Does Enterprise Architecture Support Customer Experience Improvement? Towards a Conceptualization in Digital Transformation Context

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Abstract. Customer Experience (CE) is often presented as a competitive battlefield in the new digital context. However, it is defined so broadly, so holistically, that companies find it challenging to improve it through well-defined projects with an impact analysis of the different changes that could be brought about. Enterprise Architecture Management (EAM) is supposed to be a suitable means to support the management of such transformation projects. However, the depth and disruptive nature of these changes raise multiple questions concerning the adequacy of EAM for Customer Experience Improvement (CEI). In current corporate practice, there seems to be no regular application of EAM as a central support service for CEI in the digital context. In this paper, we explore how EAM can support CEI and examine how digitalization transforms the customer experience. We further identify the required information inputs for these transformations. Based on this foundation, we identify content elements that EAM can provide by analyzing EAM meta-models. Comparing the requirements by CEI projects and the supply by EAM shows that EAM, in general, provides valuable inputs for organizational issues and roles but shows weaknesses when it comes to information about trends, contextual and environmental information.

Keywords: Digital transformation · Customer Experience Improvement · Enterprise Architecture Management · Enterprise Models · ArchiMate

1 Introduction

Digital transformation (DT) is proliferating in organizations around the world [1b]. Increasingly demanding customers are pushing digital competition to its edges [8]. Many organizations operating in the products and services marketing, involving direct interactions with customers, invest considerably in digital transformation [1b, 2b]. One of the main reasons for these investments is the ability of DT to improve customer experience [3b, 4b, 8, 9b]. Banks are, for example, among the first industries engaging DT projects [36]. Changing consumer habits and the new competitive environment, are forcing banks to urgently deal with their customer process so as not to be left behind in a rapidly fluctuating market. Customers expect financial services to be available 24 h a day, seven

S. Nurcan et al. (Eds.): BPMDS 2020/EMMSAD 2020, LNBIP 387, pp. 411–427, 2020.
https://doi.org/10.1007/978-3-030-49418-6_28

days a week, and as user-friendly as social networks or messaging solutions that they use every day [4b, 5b, 6b].

Thus, customer experience is seen as the new competitive field of marketing. The consulting firm Gartner pointed out that 57% of customers stopped buying from a company because a competitor offered a better experience [37], and that 67% of customers are willing to pay more for better customer experience. However, digital projects concerning improving customer experience often remain at the starting point [36, 37]. This is due to the complexity of implementing this transformation; indeed, it is a complex process impacting several areas and components of the organization [4b, 8b]. It involves managing the volatile behavior of customers, understanding their complex data [7b, 16b, 17b, 18b, 19b], carrying out numerous optimizations of customer processes [14b], transforming business models [6b, 13b, 14b], integrating various digital technologies [6b, 7b, 8b] and adapting to changing business conditions [8b, 12b, 14b].

This implementation is even more complex since organizations do not start from a blank page to design their customer experiences. Many have already established customers, processes, and assets that require reorientation to carry out strategies specific to the customer experience [5b]. Drawing on our expertise in digital transformation consulting, managers suffer from the absence of tools helping to define a reachable target while considering their existing environment. Consultants often tend to start their analyzes from a blank sheet and to design ideal transformative customer experiences almost independent of the real context that the company operates.

Among the techniques that appeared in recent years to support such transformations, Enterprise Architecture (EA) and EA Management (EAM) seem to be essential [1, 4, 5]. While EA describes the fundamental structures of an organization, EAM is believed to support transformations management by guiding the necessary coordination efforts [3] and providing information for strategy development [4, 5, 7]. It also provides Enterprise Models (EM) to various stakeholders in transformation projects and enhances communication by establishing shared and mutual understandings [5]. Likewise, EAM can guide decision processes and contributes to better design choices that align with the operational and strategic goals of the transformation endeavor [6, 10, 11, 16, 17].

Nevertheless, and according to our consulting experience, EAM is not commonly applied. It is rarely perceived as a support service for digital projects, especially projects concerning experience client improvement. There is a tendency to consider EAM as a discipline mostly about IT and located in the IT departments [23]. Customer Experience Improvement (CEI) projects are, however, more profound and broader than an IT transformation and could impact commercial processes and business models [8, 9, 5b, 10b].

We tend to consider that there is a severe gap between the information offered by EAM and the managers' demands in digital transformation projects. Architects seem not to know how to support CEI project managers, and these managers are not aware of how EAM might support their effort [23]. For this paper, we try to provide the first step towards a better understanding of EAM support for CEI in a digital transformation context. This leads to the research question:

- RQ: Does EAM support ECI projects in a digital transformation context?
  - RQ1a: How digitalization transforms customer experience?
  - RQ1b: And what are the necessary information needs to these transformations?
- RQ2: What are the content elements that Enterprise Models can provide to cover these necessary information needs?

In order to answer the question, we proceed as follows. We first introduce related work and go on with illustrating our research approach. We present the results and provide a discussion. We close with a summary and implications.

2 Related Work

2.1 Digital Transformation for a Better Customer Experience

Digital transformation operates a radical change in the organization structure, processes, functions and business models [5b, 8b, 9b, 10b]. Companies adopt digital technologies to mainly improve business performance [1b, 7b]. Digital transformation promises many benefits: enhancing organizational processes [7b, 9b, 10b, 12, 38]; improving value propositions to the customer [3b, 5b, 13]; rising the services quality [12b, 13b]; reducing the products and services costs [2b, 14]; innovating new products and services [3b, 15]; increasing customer loyalty and revenues [5b, 13–15]; and finally, improving the customer experience [5b, 8b, 9b, 10b, 12b].

The study by [8] summarizes DT impacts in three main areas: customer experience, operational processes, and business model. Each of these three areas is divided into three sub-elements. The customer experience is divided into customer understanding, growth, and customer touchpoints. What is interesting is that, traditionally, the customer experience has only been seen from different points of contact [5b]. Westerman et al. in [8] draw a broader picture by adding elements around sales rationalization and marketing processes improvement, as well as new digital capabilities to understand customers and their volatile behaviors.

Numerous studies have examined the implementation of projects for improving the customer experience in organizations [1b]. For example, assessing target strategies and policies around the customer experience [8b], examining engagement processes [16b], or analyzing the critical factors to reshape the customer value proposition [11b, 14b]. These studies tend to focus mainly on defining what customer experience is about and its ecosystem in the company. Few attempts have been made to develop a comprehensive approach helping managers to understand the impact of CEI projects on the organization ecosystems, considering the new context of digital transformation.

2.2 Enterprise Architecture as a Support Tool to Manage Digital Transformation

Many research studies have stated that EAM can address partial problems within DT from a management point of view. In [15], the authors consider EAM as a governing

tool that helps mastering the alignment of portfolios of transformation steps. They also claim potential capacities in different fields, such as strategic direction, gap analysis, strategic planning, and operational planning. In [17], the focus is on the strategic change process and how EAM can support it. The author sees that the strategic fit with the market environment and business-IT alignment can be, presumably, supported by EAM. Moreover, EAM can help in preparing the change by standardizing and modularizing parts of the enterprise.

Over the years, studies have associated several benefits with EAM. These are generally indirect, large-scale, and perceived over a long period, which generally makes it difficult to calculate an exact return on investment (ROI) [35]. However, in the occasional cases where the ROI has been calculated, the results seem remarkable [35]. Among these benefits, we highlight: increasing flexibility, integration and interoperability [7, 15, 17, 19–22]; better alignment of IT with business [1, 3, 10, 11, 15, 17, 19, 22]; IT costs reduction [1, 3, 15, 17]; improved risk management, situational awareness and decision-making [3, 9, 16, 21]; better results from strategic business initiatives [10, 11, 21, 38].

Other recent studies (e.g. [21, 22]) examine the evolution of modeling languages and techniques to make them better adapted to the new age of digital transformation. They assume that during enterprise transformations, companies need shared understanding and agreement on topics such as the overall strategy of the enterprise, the existent processes, as well as the future vision of the top management. However, when enterprise modeling languages were developed, the digital transformation challenges were not yet that noticeable. At that time, the focus was more on consolidation and optimization [38, 39]. As such, it is logical to expect that the existing languages may require some updates concerning new element content to be truly ready for modeling the digital transformation impacts on the organization ecosystem [23].

To conclude, many studies focus on how EAM can support transformations management from an EAM point of view (e.g. [10, 15–18]). However, the demand perspective of CEI projects in a digital transformation context is not available in the current discussion. Thus, we will investigate which information inputs the demand side needs and if current EAM can provide them.

3 Research Approach

To answer our research questions, we proceeded in three steps (Fig. 1):

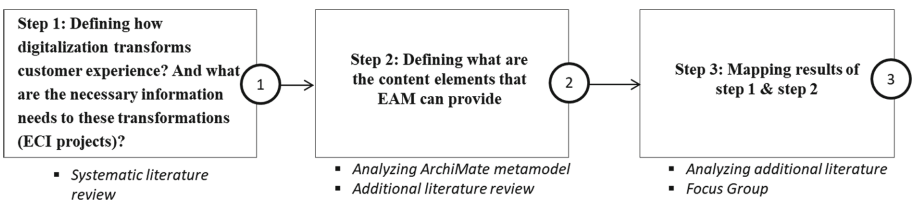

Fig. 1. Research approach

3.1 Step 1: Defining How Digitalization Transforms Customer Experience and What Are the Necessary Information Needs to These Transformations

In order to assess if CEI projects can be supported by EAM, we conduct a systematic literature review, following [24] and [25] protocol, to identify how digitalization affects CE and what are the information needed to succeed these transformations (c.f. Fig. 2).

Research Identification
For this paper we investigated the research question RQ described in the introduction.

Search Strategy
We developed the terms related to the research questions; the aim is identifying synonyms for these terms by leading several tests. We used the Boolean operators (OR, AND) for connecting the founded terms. We used strings for automated search: ("digital transformation" OR "digitalization") AND ("customer experience" OR "consumer experience" OR "client experience"). We conducted the search of articles by using Scopus database. The search started on 25 of January 2020.

Study Selection
We have included papers that respect the following criteria: a) written in English; b) published in a scientific journal; c) it deals with digital transformation; d) documents which weren't accessible were excluded, as well as, master and doctoral theses, proceedings or conference articles, working papers and textbooks. This choice of journal articles respects the position of [26], who claims "*academics and practitioners a like use journals most often for acquiring information and disseminating new findings and represent the highest level of research*".

Quality Assessment
Based on the works of [27–29], we assessed the rigor and relevance of the selected articles. We used criteria's such as clear description of the context in which the research was carried out, precise statement of research aims, high level of rigor in conducting the data collection and analysis, relevance of the findings and the extent to which the study is valuable for research or practice. The assessment was conducted by both authors and

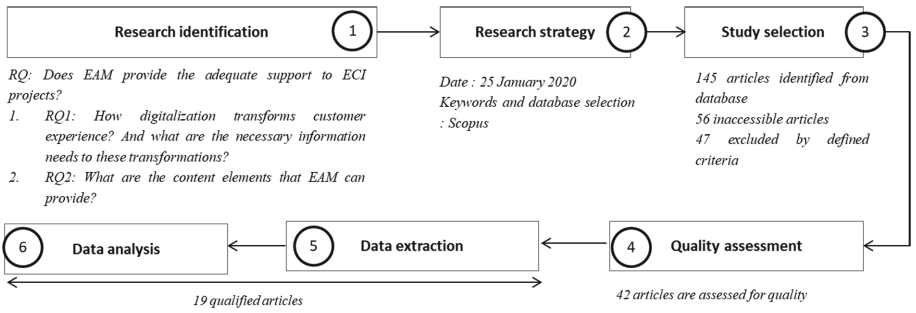

Fig. 2. Steps of systematic literature review

each paper was given a quality score. At the end of this process, we had qualified 19 articles to be analyzed for the data extraction step. These articles are numbered 1b, 2b, etc. and appear separately in an online appendix [1].

Data Extraction
We extracted data from the qualified articles and categorized it according to the model proposed by [8]. The authors of this work have defined three blocks of digital transformation impact on the customer experience (*Customer understanding, Top Line Growth, and Customer Touch point*). Thus, from each paper, we extracted the data requirements that were considered necessary to carry out these transformations and categorized them according to the three proposed blocks.

Data Synthesis and Analysis
The extracted data is classified according to the three blocks mentioned previously [8] and analyzed in terms of content and semantics. Our analysis allowed us to rename the three proposed group of transformations (*Understanding Customer, Enabling selling activities, Managing Customer touch points*), and also to add a new group (*Integrating Digital capabilities*) to take into account all data extracted and new items that emerged.

3.2 Step 2: Defining What Are the Content Elements that EAM Can Provide by Analyzing ArchiMate Meta-Model

In a second step, we analyze and then conceptualize the information inputs that EAM can provide to the CEI projects. We relied for our work on the content meta-model of ArchiMate 3.0. ArchiMate is a mature industry standard that, on the one hand, is maintained by companies and research partners; on the other hand, it is often used as a foundation for many corporate EAM frameworks [29]. ArchiMate provides a conceptual macro overview of the information that EAM can provide and thus allows for a more generic discussion. Again, we ensured reliability and validity by comparing the identified content elements with other meta-models like TOGAF [2], GERAM [30], Zachman [31], DODAF [32] and IEEE [33].

3.3 Step 3: Mapping Results of Steps 1 and 2 Using Focus Group Technique

After identifying the needed information inputs of ECI projects and the available information outputs of EAM, we mapped both in a third step. Major challenges were the different languages apparent in both disciplines that inhibited a straightforward one-to-one mapping. Hence, at start, we based our first mapping test on the meta-model specification and additional literature. Then we proceeded for a Focus Group [34] where we presented our pre-filled mapping to six enterprise architects from a French bank who use and master ArchiMate as a meta-model in their daily modeling activities (Table 1).

We collected feedback on our initial mapping by explaining our choices based on literature. Then, the architects tried to analyze for each ECI information need, the content that ArchiMate meta-model could provide in terms of concepts, based on concrete

[1] Available online at ResearchGate: https://doi.org/10.13140/RG.2.2.33596.18560.

examples of their modeling activities. The focus group process took almost two weeks. Three meetings (2 to 3 h for each one) were held to introduce and work on Mapping. The process can be summarized as follows:

Table 1. Profiles of the enterprise architects in the focus group

Enterprise architect	Experience in EA	Expertise level
FTX	10 years	Expert – had worked in other banks before
FAR	9 years	Expert – had worked in other banks before
MHI	6 years	TOGAF certified – has worked in other banks before
CTR	12 years	ArchiMate expert – has worked in other banks before
YLE	3 years	Confirmed
AZE	11 years	Expert & TOGAF certified

First, we discussed the initial results of our first literature-based mapping. One of the co-authors led this stage. He was invited to share ideas from the literature concerning ArchiMate modeling. This first meeting was more like an open discussion and discussed the advantages and limitations of ArchiMate in the banking context.

Second, the architects realized out the mapping by relying on transformation projects related to CEI. We asked each architect to define, alone, a mapping; and then we discussed the outputs to agree on a common mapping, which was adopted by all participants at the end of this meeting. The final mapping is accomplished through a collegial reconciliation of the individual results, which did not differ much at the base.

In the last step the final mapping is presented by one of the co-authors to reflect collegially on the limits of the ArchiMate modeling. This is formulated in the "Discussion" section of this paper.

4 Results

4.1 Required Information for Customer Experience Improvement

Based on [8] work and our data analysis, we have identified four major groups of how digitalization transforms customer experience and the information needed to these transformations:

A) **Understanding Customer:** Companies are exploring social media to comprehend customer satisfaction. Depending on that, they launched special products, based on their customer context. In addition, companies are learning more about customer feeling and habits, it helps companies to promote their brands more effectively through digital media. Companies are also building new online communities to collect feedbacks, to advise and build loyalty with clients (Table 2).

Table 2. "Understanding Customer" and required information.

Information needs	Description restitution	References
Social knowledge	*To know company's client through social networks, so that to collect informal information on the attitude of the client and their preferences*	[4b, 9b, 12b, 13b, 19b]
Value proposition	*Companies offer personalized products with a clear added value in the customer's context*	[2b, 3b, 5b, 7b, 8b, 11b, 13b, 19b]
Feedback	*Organizations collect customer feedback to use it in product creation and to master loyalty management*	[1b, 2b, 3b, 4b, 8b, 15b, 17b, 19b]
Satisfaction measurement	*Companies must continuously measure customer satisfaction to satisfy their changing needs and habits*	[6b, 5b, 15b, 16b, 19b]
Information confidentiality	*To protect their customers, companies must control the information collected from them and trace its lifecycle in the company without abusing its use*	[1b, 5b, 11b]
Customer context	*The company uses the history of its relationship with the client to understand his context, it also uses social networks to fuel this understanding*	[1b, 2b, 3b, 4b, 6b, 7b, 18b, 19b]
Customer journey	*The company must trace all the customers' commercial activities in order to understand their habits and preferences*	[1b, 4b, 5b, 7b, 8b, 13b, 18b, 19b]
Customer feelings	*The company is interested in the feelings at a moment T of a customer, the change of its feelings feeds the personalization of the products for these customers*	[1b, 2b, 12b, 17b, 18b]
Trends	*The company is also interested in modes and trends in the customer consumption, these trends are classified by age groups or by social categorization*	[1b, 5b, 11b]

B) **Enabling selling activities:** Companies evolve their business models by proposing new digital strategies. They use technology to enhance sales conversations and self-interactions and introduce mobile tools to help salespeople and customers engage in analytics-based exploration. They simplify their processes through digitalization and seek to make the customer's life more comfortable. They also develop integrated multi-channel experiences to make customer's purchases more efficient (Table 3).

Table 3. "Enabling selling activities" and required information.

Information requirements	Description restitution	References
Business network	*The company needs to collaborate with other market players to cover all the services that their customers need, the company needs to know more about these market players*	[1b, 2b, 4b, 19b]
Digital strategy	*The company is evolving its strategy by considering new digital products and by changing the way it interacts with its customers*	[1b, 2b, 3b, 4b, 5b, 7b, 8b, 10b, 12b, 19b]
Business model	*The business model also evolves and carries the digital strategy of the company*	[1b, 4b, 13b, 18b]
Process	*The company must know its processes because the change takes place first on the internal processes*	[1b, 4b, 5b, 7b, 8b, 10b, 13b, 18b, 19b]
Sales history	*The company needs to draw more information on the products which are well bought or not, and to rely on data analytics to predict the change in the commercial conditions of the market*	[1b, 2b, 3b, 4b, 15b, 17b, 19b]
Performance measurement	*The company sets up indicators to measure its commercial performance*	[3b, 16b, 17b, 18b, 19b]

C) **Managing Customer Touch Points:** Companies that provide multiple channels to the customer, are experiencing new approaches to provide an integrated experience. In retail and financial services in particular, firms are focusing on integrated multichannel activity. However, multichannel services require implementing change

Table 4. "Managing Customer touch points" and required information.

Information requirements	Description restitution	References
Organizational structure	*Organization must master the composition of their current organizational structure and how it evolves*	[4b, 9b, 12b, 13b, 19b]
Self service	*The company offers increasingly services where the customer realizes the whole sales process alone or in interaction with machines*	[1b, 4b, 5b, 7b, 8b, 10b, 13b, 18b, 19b]
Cross channel	*The company allows customers to move from one channel to another while preserving the same elements of the customer's context*	[1b, 5b, 8b, 11b, 12b, 18b]
Process	*The company evolves the operational processes to take into consideration the new distribution channels*	[1b, 5b, 7b, 8b, 10b, 13b, 14b, 18b, 19b]
Customer accessibility	*The company allows the customer to manage accessibility to all distribution channels*	[12b]

across customer experience and operational processes; for examples, many retailers now offer home shopping with the option to receive products by mail or in a store (Table 4).

D) **Integrating Digital Capabilities:** Digital capabilities are fundamental components for transforming customer experience. While top management and existing IT departments are leading digital initiatives across companies, they hire new digital skills around Big Data, real time communication, etc. During the 'Data Analysis' phase, we introduced this group to classify all the information input that the company needs to know about the digital capabilities it has, and how to integrate and reuse them for other transformation needs (Table 5).

4.2 EAM Outputs

ArchiMate is an Enterprise Architecture modeling language, a visual language with a set of default iconography for describing, analyzing, and communicating many concerns of Enterprise Architectures as they change over time. The ArchiMate standard provides a set of entities and relationships with their corresponding iconography for the representation of Architecture Descriptions [29, 40].

Table 5. "Integrating Digital capabilities" and necessary Information needs

Information requirements	Description restitution	References
Digital capabilities	*The company is using more and more new technologies to improve operational performance and their commercial activities*	[1b, 4b, 17b, 18b, 19b]
Integration	*The company is asking questions about its ability to integrate new technologies into its information system, and to be agile in absorbing new changes in existing processes*	[3b, 16b, 17b, 18b, 19b]
Skills	*The company needs to know if its employees use and master new technologies, e.g., Big Data, real time communication, etc.*	[1b, 5b, 8b, 11b, 12b, 18b]

In this part, we illustrate, which information EAM can provide by following the basic structure of the ArchiMate 3.0 content meta-model [29]. This meta-model contains general elements that are connected in a one-to-one manner. The other elements are differentiated into business, data, application and technology architecture.

4.3 Mapping EAM Inputs with CEI Needed Information

Based on step 1 and step 2, we analyzed for each CEI information need the extent to which it can be provided by ArchiMate meta-model. During this analysis, it became

Table 6. Major input of CEI projects supported by EAM

Major support by EAM		
Digital capabilities	Process	Business model
Self service	Interaction	Digital strategy
Customer journey	Organizational structure	Cross channel
Value proposition	Performance measurement	Customer accessibility

Table 7. Minor input of CEI projects supported by EAM

Minor support by EAM		
Business network	Customer context	Social knowledge
Customer feedbacks	Satisfaction measurement	Trends
Customer feelings skills	Information confidentiality sales history	Integration

EAM Inputs / CEI needs	Active structure			Behavior						Passive element	Motivation element									Strategy element		
	Internal element	Collaboration	Interface	Internal behavior	Process	Function	Interaction	Service	Event	Passive element	Meaning	Driver	Assessment	Goal	Outcome	Principle	Requirement	Constraint	Value	Capability	Resource	Course of action
Social knowledge																						
Customer journey	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Customer feeling																						
Satisfaction measurement																						
Feedback																						
Customer Context																						
Value proposition											X	X	X	X	X	X	X	X	X			
Information Confidentiality																		X				
Trends																						

Fig. 3. Results for 'Understanding Customer' information mapping

EAM Inputs / CEI needs	Active structure			Behavior						Passive element	Motivation element									Strategy element		
	Internal element	Collaboration	Interface	Internal behavior	Process	Function	Interaction	Service	Event	Passive element	Meaning	Driver	Assessment	Goal	Outcome	Principle	Requirement	Constraint	Value	Capability	Resource	Course of action
Business network																						
Digital strategy											X	X	X	X	X	X	X	X	X	X	X	X
Process	X			X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
Performance Measurement					X	X	X	X					X		X							
Seles history																						
Business Model	X	X	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	

Fig. 4. Results for 'Enabling selling activities' information mapping

apparent that some CEI needed information can be (almost) fully provided by EAM, and some, almost not. We rated this on a five-point scale ranging from one "ECI needs almost not supported by EAM" to five "full support". In Figs. 3, 4, 5, 6, we provide the mapping results.

EAM Inputs / CEI needs	Active structure			Behavior						Passive element	Motivation element									Strategy element		
	Internal element	Collaboration	Interface	Internal behavior	Process	Function	Interaction	Service	Event	Passive element	Meaning	Driver	Assessment	Goal	Outcome	Principle	Requirement	Constraint	Value	Capability	Resource	Course of action
Organizational structure	X			X	X	X	X	X	X	X										X	X	X
Self service				X	X	X	X	X	X											X		
Cross channel				X	X	X	X	X	X													
Process	X			X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
Customer Accessibility				X	X	X	X	X	X													

Fig. 5. Results for 'Managing Customer touch points' information mapping

EAM Inputs / CEI needs	Active structure			Behavior						Passive element	Motivation element									Strategy element		
	Internal element	Collaboration	Interface	Internal behavior	Process	Function	Interaction	Service	Event	Passive element	Meaning	Driver	Assessment	Goal	Outcome	Principle	Requirement	Constraint	Value	Capability	Resource	Course of action
Digital Capabilities	X			X	X	X		X		X										X	X	
Integration			X	X																		
Skills																				X	X	

Fig. 6. Results for 'Integrating digital capabilities' information mapping

In Tables 6 and 7, we summarize the findings of the mapping process, focusing on the information needs for CEI that can be well supported (rated five during the analysis) by EAM and those that can be less supported (rated one or two during the analysis).

Our mapping process reveals some meta-model elements that are more important for CEI support than others are. Especially knowledge about processes is needed for almost transformation groups that we have identified. Sometimes they are directly requested, sometimes in combination with the general EAM elements like goals.

5 Discussion

The findings show that, from a modeling point of view, EAM has the potential to support CEI projects. Our results further show that there are some information elements that EAM can easily deliver since the relevant information source exists explicitly and is maintained frequently (e.g., process, goals, or roles). Other information inputs require more analysis and interpretation by the architects to be a valuable input to the requesting CEI projects

(e.g., digital strategy, business model). CEI required elements of information that are well supported by EAM, have some common characteristics:

A) They do not focus on individuals but cover an overall perspective (e.g., goals, structures of the enterprise). Activities that take a social and a narrower focus would be better documented by other disciplines like human-focused management or psychology (e.g., customer ideologies, trends, etc.).
B) The information has a strong focus on the internal perspective of the enterprise; they are about the organizational processes, structures, etc. Thus, data that needs to be collected outside the company like context, business networks, market trends, customer satisfaction or feeling, etc. are not included in the current EAM practice. Such external information is explicitly hard to collect for EAM (because of limitations in the meta-model), and thus, should be instead piloted by other disciplines like marketing departments or special projects that sense for such needed information. We also claim that EAM does not offer enough elements to describe the context of customers and their feedback because organizations are not used to putting them at the heart of project design. With the emergence of collaborative and agile innovation methods in companies, the EAM must adapt their meta-models to consider customer trends and their feedback before the completion of projects.
C) EAM mostly supports digital projects that are based on explicit and formal requirements. Inputs that are related to society, trends (socially informed knowledge, market information), or predictive analysis are usually not supported. EAM also does not address the confidentiality of customer information through modeling.

6 Conclusion

In this paper, we discussed how EAM could support CEI projects in terms of modeling using ArchiMate. We contributed first with a detailed literature survey to identify the digitalization impact on customer experience. Our systematic literature identifies four major groups of how digitalization transforms customer experience: *Understanding Customer, Enabling selling activities, Managing Customer Touch Points*, and *Integrating digital technologies*. Then, we have defined the information inputs required for these transformations to understand what CEI is comprised of, and to provide a solid foundation for further research in the customer experience and digital transformation area. The results show that, in general, EAM is suited to support customer experience projects in a digital transformation context. Such transformations have a strong focus on the internal perspective of the enterprise that is based on formal requirements (e.g., organizational structure). Nevertheless, EAM lacks support when it comes to activities that require inputs from the environment (e.g., trends, customer needs, customer satisfaction, etc.) or society, trends, or predictive aspects.

This work has some limitations. First, our SLR is limited to a single database and we chose to use only the journal articles that we had access to. Second, the ArchiMate meta-model reflects the information that Enterprise Modeling can provide but do not integrate specific potentials that EAM as an overall framework could additionally cover (e.g.,

architecture principles, best practices, etc.). We dealt with this limitation by conducting several iterations during the Focus Group and by including additional EAM literature during the mapping procedure. Third, we carried out the Focus Group with only banking experts; nevertheless, we tend to believe that this work could be generalized in other industrial fields because the customer experience has been impacted by digitalization in the same way for all retailers (banks and others). We intend to ensure this in our future work. Moreover, as future work, we intend to focus on the Enterprise Architecture Support to other shapes of digital transformations.

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