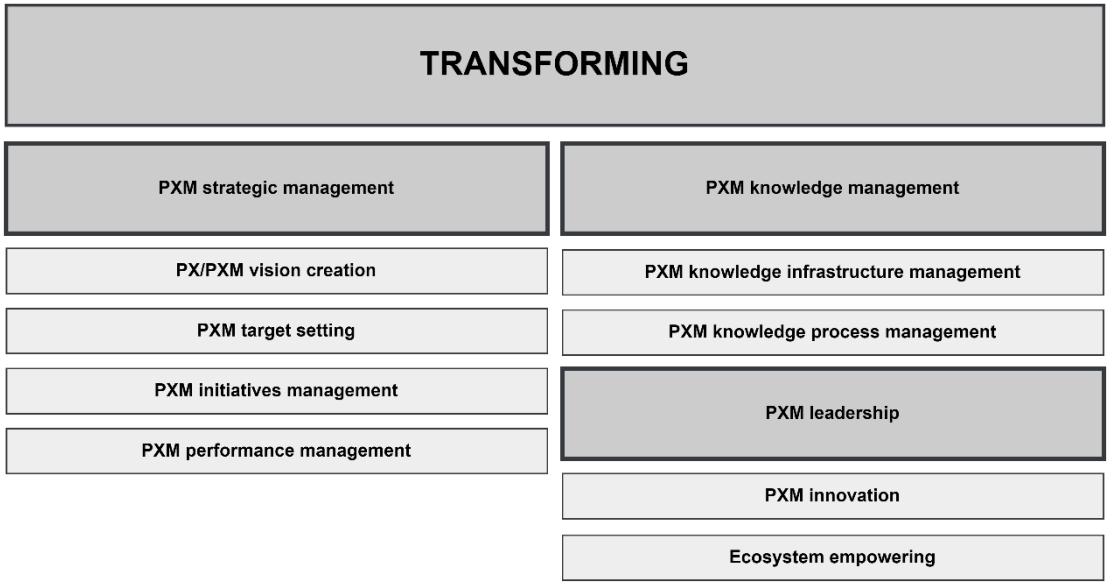


FIGURE 7 The transforming capabilities of the PXM business capability model.

Strategic management was summarized as a one noticeably relevant aspect for PXM based on the existing literature. Therefore, specific strategic capabilities were seen meaningful to be included in the PXM business capability model. The first transforming capability, *PXM strategic management* represents the abilities to steer product experience management in a way that ensures the alignment with company´s other objectives and business processes. The first decomposed level two capability, *PX vision creation,* is about the ability create a vision for the company´s product experience. This should be done based on company´s general business vision and in close collaboration with the total customer experience vision creation. Product experience vision could for example a bit ambitiously state that salespersons are no more needed in the future because the product experience reflects all the needed resources and answers.

The second level two capability, *PXM target setting,* expresses the ability to create strategic targets for PXM based on created product experience vision. Due to the future- and forward-looking nature of PXM with a role of competitive advantage enablement, the target setting could base on objectives and related key-results indicating the achievement of the objectives. For example, an objective could be such as *suppliers support our product experience management efforts with a significant amount of product information.* Related key result to indicate the achievement of objective could then be such as *50% of the product information is acquired from suppliers.* Based on this, the actual result could be then evaluated. These kinds of objectives and key results, if inspirational enough, could then empower the company to strive for set objectives. In this case, a company could strive to develop their integrations and collaboration with suppliers to enable better product information flow and thus possibly allocate the freed time to focus on more value-adding product information activities.

The third level two capability, *PXM initiative management,* represents the ability to prioritize, steer and manage the different types of strategic initiatives

for PXM development. If competitive advantage is being sought through better product experiences, most likely according objectives and thus derived initiatives exist. Then, different initiatives should be prioritized and treated accordingly. For example, due to the increase of social selling, it could be seen necessary to enable the creation of more product videos for social media channel purposes. Further, due to the expansion to international markets, internal resources may not be any more sufficient to handle all the translations when a new collaboration and technical integration with a translation agency may be reasonable.

The fourth and last level two capability under the PXM strategic management is about *PXM performance management.* In PXM context, performance management is the ability to ensure that PXM related activities and strategic initiatives, such as preparing the products for sales or defining the experience for a new sales channel, and their outputs meet the set objectives in an effective and efficient manner. If the provided product assortment is vast and experience architecture extensive, it will highlight the role of performance management in keeping the focus on right things and using the right methods for a company to operate at a targeted level. For example, the vaster the product assortment is the more important is the ability to prioritize the products based on business needs but also based on the characteristics of products. Not all the products are same when a bit simpler product should not be treated with a similar effort to more complex ones.

Organizational aspect was also identified as a relevant aspect for PXM. As Helfat & Perefal (2003) stated, organizational capabilities strongly rely on individuals and teams they form. Even if relevant *skills* can be considered as a major resource for almost every PXM capability already depicted, knowledge management to ensure organizational PXM ability was seen necessary to be included in the constructed model in some form. Therefore, the second transforming capability of *PXM knowledge management* was involved in the model. In short, PXM knowledge management is about the ability to employ and develop PXM knowledge assets, such as PXM insight, to support other PXM capabilities and achievement of set business objectives. It constitutes the creation, manipulation, storage and sharing of PXM knowledge among the people involved enabling the product experiences in a company.

PXM knowledge management was decomposed to level two capabilities. First, *PXM knowledge infrastructure management* expresses the company´s ability to build and support appropriate infrastructure that enables PXM knowledge dissemination between the different organizational functions and activities. First, the infrastructure involves the structural aspect which in practice means the physical structure, such as office design, and hierarchical structure, such as multidisciplinary PXM team. Second, the infrastructure involves the technological aspect which further represents the abilities to integrate and deploy knowledge utilizing technologies. In PXM sense, parties need to have appropriate tools at their disposal to share PXM knowledge with others. Third, the culture aspect is also part of the infrastructure. If cultural values, such as customer-centric thinking, can be done true and alive, it will certainly enhance the dissemination of

related PXM knowledge among the organization. In addition to the knowledge infrastructure, the second level two capability of *PXM knowledge process management* was constructed into the model. It illustrates the ability to enable acquiring, transforming, and applying the PXM knowledge so that set objectives and desired level of operations can be achieved. Acquisition of PXM knowledge refers to seeking new knowledge and creating new knowledge to benefit development of company PXM practices. For example, it could mean finding the best practices from other similar companies. Further, transforming involves the transformation of acquired PXM knowledge to organizational knowledge. In practice, it would mean making the knowledge accessible within the organization. In the end, application is about activating the knowledge into use. As product experience was identified as a source of competitive advantage, applying the PXM knowledge to create customer value further to be involved in enabled product experiences is certainly essential.

In addition to the strategic and knowledge aspects, leadership, ecosystem, and organizational innovation were also identified as important point of views to be considered in PXM according to the existing literature. Therefore, a specific transformational capability of *PXM leadership* was included in the constructed model. It comprises the ability to drive innovation for PXM development and impression in the ecosystem, and empowerment of ecosystem actors for achieving shared business benefits. The capability was further decomposed to more specific level two capabilities. The first one, *PXM innovation,* illustrates the ability to drive innovation for enabling new PXM methods and new ways of experiencing products. Further, it is about balancing the innovation efforts between incremental innovation for existing methods and radical innovation for something totally new to differentiate from competitors. For example, innovations could lead to enable automation for identifying relevant product contents to be focused on based on customer activities. The second level two capability, *ecosystem empowering* addresses the need for collaboration and strong partner relationships. Even if a company understands and practices PXM in a brilliant way, immature retailer or other business partner may forestall the experience potential. Therefore, it is vital to also help them to understand the potential of good product experience and development of the necessary capabilities together. For instance, a company could enable tools and sales support for its major retailers to ensure that the products are represented in a way which is aligned with the brand principles.

## 6.3 Development of PXM business capability model

The development of capability model illustrated in the previous chapters initiated from pure theoretical perspectives. Following the TOGAF® standard principles, the first development steps were about capturing and documenting the business capabilities representing the full scope of PXM. Since PXM was identified as a yet unstructured concept in general, the initial focus for the modeling was set on capturing the desired and future-oriented capabilities so that reference

model could be made. Therefore, the first sketches of capabilities were about a direct illustration of business capability aspects for PXM summarized from the existing literature. They provided a good baseline, but it was soon understood that they would not work as is. The main indication for that was the fact that some of the aspects, such as technology, were rather multidimensional. Thus, splitting the aspects for more granular state was needed especially for reasonable stratification enablement. Further, the practical experiences of the author indicated that the aspects were not yet sufficient for depicting the full extent. Therefore, the next step included a more detailed examination of each aspect´s specific characteristics summarized from the previous studies. Further, author´s practical knowledge and experience was now also utilized. As a result, the capabilities were restructured and couple of different revisions of them were made. The resulted but yet initial capabilities are illustrated in Figure 8 below.

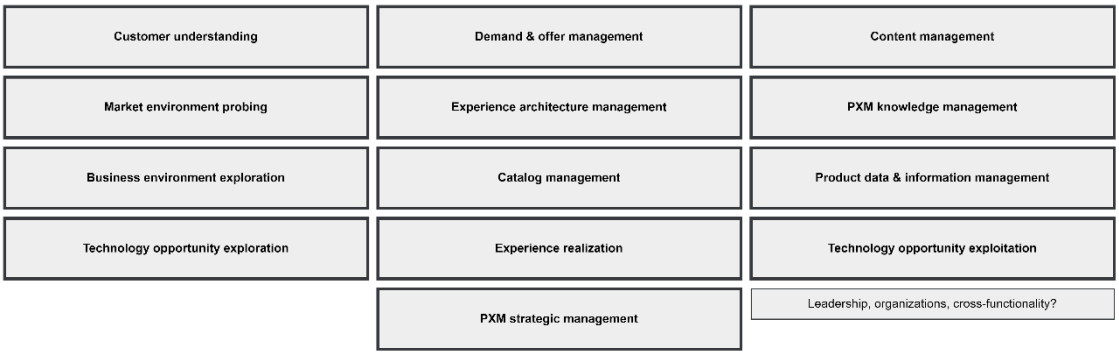


FIGURE 8 The PXM business capability model capabilities in the early phases of development.

As illustrated in the Figure 8, the capabilities represent similar themes that can be found in the final version of the model presented in the earlier sections. Still, several development iterations were yet needed. At this point, when the basic structure of the capabilities started to form, stratification for them was conducted for the first time. As depicted in the final version of the model, capabilities were stratified according to the dynamic capability perspectives of sensing, seizing, and transforming. By this way, it was ensured that each important perspective was covered during the business capability modeling, and they also helped to look for possible additions of capabilities to the model. Other considered stratifications were for example between customer-facing capabilities and more business-facing capabilities, but this was dismissed at least in this study. Since PXM is by nature all about delivering value for product stakeholders, that kind of stratification was not seen necessary at this point. Considering the set model objectives in informativeness, the dynamic capabilities perspectives were seen better fit from competitive advantage enablement point of view.

At the same time with the first stratifications the first leveling activities and decomposing of the business capabilities for more granular capabilities were conducted. At the top level most of the capabilities were yet rather comprehensive and not that descriptive for all stakeholders when leveling was more than

justifiable to be conducted. As depicted in the TOGAF® standard, leveling aims to communicate more detail at relevant level for different kinds of audiences. For example, in case of the presented PXM business capability model, utilizing top-level capabilities is more suitable for supporting marketing communications whereas the more detailed lower-level capabilities provide practical support for internal development. All in all, leveling supported the set model objectives in practicality, distinctness and informativeness. The first rounds of actual leveling were conducted based on the characteristics identified from the previous studies combined with the practical experience of author. Later on, the leveled capabilities were revised based on the feedback from the other case company representatives and actual demonstration of the model.

As soon as the first solid depictions of the model with appropriate capabilities, stratification and leveling were constructed, they were further iterated together with the case company representatives. They represented knowledge and practical insight for PXM, related solutions architecture, information systems, business development and customer-facing activities such as sales and pre-sales engineering. Together with these representatives, the constructed model was revised based on their business insight and practical experiences. At the beginning, the objectives and constructed model were first introduced after which open discussions about the model were conducted. Discussion topics were prepared beforehand at some level, and they focused on ensuring discussion about the model comprehensiveness, clearness, and practicality for additional development insight.

Several development ideas and insight for the model were acquired based on these discussions. First, for the sensing perspective, technology & system landscape assessment capability was reformatted as architecture assessment. This was seen better to describe and cover all levels of architecture and related aspects such as data, data flows, and systems. Further, analyzing competitors was seen important when a specific capability for competitor analysis was added as a level two capability under the top-level capability of market environment probing. Second, for the seizing perspective, several relevant suggestions came up during the discussions. One of the most relevant ones was the measurement of experience. In practice, this would mean an ability to measure how the conducted actions have realized for experiences and if the effect has been negative or positive. Further, the evaluation of chosen channel tactics and their cost-profit ratios were also seen important. Later during the development, these suggestions were considered when the new capability of experience tactics insight and evaluation was added to the model.

Other good suggestions involved the integration of operative aspect, extension of product data to experience data, and business prioritization for operational PXM activities. Operational integration was later added as a specific capability under the experience realization capability to ensure consideration of the other product-related operations within the total customer experience domain. For the data management capabilities, the scope was extended to cover product experience data instead of mere product data to better reflect the needs of PXM

concept. In the model, this was realized in the naming changes of data management capabilities and in their content descriptions. Further, business prioritization needs for operational PXM activities were also seen important, when the model was complemented with an appropriate capability of experience effort steering under the top-level experience management capability.

Also, the transformational aspect of the model was enhanced by these discussions. As PXM is yet a rather novel concept, the old manners and way of thinking may still reign. Still, for enabling the best product experiences, the ecosystem actors should most likely share similar thinking and understanding of PXM benefits to collaborate and interact accordingly. If a company can build a favourable atmosphere for its surroundings, it is going to achieve most likely a better impact for its targeted experiences. This need for paradigm change was identified during the discussions, and it was later constituted in the model as an ability to empower the ecosystem. Further, a need for innovation was already identified from the previous studies, and it also popped up during the discussions. For achieving competitive advantage, both incremental and radical innovations are most likely needed so that competitive position can be achieved and maintained. Therefore, a specific capability for PXM innovation, which is also found in the final version, was added to the model.

Along the discussions and later based on the feedback from demonstration some other development for the model was also conducted. For example, some minor changes for the capabilities naming were resulted. Customer behaviour analysis was changed to customer behaviour understanding and experience operations (xOps) to experience enablement as couple of examples. Specific capabilities for media experience management were also on the paper at some point but when considered more closely, the need was not that relevant anymore due to already existing content and experience management capabilities. Mentioned experience management capability was added as a separate top-level seizing capability in rather late phases. At that point, the capability of experience design and the capability of experience tactics insight and evaluation were transferred under it as level two capabilities. Further, a totally new capability of experience management integration was added under the experience management to illustrate the ability to integrate experience development activities with other customer experience activities. In addition, some other undocumented minor changes and polishing for the model were made during the development and demonstration, but their role was less significant for the final result.

## 6.4 Demonstration of PXM business capability model

The constructed business capability model was further demonstrated to prove that it is usable for solving the identified real-life business issues. The demonstration was conducted in the later phases of this study when the constructed model was considered to be at sufficient level for testing. In this study the utility of the model was tested in each identified business issue case, and it was being

evaluated at the same time. The identified business issue cases consisted of enhancing the PXM understanding, developing the case company offering, and increasing awareness about PXM. With this approach it could be ensured that the constructed model serves its possible use cases as good as possible.

The demonstration for the model was conducted rather flexibly with at least partly unstructured methods for each identified business issue case led by the author. Participatory observation and monitoring by the author was conducted. In addition, depending on the demonstration case, other people were also involved. For the first demonstration case, in addition to the author, two solution side experts and one salesperson were involved. One of the solution-side persons had a more supervisory role for the PXM solutions whereas the author and the other solution-side person represented more practical aspect in delivering the solutions. The salesperson represented supervisory and development roles in sales. For the second demonstration case same people were also involved. For the third demonstration, in addition to the author, audience representing clients, prospects, and other interested people was involved. People in the audience mainly represented roles at director and manager levels in the area of commerce and general business development. In total, audience numbered 84 persons.

As discussed in the previous chapters, development and demonstration were conducted partly simultaneously due to iterative nature of this study reflecting the DSRM process. Therefore, there were no specific points or gates for proceeding to the next phases when the feedback acquired through demonstration and evaluation was implemented to the model on-the-go if it was seen feasible. Thus, in this study, the development, demonstration, and evaluation could be seen as a one iterative cycle with an aim to satisfy the identified business needs and making the change happen at the same time. The next subchapters further discuss the demonstration of the model for different business issue cases.

### 6.4.1 Enhancing the understanding

The first identified business issue was about enhancing the internal PXM understanding in the case company, which was also considered in the model objectives and thus during the development. Therefore, the model was to be tested in practice to see if it could be utilized for creating more internal understanding about PXM. In practice, this demonstration actualized in parallel with the development activities when the model was revised together with case company representatives consisting of two persons from solution side and one person from sales. The model of that time was first introduced, then discussed and later iterated for the next versions. This development and interaction revoked interesting discussions which resulted in additions to the model but also interest towards the concept of PXM in general. For example, in the discussions, the content of the model was reflected back to past development projects and the current state of existing clients. This resulted in some business activities to seize the current situation better. Especially the transforming aspect of the model generated positive feedback and considerations about PXM leadership and its meaning for both the case company and other businesses. Concluded, the constructed model seemingly sparked the

discussion about the new opportunities for the business, which indicated that the model has potential to enhance PXM understanding even better after the first positive indications acquired in this study. As this study were conducted in close collaboration with the case company, the research process itself as a whole was considered to enhance the understanding about PXM to the next level.

### 6.4.2 Offering development

The second identified business issue reflected the need for finding some new aspects and opportunities for the case company´s PXM offering development. As set as one of the objectives for the model, it was desired to be in help for identifying relevant development areas in the current offering for example through gap analysis. Thus, it could be possibly seen if the company´s offering focuses on the right things for enabling the necessary capabilities for the clients aiming for better product experiences. Therefore, it was seen convenient that the demonstration phase would also cover this business issue context. In practice, this led to the demonstration where the capability aspects present in the constructed model were reflected to the existing offering and its content, such as services and practices, led by the author. This way, it could be identified what important aspects were possibly neglected in the current PXM offering.

The demonstration was conducted utilizing documentation, such as offering presentations and sales materials, and the case company representatives´ reckoning for the current offering review. Two persons from solution side and one person from sales were involved in review. Different capability aspects present in the constructed model, such as customer understanding, were trying to be identified from the current offering content to reveal possible gaps and thus opportunities for the offering development. All the capabilities at top-level detail were addressed one by one and they were reflected to the existing offering content. Documentation and materials were read, and more details were acquired from the case company representatives if necessary. Observations were documented for further analysis.

The demonstration proved to be rather successful. For the sensing aspect of the model, most of the capability aspects were not comprehensively realized in the currently provided solutions and services. Customer understanding and its importance were communicated as one of the key marketing messages in the case company, but the current offering provided only few enabling solutions for it in a form of specific workshops. Market environment probing was almost completely non-existent aspect in the offering, and business environment exploration represented a similar situation than the customer understanding. However, technology opportunity exploration was clearly imminent in the current offering, and it was being approached with services such as technology platform evaluations, architecture design sprints, and integration architecture reviews.

The seizing aspect review provided both matches and neglections in the current offering. Demand and offer management related challenges had been confronted in many customer projects, but no concrete solutions for them were currently provided. For the experience architecture management aspect,

channels, touchpoints, customer journeys and their management were rather imminent part of the currently provided solutions. For the experience realization aspect, it was concluded that for the most part activities were outsourced for the client side developing the touchpoints when the offering side did not cover the aspect that extensively. Further, the content management, catalog management and technology opportunity exploitation aspects were clearly identified at some level in the offering since they formed the core of it. This was actually an expected observation since they represent the core aspects for PIM-system implementations for which the offering was originally based. Thus, the focus in the current offering was mostly on product information and related technologies when the more comprehensive experience aspect presented in the constructed model was not yet that imminent. For the experience data management, the aspect was imminent at the basic level across the current offering covering the most data management aspects, but separate solutions and services for rigorous data management principles enablement were non-existent. Experience management enablement itself was not either that imminent part of the offering as specific services or solutions even if the idea was integrated in some other offered services and solutions. In this case, experience management was currently considered more as a responsibility for the client side.

Transforming proved to be maybe the least considered aspect if reflected to the current PXM offering. Strategic management aspect was at some level discussed for example during PIM-system implementations when appropriate targets were set but otherwise enablement for the client side was not conducted in practice. Further, for the knowledge management aspect, it had not been considered yet at all from the enablement point of view even if its meaning and value were discovered and understood during the demonstration. For the PXM leadership aspect, ecosystem empowering was identified as a crucial part of marketing messages for digital sales capability, but at least not yet no concrete specific activities for enablement were identified in the current offering. Sure, for its own part, development of internal PXM capabilities helps to enable interaction with the ecosystem when more possibilities for the empowering may revoke.

All in all, based on the demonstration where the capability aspects of constructed model were reflected to the current PXM offering, it seemed that constructed model helped to identify gaps in the current offering. Not all of them are necessary relevant from the offering development point of view since the responsibility for enablement may lay more on the client side. Still, they are important to be recognized so that clients may be instructed to focus on such things even if the case company would not provide any specific enabling solutions or services for them.

### 6.4.3 Market awareness

The third identified business issue expressed the need for creating more awareness for the market about product experience and its management. Through this achievement, new business opportunities for the case company could be

generated. Therefore, it was seen relevant that the applicability of the model would be demonstrated also for this business issue aspect.

In practice, it was seen that some kind of marketing activities involving the capability aspects of the constructed model would act as a good method for the demonstration. Thus, the contents of the model were decided to be presented to market audience as a part of PXM focused sales-oriented webinar by the author. In addition to introduction to product experience and product experience management, the capability aspects of the model were presented in the webinar. For the webinar, the model was simplified to express the capabilities only at top level for more compact and clear presentation due to time constraints. In the webinar, each capability was shortly introduced with some practical development examples. After the webinar, the presented material was shared with the attendees, and the webinar was made publicly available as on-demand content.

As a result of this demonstration, it could be stated that the constructed model is feasible to be utilized for efforts enhancing the market understanding of PXM. As targeted, the model could be simplified appropriately to present it in an easily adopted way. However, even if the effort for understanding enhancement was made, there is no guarantee that the understanding was enhanced. The direct measurement of such marketing action impact is rather complex and maybe even impossible when the evaluation can only be based on feedback and other similar responses. Based on the acquired feedback, the webinar was considered good and informative when at least in partial it could be hypothesized to have had some positive responsiveness and thus understanding enhancement among the audience.

### 6.4.4 Conclusion of demonstration

The case company provided a good testing environment for the constructed PXM business capability model. Three different business issues were identified and solving of them was set as an objective for the constructed model. Therefore, it was more than perfect that the constructed model was able to be demonstrated for solving each of these issues as described in the previous chapters. As the evaluation of the model was conducted at the same time with participatory observatory aiming for satisfying the identified business needs, the chosen approach was considered more than valid in the end.

Each demonstration case provided a different point of view for the model utility which was definitely great for approving it as a potential solution. The first one, enhancing the internal understanding, was integrated to the development process as a whole when both the author and case company were able to learn more about PXM and different aspects related to it during the model construction. During that time, new aspects were discovered, and connections with practical issues were formed. This all depicts the growth both the author and the case company were able to achieve during this research process. Therefore, more understanding was certainly at some level achieved. The second demonstration, using the model for offering development, illustrated its practicality well. Through utilizing the model for identifying possible development areas in the current PXM

offering, several of them were found. Therefore, the model also proved to be helpful in solving of that business issue. Certainly, it does not provide the exact answers what to do but it will help to find the right direction for activities to be conducted.

The third demonstration aimed to prove the model´s utility for increasing market awareness about PXM and its benefits. For the validity, this business issue aspect was probably the hardest to prove without an extensive market study before and after the demonstration. However, the demonstration proved that the model can be utilized in a flexible way and at appropriate detail for such marketing awareness enhancing actions as demonstrated. In addition, based on the acquired feedback, it could be thought that an impact was observed, but the real effects would be seen only in long-term following the continuous marketing communication about PXM. When the solution was outlined for the construction at the first phase, it was already then understood that this study and the model development will be only the beginning for the future of PXM.

## 6.5 Evaluation of PXM business capability model

Evaluation for the model was already partly addressed in the previous chapters about the demonstration but this chapter aims to summarize it as a whole. Indeed, the evaluation of the constructed PXM business capability model focused on comparing the achieved result against the set objectives for the model itself and for this study. Promotional and practical aspects were emphasized for the evaluation. The evaluation was continuously conducted in parallel with the development and demonstration phases of the model and analysis was done once more when the model was considered as complete. The evaluation feedback was fed to the development of the model until the business needs were satisfied. With this participatory observation approach, it could be ensured that the outcome answered to the identified needs. On the other hand, it could be identified if there were any issues that the model did not address or did not provide help to.

In practice, the evaluation was conducted primarily with observation by the author and with open discussions with case company representatives of two persons from solution side and one person from sales. One of the solution-side persons had a more supervisory role for the PXM solutions whereas the author and the other solution-side person represented more practical aspect in delivering the solutions. The salesperson represented supervisory and development roles in sales. In addition, the feedback acquired from the webinar audience was utilized. Similar to demonstrations, not specifically rigorous methods such as question patterns were utilized for the evaluation in discussions, but more flexible and practical ways were considered more effective for approving the utility of the solution for solving the business issues. Notes of discussion were made as a part of evaluation, and they were utilized when new revisions of the model were constructed. Notes included feedback and development ideas presented by the involved case company persons. In the end, the final analysis focused on critical

evaluation of the model´s feasibility for its purpose and against the study and model objectives, and it was conducted when no more essential development needs were identified.

In the study objectives it was set that the constructed artifact should provide practical support for the case company operations. Further, it was added that the artifact should be demonstrated and evaluated for adequate validity and reliability. Appraising the constructed model and its demonstration cases, it could be stated that both of these aspects were fulfilled with the model and its development. As observed through the three different demonstration cases, it could be clearly seen that practical support for the case company, even for different use cases, could be provided with the help of the model. Sure, the model as is as a resource do not solve yet anything by itself since resources do not yet constitute a capability as found during this study. Thus, it requires understanding and skills to apply it into practice. However, as was seen during this study, PXM understanding in general was enhanced which helps to utilize the model for solving various business issues and maybe even find new business opportunities. Based on the discussions with mentioned experts from the case company, the study was seen beneficial and inspirational even if some more instant practical benefits were craved during the early stages of the study by them. In the end, outcome was still seen adequate.

Specific objectives for the model were also set according to the phasing of DSRM process. First, enhancing the understanding was set as a primary guiding principle for the model and its development. As already discussed earlier, the general understanding about PXM was considered grown during the study when the different aspects for PXM were first discovered and later implemented to the model during the development. In addition to internal understanding perspective, the model was demonstrated to test its utility also for enhancing the external understanding, market awareness, about PXM. Therefore, it could be stated that the chosen guiding principle was realized throughout the model construction. However, as no concrete measurements for validating the understanding increase were conducted, the reckoning is more or less subjective. In addition, this study represents only one way to approach PXM and its structures when other ways leading to different kinds of understanding are certainly possible.

Further, the set construction objectives guided to form a solution which will help to solve the identified business issues related to understanding enhancement, offering development, and market awareness. The first demonstration case presented, how PXM could be approached with a business capability modeling approach to enhance the internal understanding of PXM at the same time. Business capability modeling involves comprehensive familiarization with the core business structures when understanding will certainly be enhanced. It was stated by the involved solution and salespersons that development process allowed to rethink many existing practices and their role. It has to be noted, however, that in this study business capability modeling was not done for a specific company but it was more about building a reference model to be used as a framework. Therefore, it was more about understanding the various related aspects of PXM

than specific business structures. In this, input from the involved persons proved to be valuable. All in all, it could be summarized that the objective was fulfilled sufficiently. Certainly, as mentioned by most of the involved people, the concept requires more utilization in customer business cases to find its form.

The second demonstration expressed the utility of the model for developing the PXM offering of the case company. The model could be utilized to identify development areas in the offering even if it does not state the specific steps to take. Considering the identified business issue, the objective was set specifically to find business aspects to be considered in the offering development when the objective could be stated to be achieved. Based on the feedback from solution side persons, identified gaps seemed to be logical even if the true value of investing in them remained to be seen. The author also agreed that identified development aspects need to be planned in more detail before acting. Further, competitive advantage was also sought. Currently, approach for PXM in the market is rather technology centric as identified from the existing literature when more comprehensive capability approach represented by the model most likely enables new opportunities for differentiating PXM offering against the competitors. Based on the discussions with the case company persons, the model will help to solidify case company´s differentiated position further if the model and its contents can be utilized conveniently. Thus, the competitive advantage aspect could be stated at least as advanced. However, even if the model was demonstrated to be useful for identifying development aspects, it does not yet tell if those aspects are relevant for all the market needs. Depending on the industry, the focus most likely varies when the offering development needs to consider different verticals and maybe tailor the offering based on their requirements. Still, the constructed model provides the framework and guidelines for the different aspects to consider.

The third demonstration presented the utility of the model in enhancing the market awareness about PXM. For external perspective, the model could have possibly offered multiple different options for demonstration, such as surveys and analyses, but marketing actions were chosen. At this point, when the concept of PXM is just at its infant phases, marketing communication was most likely the best choice as eventually used in a form of webinar. Even if the concrete impact for awareness was not specifically measured but more assessed based on the feedback the author received from the audience, the objective for expanded market awareness could be at least partly to be stated as fulfilled. New aspects for product experience management were introduced, and the model itself could be simplified accordingly to the audience. However, as stated, the real effects for market awareness will be seen only in long-term. Luckily, the commitment for continuing such marketing efforts exist in the case company. Based on the involved salesperson, PXM is currently a hot topic in the scene of digital commerce, when related insights and expertise will be certainly valued.

From more general perspective, the model was targeted to be practical, distinct, and informative. Considering practicality, it was shown through the demonstrations that the model can be utilized for solving practical issues, which

was also supported by the solution side representatives. From another perspective, the chosen visualization method, business capability map, clearly stratifies and levels the capabilities when it is possible to utilize only the specific parts of the model depending on the needs. Considering distinctness, the capabilities were leveled to provide more detailed specific perspectives for the capabilities. Each level two capability was also described in this report to provide more insight for them. Capability leveling revoked discussion during the development within involved case company persons. Solution side persons were keener to more specific leveling whereas involved salesperson preferred more high-level approach. In the end, the model was designed in a way which allowed simplification if needed.

As another perspective for distinctness, the scoping of content for the model played an important role. PXM is only a part of business, and many other capabilities are also needed for business success. Therefore, for distinctness, it was necessary to include only the relevant capabilities in the model. For example, a basic capability for product management through the life cycle is definitely a precondition for successful PXM, but as it is a very basic requirement for the business altogether, such capability was not included in the model. Considering informativeness, the model aimed to be comprehensive covering all the relevant aspects of PXM. Through the stratification, leveling and capability descriptions, this was achieved quite sufficiently. Based on the discussions during the development with solution and salespersons, appropriate scope for the model was achieved. Still, from sales side, a clear connection to other business capability areas in the enterprise was at some level yet desired which could be considered as an issue that could have been done better in this study. Since this study is both academic and practical, naming of the capabilities required some balancing, too. In the end, the outcome is something between not necessarily representing the ideal level of descriptiveness, but luckily, the naming can be enhanced and even tailored depending on the use case. Especially for the sales side, this was considered as a plus.

Last but not least, it was set as an objective that the constructed model would consider all the necessary business capability aspects for PXM identified from the existing literature. This was seen important since no established business capability structure for PXM yet existed. Then, a link between the existing theories and the constructed concept would be able to be built. In the end, the identified PXM aspects such as strategy, leadership, organization, customer understanding, experience, ecosystem, context, technology, and data were all considered in the model somehow. According to the discussions with solution and salespeople during the development, the aspects of leadership and strategy were the hardest to concretize in the PXM since maturity of it is still low in the organizations. Therefore, those aspects remained yet vague but were certainly considered important and as relevant part of the model.

In addition, representing the dynamic capabilities perspectives, the aspects of sensing, seizing, and transforming were utilized in the capabilities' stratification. Involvement of these aspects does not yet automatically constitute the

dynamic capability and competitiveness for a company, but they will guide to consider the necessary aspects. Then, they can be enabled through reorganizing, integrating, and developing the ordinary capabilities present in the model. For the involved persons, these stratification perspectives and their role in the model required explaining and walkthrough during the development since they heavily based on Teece´s research addressed in the section three. When their role was justified to guide capability development to explore the relevant perspectives, they were in the end understood sufficiently by these persons.

# 7 DISCUSSION

In this section, the conducted study and its main result, the constructed business capability model will be examined in critical fashion. First, conclusions of learnings and outcomes of this study will be discussed. Then, the contribution for both practice and scientific community will be addressed. Further, credibility aspect will be reviewed. Also, limitations present in this study are examined. In the end, future research opportunities related to the topic will be assessed.

## 7.1 Conclusions

First, the objectives of this study stated that theoretical knowledge about the core concepts of PXM and business capability approach for a company should be acquired. Further, it was aimed to construct an artifact to provide practical support for the case company and demonstrate and evaluate its utility for solving the identified business issues. Also, the set research questions were to be answered, and the achieved results were to be communicated respecting the guidelines for a scientific publication.

All in all, it could be stated that all of the set objectives were achieved at least at sufficient level. Theoretical knowledge was first approached through studying of core concepts related to customer experience, product experience, business capabilities, and their management with the help of previous studies and other relevant available materials. As a result, business capability aspects for PXM were able to be summarized, when theoretical knowledge for further phases were acquired. Next, PXM business capability model was constructed by utilizing DSRM approach to provide practical support for the identified case company business issues. Also, as discussed in the previous sections, the model was demonstrated and evaluated, and its utility for enhancing PXM understanding, PXM offering development, and market awareness increase was considered to be achieved. Further, the set research questions were also answered through the examination of previous studies, constructing the presented model, and

using it for solving the practical issues faced in the case company. All of this relevant content of the study is documented and communicated through this master´s thesis report which follows the set scientific guidelines. In conclusion, reflecting the set objectives, the way this study was conducted, and the achieved results, the outcome fulfills the set expectations pretty well.

This study was all about learning and enhancing the understanding of PXM as also set as one of the guiding principles for the model construction. PXM as a concept was identified to be rather unconstructed and strongly technology-focused when the summarized PXM aspects themselves already provided some new general knowledge and frames for the topic. It was also identified that PXM could be approached from business capability perspective which as a major development approach opened up opportunities for product experience management development to find solutions for the case company practical problems. As discussed in the demonstration section, the model development phase of this study enhanced the understanding of both the author and the case company about the PXM topic and resulted in finding new perspectives for the business. Certainly, many of the aspects were already known through the practical experiences but the development process helped to structure the aspects for more convenient form. The constructed artifact, PXM business capability model, provided for a public a comprehensive expression of capabilities needed for competitive advantage enablement through product experiences.

Most likely, many other approaches and illustrations of PXM are possible, but the model developed in this study provides a good framework for further development. Therefore, some new insight for PXM was introduced in this study which justifies the success of this study in that sense. Even if it was at some level known prior to study, the amount of different relevant aspects for PXM still surprised a bit. Certainly, products have many stakeholders, and they are the mean to deliver value for the customers for example, when various business aspects are to be considered.

## 7.2 Theoretical contribution and implications for practice

This study contributed for both practice and theory. Through the examination of previous studies, the current paradigm for product experience management could be identified. Based on that, some new knowledge utilizing the insights from the existing studies could be summarized. Through the construction and demonstration of the PXM business capability model, the more practical aspect was considered which also resulted in some implications for practice.

The main theoretical contribution of this study was about providing a comprehensive structure for PXM. Even if PXM had been discussed from different perspectives in the previous studies and in other mainly commercial materials, the solution approaches were strongly technology-led and thus rather unilateral. First, this study summarized the relevant general PXM aspects, and even if technology was part of them, it was only one of them. Thus, with presented

additional aspects and extent, this study contributed for expanding PXM research to also to other aspects besides technology. Second, this study proposed a business capability approach for PXM when the relevant PXM business capabilities were identified and constituted to a business capability model. Therefore, this study contributed further for PXM research by proposing that business capability approach for it could be taken, and more comprehensive research could be thus conducted with new opportunities declared.

For practical implications, this study constructed a business capability model which can be utilized for enhancing understanding and for assessing current capabilities to provide competitive product experiences. The constructed model can be utilized to raise awareness about PXM both internally and externally for example for retailers and other business partners. Further, the model can be used as a tool to evaluate current capabilities against the ideal situation, and thus identify the most important development areas. The model does not force to use it as is, but it can also be used as a framework and thus adapted to different situation depending on the needs.

## 7.3 Credibility

This study was conducted by utilizing design science research method for solving practical problems of a specific case company. However, as discussed in the earlier sections, the desire was to conduct this study as objectively as possible and enable sufficient generalizability. Then, the results of this study would contribute for the development of novel concept of PXM in the best way possible. Therefore, credibility, reliability, and validity were concerned continuously during the study by critically evaluating the different choices and decisions made before any concrete actions were taken. This way, it could be ensured that this study achieved a sufficient overall credibility in the end.

The validity of this study can be examined from both chosen methods and actual results point of view. For the methods, it is important that the chosen research method justifies the essence of studied phenomenon. In this study, the problems were relevant business issues that could be solved through the construction of an artifact. Then, the chosen DSR methodology supported achieving a sufficient validity for this study. The study as a whole was continuously critically evaluated as mentioned above, and the presented model was aimed to be constructed as generalizable as possible. The research process, chosen methods and deduction were depicted in detail. Also, the case company context was illustrated specifically. Therefore, from the methods point of view, the validity of this study could be considered at least adequate. Certainly, validity can always be improved. For example, in this study, different alternative methods for demonstration and evaluation were identified, but only one was chosen. The other methods might have provided better evidence about the utility of the construct if used, but different constraints such as time and other resources guided the choice.

For the validity of actual results and made conclusions, credibility and assertiveness stand for typical important characteristics. This study was grounded on strong theoretical knowledge which was utilized to construct a solution for practical problems. The previous studies about PXM were scarce when also commercial materials were utilized to build the theoretical base for the further phases of this study. The concept of PXM is also rather novel when different interpretations are definitely possible. Thus, for its part, this may affect the validity of this study at some level. In general, the study was conducted with sufficiently rigorous methods, and the process was described in detail. The practical issues were described transparently, and the main outcome, the constructed capability model, was demonstrated in three different occasions. Further, it was experienced to help to solve the identified problems. Considering the main topic, PXM, the model certainly reflects only a one possible perspective for illustrating the whole extent of PXM. However, according to the case company representatives, the contents of the model were experienced to reflect similar themes that had been confronted through the practical experiences. Therefore, for the actual results, the validity of this study can be considered adequate.

Design science research aims to solve a specific practical problem with some kind of construction. Then, a concern for reliability for example in sense of repeatability, is not as major as it would be in more traditional research methods. Still, some aspects of reliability can be addressed. Concerning repeatability, this study and utilized methods were depicted in detail, and for example a well-known standard of TOGAF® was utilized in the business capability modeling. Therefore, in theory, this study could be repeated in method-sense. However, since the solution was derived from specific practical problems of a single case company with a certain standpoint, the solution would not most likely be the same for another company. Further, concerning stability, even if this study would be conducted for the same company again, the changes happening all the time would cause a different result due to already changed understanding and standpoint. Concerning the objectiveness and subjectiveness, this study may have been affected by the strong role of author and the specific standpoint of the case company about PXM. Thus, even if the constructed model was made as generalizable as possible, and it was demonstrated in three different occasions, the case company influence may be seen in the outcome.

For the overall credibility of this study, it is crucial to be noted that this study was conducted for only one specific company. The constructed business capability model was demonstrated in three different use cases, but it does not guarantee that it would work in similar way in the other companies. Therefore, for making a stronger claim about the true utility of the model, it should be reviewed and demonstrated in other companies as well.

## 7.4 Critical analysis and limitations

Some limitations and critique of this study were already referenced in the previous sections, but they could be still outlined as a whole. First, this study was about balancing between the practicality and theoreticality all the way. Design science research as a method aims to provide practical solutions but at the same the topic of this study, PXM, was widely unstructured in theoretical sense. The desire of the author was to unravel these both aspects in a balanced way, but it could be stated that the theoretical side still had a bit stronger impression in the end. The constructed model was demonstrated and stated to solve the practical problems, but the model itself remains yet as a bit theoretical concept. Most likely, it would require a lot more thorough demonstrations and reviews in multiple organizations before it could be really stated as a proper tool or method for solving such things. Further, a deeper analysis for actual roles, processes, data, and resources constituting the specific PXM capabilities would be needed even if they rely on specific industries characteristics. Summarized, this study struggled a bit with the balancing between the scientific requirements of master´s thesis and practicality of true business needs.

The role of author and the strong standpoint of the case company may also limit the results of this study. This study was initiated by the author when working in the case company as a part of team responsible for PXM solutions. Then, the author had a major impact for the visual angle from which the identified business problems were approached. Further, the case company already had a specific standpoint for PXM when a certain paradigm already existed. In addition, a wide experience of PXM related solutions, projects, and methods were possessed. Thus, existing attitudes, thinking, and stance may have had an effect to the trajectory of this study.

Considering the scope of this study, the constructed model was developed only from one company perspective based on its identified business issues. Still, the model was aimed to illustrate the whole extent of PXM in a way which would contribute for the yet novel concept of it. Due to this singular approach, limitations for the generalizability of the results most likely exist. For wider acceptance and generalizability, the concept should be reviewed in multiple organizations and from alternative perspectives. For example, external perspectives of customers and business partners should also be addressed by validating the model more thoroughly with them.

Further, paying attention to the actual topic of this study, the presented solution in a form of business capability model represents only a one possible way for illustrating PXM. As examined in the first sections of this study, the concept of PXM is rather novel, and no settled comprehensive structures for it yet exist. This study presents a one way to approach the full extent of it, but it may be limited due to the effect of certain standpoint in the case company. As PXM is in general still at its infant phases, there is a possibility that it may start to take shape into another direction than illustrated in this study. Also, the existing literature

and materials about it were scarce and partly commercial when other concepts such as customer experience were utilized as a support.

## 7.5 Future research

As summarized, some limitations for this study due to the novelty of PXM topic and DSR approach could be identified. With future research, the impact of these limitations could be diminished by validating and developing the constructed PXM capability model further. For example, input from several case companies for the model could be collected. In addition, the model could be used to evaluate the PXM capabilities of different companies to test its applicability for such purposes and acquire feedback for further development. In addition, industry-specific versions of the model with detailed capabilities illustrating reference processes, roles, data, and resources could be constructed. Considering the illustration method for the business capabilities, heatmapping or value-stream mapping proposed by the TOGAF® -standard could also be examined more closely.

Addressing PXM as a topic in general, some relevant future research could be conducted. First, comprehensive literature review focusing on existing literature about PXM, and related concepts could be conducted. Even if the existing literature was examined in this study, a deeper examination could indicate the possible shrouded themes or aspects already studied. Further, the topic could be approached from other management framework perspectives to find out possible alternative aspects for it. Also, the nature of product experience considering the utilitarian aspect as in this study could be studied more for example by comparing the expectations of B2B and B2C perspectives.

# 8 SUMMARY

This study addressed product experience (PX) and its management as its topic. The primary focus of the study was to enhance the general understanding about the topic and related structures. Further, it was in interest to find out how product experience management (PXM) could be approached from business capability perspective for companies to enable better product experiences. The main objective of this study was to construct an artifact to solve the case company practical business issues in enhancing PXM understanding, developing the PXM solutions offering, and increasing market awareness about PXM. Other objectives involved acquiring a sufficient theoretical knowledge about the core concepts of PXM and business capability approach to support the artifact construction, demonstrating and evaluating the artifact for adequate validity and reliability, providing answers and help for the case company problems, and communicating the study results respecting the guidelines for a scientific publication. Further, the following research questions for this study were set:

- RQ1: What is product experience management about, and what kind of aspects does it involve?
- RQ2: What kind of business capabilities are needed for product experience management in product-based companies?
- RQ3: How business capability approach for product experience management can support case company´s business development?

In practice, this study proceeded as follows. First, theoretical knowledge was acquired through the examination of previous studies about customer experience, product experience, and business capabilities. Then, the approach for solving the relevant business issues with design science research (DSR) methods was planned. Next, the artifact solving the identified case company business issues was designed, constructed, demonstrated, and evaluated according to the design

science research methodology (DSRM) principles. In the end, the study was concluded and communicated in a form of this master´s thesis.

Theoretical knowledge was first acquired since initial knowledge about PXM characteristics was considered too vague. In the second section, previous studies about customer experience (CX) and its management, customer experience development, product experience (PX) and its management were examined. It was found that product experience could be addressed from more aesthetical or physical point of view (e.g., Desmet & Hekkert, 2007) or more from utilitarian point of view which represented the scope of this study in that sense. From that aspect, product experience was found to be founded on customer´s cognitive, emotional, social and value responses to an organization´s product offering across the customer journey phases. (e.g., Bolton et al. 2018). Further, previous studies about PXM were searched but they ended up being scarce. Thus, also commercial materials of PXM related technology providers were utilized. All in all, it was found that the existing paradigm for PXM was rather technology-focused and no encompassing more business focused constitution existed. Summarized, PXM´s origins in product information management (PIM) (e.g., Walker, 2018) could be clearly seen. Still, it was found through the customer experience studies that managing product experience involves successful orchestration of capabilities to provide right clues, meaning resources, to meet or exceed customer expectations. (Berry et al. 2002). Summarized, as an answer for the first part of RQ1, product experience management could be thus considered as delivering the right resources for the different interactions so that product experiences could be enabled.

In the third section, business capabilities and their characteristics were examined more closely to find out if such an approach could support constituting PXM. It was found that capabilities represent the identity of a firm (Brits et al. 2006) and what it does instead of how. (The Open Group, 2018a;2018b) Basically, capabilities represent abilities to assemble, integrate, and deploy valuable company resources (Bharadwaj, 2000) which themselves can be tangible, intangible, or human-related (Grant, 1991). Roughly, business capabilities can be divided into more functional ordinary capabilities and into more strategic dynamic capabilities enabling competitive advantage. (e.g., Teece, 2019; Wilden et al. 2013) Dynamic capability aspects of sensing, seizing, and transforming were also identified, and they represented the capacity to sense opportunities and threats, reorganize the business and its resources for a new situation, and continuously renew the organization for survival and success. With these kind of capabilities, competitive advantage could be enabled. Based on this, it was concluded that PXM and competitive product experiences could be approached from capability perspective, and the first step would be to identify the relevant capabilities. For that, in the fourth section, different relevant capability aspects for PXM were composed based on the findings from the previous studies. In addition to dynamic capability aspects, strategical, leadership, organizational, customer understanding, experience, ecosystem, context, technology, and data aspects were constituted. Through this, the second part of RQ1 was answered.

Following the building of theoretical knowledge base, the artifact solving the identified case company business issues was designed, developed, demonstrated, and evaluated following the DSRM process (Peffers et al. 2007) guidelines. The business issues and the approach for the artifact construction was illustrated in the section five. The guiding principle all the way for the artifact development was to enhance the understanding about PXM since it was identified to be crucial due to novelty of the concept and the nature of identified business issues. In practice, this meant that the artifact should illustrate the elements that constitute the full extent of PXM. Business capability approach for the solution was taken when the development was about business capability modeling following TOGAF® -standard (The Open Group, 2018a;2018b) principles. Then, the development was basically founded on capturing and documenting the business capabilities that constitute the full extent of PXM in a form of business capability map which was chosen for an appropriate illustration method for practicality and clearness.

During the development, the identified PXM capabilities were stratified and levelled according to TOGAF® -standard principles for appropriate classification and level of detail. Both theoretical knowledge and practical insight were utilized for the capability modelling. The first versions of the business capability model were based on theoretical aspects, and they were later revised and enriched during the development with practical insight from the case company. As soon as the first applicable version of the model existed, it was demonstrated and evaluated in the three different cases representing the identified business issues. As a result, fine-tuning and revisions for the model were made until it satisfied the set objectives. The constructed PXM business capability model illustrated the answer for RQ2.

The main conclusions for this study indicated the novelty of PXM as a concept. The existing paradigm, as hypothesized, was found rather technology-centric and consistent structure and relevant elements yet few for it. Still, relevant aspects could be summarized based on the previous studies and a solution in a form of PXM business capability model for the case company business issues could be constructed. Through the demonstration and evaluation, it was revised and validated to help the case company to enhance internal understanding, develop the PXM offering, and increase market awareness which reflect the answer for RQ3. At the same time, a conceptual structure for depicting the whole extent of PXM from business capability perspective was achieved to provide opportunities for scientific and practical communities to develop the general understanding of PXM further. Certainly, it has to be acknowledged that presented business capability approach represents only a one path and other approaches following another management framework guidelines and models are totally possible. Further, this study was conducted, and the model was primarily developed only from one company perspective. Still, it could be stated that this study as a whole enhanced the understanding and provided a good insight and initial steps for further product experience management research and practical applications. Possible future research topics could include the review of the constructed model in

multiple companies and validating the external market perspective through capability evaluations. Further, industry-specific characteristics and capability elements could be studied.

# REFERENCES


Abraham, J. (2014). *Product information management*. Management for Professionals.

Aleatrati Khosroshahi, P., Hauder, M., Volkert, S., Matthes, F., & Gernegroß, M. (2018, January). *Business capability maps: Current practices and use cases for enterprise architecture management*. The 51st Hawaii International Conference on System Sciences. Hawaii.

Augier, M., & Teece, D. J. (2009). Dynamic capabilities and the role of managers in business strategy and economic performance. *Organization science*, 20(2), 410-421.

Berry, L. L., Carbone, L. P., & Haeckel, S. H. (2002). Managing the total customer experience. *MIT Sloan Management Review*, 43(3), 85-89.

Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: an empirical investigation. *MIS quarterly*, 24(1). 169-196.

Bolton, R. N., McColl-Kennedy, J. R., Cheung, L., Gallan, A., Orsingher, C., Witell, L., & Zaki, M. (2018). Customer experience challenges: bringing together digital, physical and social realms. *Journal of Service Management*. 29(5). 776-808.

Bordelon, J. (2020, May 07). *What is Product Experience Management Anyway?*. Bounteous Perspectives. https://www.bounteous.com/insights/2020/05/07/product-experience-management/

Brits, J., Botha, G., & Herselman, M. (2006). *Conceptual framework for modeling business capabilities.* [Doctoral dissertation, Tshwane University of Technology].

Chen, Y., Wang, Y., Nevo, S., Jin, J., Wang, L., & Chow, W. S. (2014). IT capability and organizational performance: the roles of business process agility and environmental factors. *European Journal of Information Systems*, 23(3), 326-342.

Contentserv. (n.d.). *Product Experience Management (PXM).* https://www.contentserv.com/en/pxm-product-experience-management/

Di Stefano, G., Peteraf, M., & Verona, G. (2010). Dynamic capabilities deconstructed: a bibliographic investigation into the origins, development, and future directions of the research domain. *Industrial and corporate change*, 19(4), 1187-1204.

Desmet, P., & Hekkert, P. (2007). Framework of product experience. *International Journal of Design*, 1(1).

ETIM. (n.d.). https://www.etim-international.com/

Freitag, A., Matthes, F., Schulz, C., & Nowobilska, A. (2011, July). *A method for business capability dependency analysis*. International Conference on IT-enabled Innovation in Enterprise (ICITIE2011), Sofia.

Garrett, J. J. (2010). *Elements of user experience, the: user-centered design for the web and beyond*. The United States of America: Pearson Education.

Goaland. (n.d.). *What is the PXM (Product Experience Management)?.* https://www.goaland.com/what-is-pxm-product-experience-management

Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California Management Review*, 33(3), 114-135.

Grønholdt, L., Martensen, A., Jørgensen, S., & Jensen, P. (2015), Customer experience management and business performance, *International Journal of Quality and Service Sciences*, Vol. 7 No. 1, pp. 90-106.

GS1. (n.d). https://www.gs1.org/

Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource ‐ based view: Capability lifecycles. *Strategic management journal*, 24(10), 997-1010.

Hevner, A., & Chatterjee, S. (2010). *Design science research in information systems.* Springer, Boston, MA.

Hevner, A., S. March, J. Park, and S. Ram (2004) Design science in information systems research, *MIS Quarterly*. 28(1). 75–105.

Informatica. (n.d.). *What is Product Experience Management?.* Informatica. https://www.informatica.com/resources/articles/what-is-product-experience-management.html

Johnston, R., & Kong, X. (2011). The customer experience: a roadmap for improvement. *Managing Service Quality: An International Journal.* 21(1), 5-24.

Kamaladevi, B. (2010). Customer experience management in retailing. *Business Intelligence Journal*, 3(1), 37-54.

Klaus, P. P., & Maklan, S. (2013). Towards a better measure of customer experience. *International Journal of Market Research*, 55(2), 227-246.

Kropsu ‐ Vehkapera, H., Haapasalo, H., Harkonen, J., & Silvola, R. (2009). Product data management practices in high-tech companies. *Industrial Management & Data Systems*. 109(6). 758-774

Lee, O. K., Sambamurthy, V., Lim, K. H., & Wei, K. K. (2015). How does IT ambidexterity impact organizational agility? *Information Systems Research*, 26(2), 398-417.

Maklan, S., & Klaus, P. (2011). Customer experience: are we measuring the right things?. *International Journal of Market Research*, 53(6), 771-772.

Manning, H. (2010, November 23). *Customer Experience Defined.* Forrester. https://go.forrester.com/blogs/definition-of-customer-experience/

Meyer, C., & Schwager, A. (2007). Understanding customer experience. *Harvard business review*, 85(2), 116.

Muños, A. (2020, January 02). *What is Product Experience management and why it is important?*. Saleslayer. https://blog.saleslayer.com/what-is-product-experience-manager

Nunamaker, J. F., M. Chen et al. (1990–91) Systems development in information systems research, *Journal of Management Information Systems.* 7(3). 89–106.

Offermann, P., Levina, O., Schönherr, M., & Bub, U. (2009, May). *Outline of a design science research process.* The 4th International Conference on Design Science Research in Information Systems and Technology.

Peffers, K., Rothenberger, M., Tuunanen, T., & Vaezi, R. (2012, May). *Design science research evaluation.* International Conference on Design Science Research in Information Systems. Springer, Berlin, Heidelberg.

Peffers, K., Tuunanen, T., Rothenberger, M. A., & Chatterjee, S. (2007). A design science research methodology for information systems research. *Journal of management information systems,* 24(3), 45-77.

Pisano, G. P., & Teece, D. J. (2007). How to capture value from innovation: Shaping intellectual property and industry architecture. *California management review*, 50(1), 278-296.

Productsup. (2021, February 04). *PXM for dummies: what is product experience management and why does it matter?.* Productsup. https://www.productsup.com/blog/pxm-product-experience-management/

Puccinelli, N. M., Goodstein, R. C., Grewal, D., Price, R., Raghubir, P., & Stewart, D. (2009). Customer experience management in retailing: understanding the buying process. *Journal of retailing,* 85(1), 15-30.

Simon, H. (1996) *The Sciences of Artificial, 3rd edn*. MIT Press, Cambridge, MA.

Stark, J. (2015). Product lifecycle management. *Product lifecycle management (Volume 1)*. Springer, Cham.

Takeda, H., P. Veerkamp, T. Tomiyama, and H. Yoshikawam (1990) *Modeling design processes*. AI Magazine

Teece, D. J. (2019). A capability theory of the firm: an economics and (strategic) management perspective. *New Zealand Economic Papers*, 53(1), 1-43.

Teece, D. J. (2018). Business models and dynamic capabilities. *Long range planning*, 51(1), 40-49

Teece, D. J. (2010). Business models, business strategy and innovation. *Long range planning*, 43(2-3), 172-194.

Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic management journal*, 28(13), 1319-1350.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, 18(7), 509-533.

Teixeira, J., Patrício, L., Nunes, N. J., Nóbrega, L., Fisk, R. P., & Constantine, L. (2012). Customer experience modeling: from customer experience to service design. *Journal of Service management*. 23(3), 362-376

The Open Group. (2018a). *Business capabilities*. TOGAF® Series Guide

The Open Group. (2018b). *Capability-Based Planning.* The TOGAF® Standard Version 9.2, chapter 28

Thierhoff, N. (2019, May 22). *Why product experience management is crucial to CX.* The Future of Customer Engagement and Experience. https://www.the-future-of-commerce.com/2019/05/22/why-product-experience-management-is-critical-to-cx/

Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of marketing*, 68(1), 1-17.

Venable, J., Pries-Heje, J., & Baskerville, R. (2016). FEDS: a framework for evaluation in design science research. *European journal of information systems,* 25(1), 77-89.

Venable, J. R., Pries-Heje, J., & Baskerville, R. (2017). *Choosing a Design Science Research Methodology.* ACIS2017 Conference Proceeding. University of Tasmania.

Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., & Schlesinger, L. A. (2009). Customer experience creation: Determinants, dynamics and management strategies. *Journal of retailing*, 85(1), 31-41.

Walker, S. (2018, August 09). *From PIM to PxM - The Evolution of Product Information Management*. Gartner Blog Network. https://blogs.gartner.com/simon-walker/2018/08/09/from-pim-to-pxm-the-evolution-of-product-information-management/?_ga=2.52716331.2049005811.1618839777-801643869.1618480311

Wilden, R., Gudergan, S. P., Nielsen, B. B., & Lings, I. (2013). Dynamic capabilities and performance: strategy, structure and environment. *Long range planning*, 46(1-2), 72-96.

Witell, L., Kowalkowski, C., Perks, H., Raddats, C., Schwabe, M., Benedettini, O., & Burton, J. (2020). Characterizing customer experience management in business markets. *Journal of Business Research*, 116, 420-430.