

Technologies and Tools in Support of the Customer Experience Management Process: A Literature Review

Authors: M.-N. Forget, P. Hadaya & E. Blanchet

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Presenter: M.-N. Forget

Email: forget.marie-noelle@uqam.ca

École des sciences de la gestion (ESG) de l'Université du Québec à Montréal (UQAM)

ESG UQAM



Presenter

- **Marie-Noëlle Forget** is a doctoral student at the École des sciences de la gestion (ESG) de l'Université du Québec à Montréal (UQAM). She is also an invited professor at the department of Analytics, Operations and IT.
- Her research interests are primarily the governance of Information Technology (IT), as well as Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) software.

Introduction

- Gaining and sustaining a competitive advantage is a daunting challenge in today's fast-changing environment. According to some, customer experience is what organizations will now have to compete in to stand out from their competitors [1]: There is a trend in organizations to go beyond Customer Relationship Management (CRM) and consider Customer Experience Management (CEM).
- Customer experience can be defined as:

“the customer sensorial, physiological, psychological responses such as cognitive as well as affective responses evoked by the customer direct (offline) and indirect (online) interactions with the firm or firm offerings across all the touch points throughout the customer purchase journey” [15]

- The **emotional and sensorial components** of the customer experience, as well as the fact that it **encompasses all interactions that a customer has with a brand** [16], make it challenging to manage.

Introduction

- CEM software tools have begun appearing on the market, but they mainly focus on collecting and analyzing feedback from customers. While this is helpful, **many other activities are required to manage customer experience**.
- In contrast, Customer Relationship Management (CRM) software tools are a lot more established and cover all activities encompassing the management of customer relationships.
- Organizations run the **risk of focusing only on the activities currently supported by CEM software tools**, to the detriment of their customers' experience.
- Thus, to offset the limits of current available CEM software tools, the objective of this paper is to **review the literature to identify technologies and tools which can help managers in each activity of the CEM process**.

Customer Experience Management (CEM)

- **Customer experience:**

“experiences are inherently personal, existing only in the mind of an individual who has been engaged on an emotional, physical, intellectual, or even spiritual level” [21]

“aggregate of feelings, perceptions and attitudes” formed by the customer throughout their journey, at each touchpoint [22]

- **Customer Experience Management:**

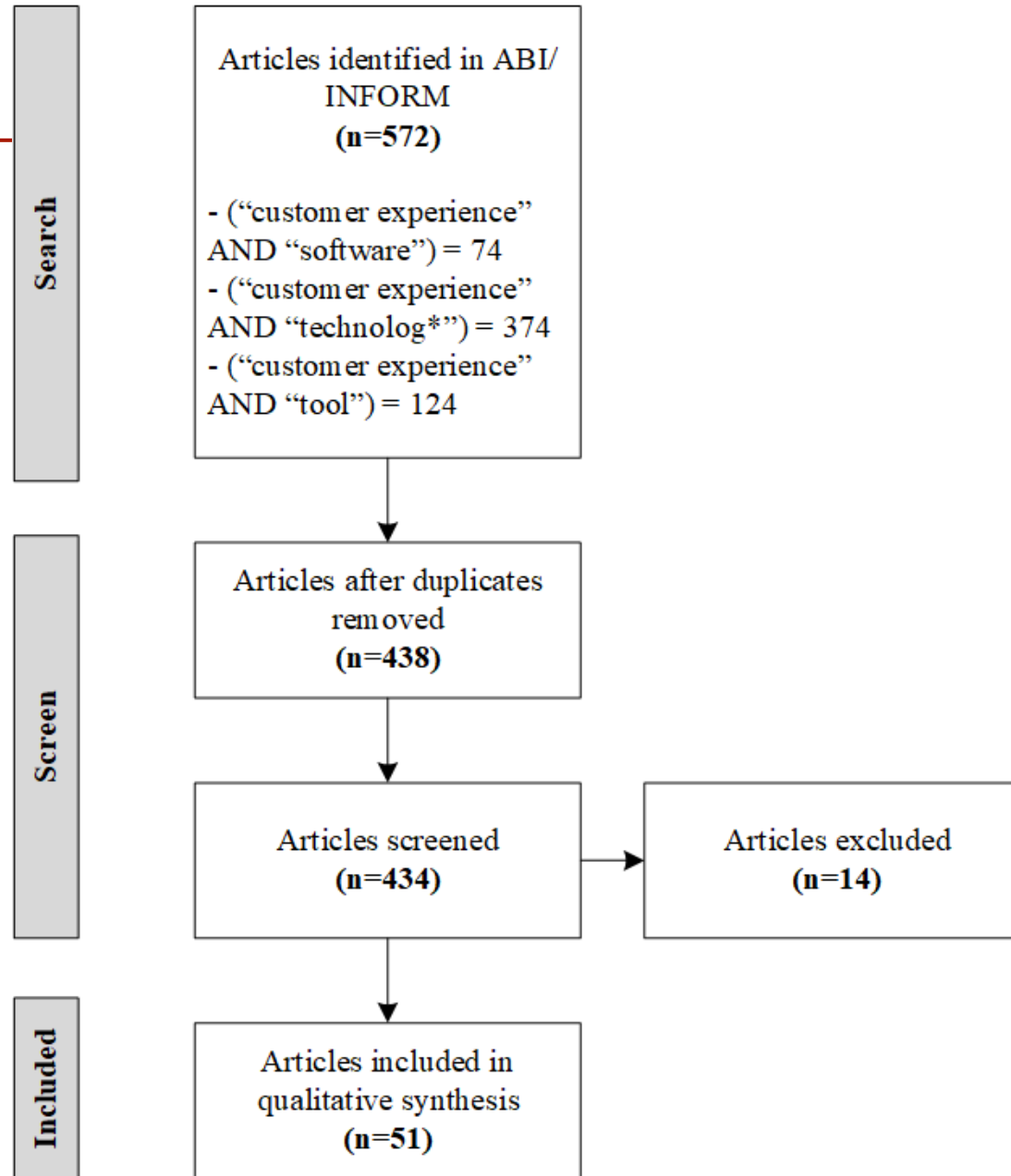
“the cultural mindsets toward CEs, strategic directions for designing CEs, and firm capabilities for continually renewing CEs, with the goals of achieving and sustaining long-term customer loyalty” [23]

CEM Process

Step	Activities ^a
Customer identification	<ul style="list-style-type: none"> - Segmenting customers - Assessing customers' characteristics and understanding their needs, expectations, and values - Identifying past experiences and experiences with other competitors
Customer experience design	<ul style="list-style-type: none"> - Developing a strategy - Designing/mapping customer journeys and touchpoints - Designing services - Prioritizing touchpoints
Customer experience implementation	<ul style="list-style-type: none"> - Identifying gaps in experience design versus current organizational capability - Prioritizing improvement initiatives - Developing touchpoints - Interacting with customers - Responding to customers' needs, expectations, and values - Engaging with customers and their communities - Personalizing services
Customer experience monitoring	<ul style="list-style-type: none"> - Monitoring experiences - Defining internal and external measurements - Implementing escalation mechanisms - Adapting touchpoints

a. Synthesized from Du Plessi and de Vries [24] and Rahiman, ShamiZanjani, Manian and Esfidani [25]

Methodology

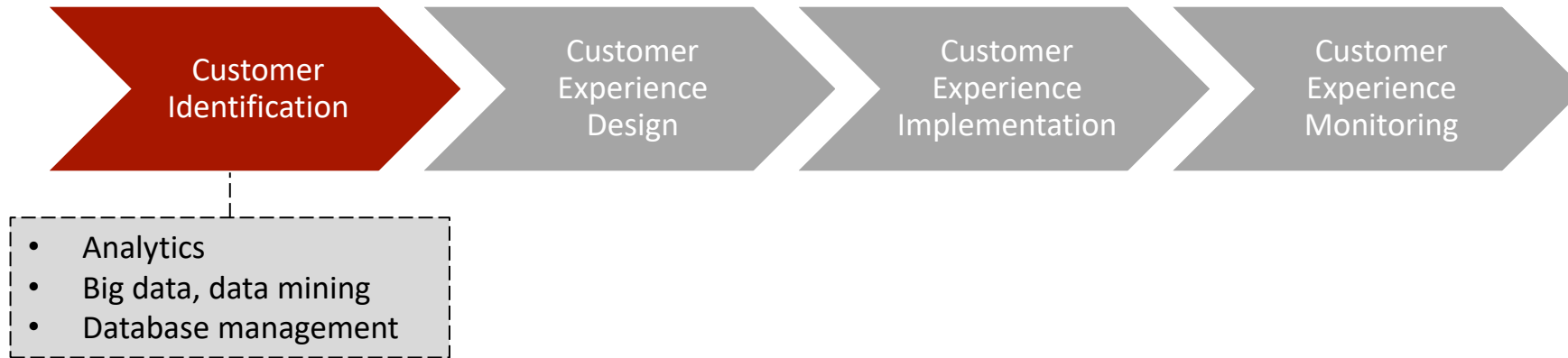


Results - Technologies & Tools in Support of the CEM Process

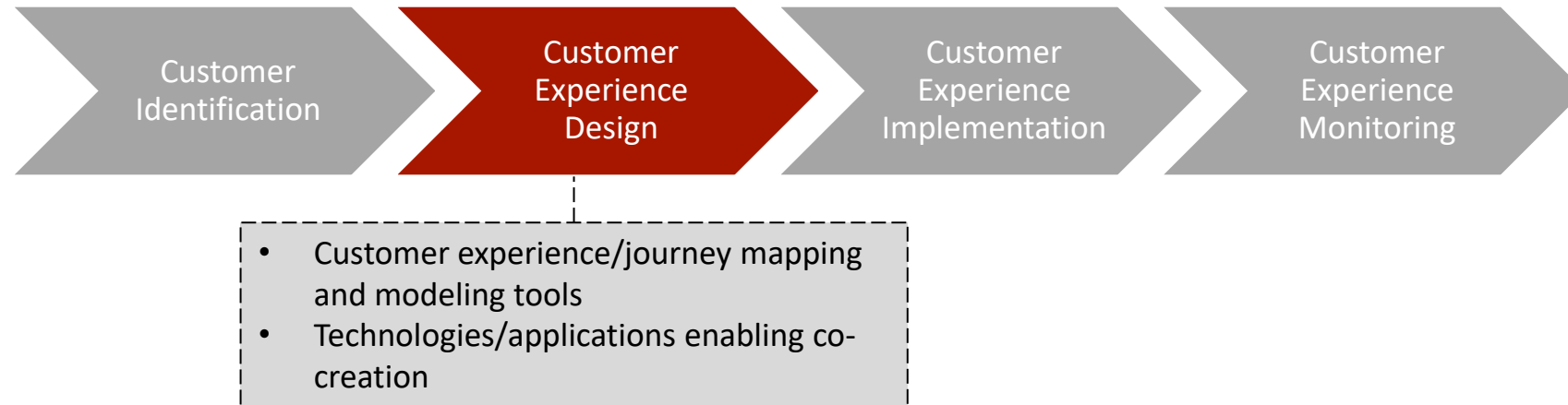
Technologies/tools	References
Analytics (text analytics, descriptive analytics, predictive analytics, prescriptive analytics)	[28][29][30]
Artificial Intelligence (AI)/Machine learning	[28][31][32][33][34][35][36]
Augmented Reality (AR)	[11][12][36][37][38][39][40]
Balanced Scorecard (BSC)	[41]
Big data, data mining	[29][42]
Call center technology (Voice Response Units (VRU) and Interactive Voice Response (IVR))	[43]
Chatbots	[28][30][33][44][45][46][47]
CRM tools/software	[6][48]
Customer experience/journey mapping and modeling tools	[28][29][49][50][51]
Customer identity card	[43]
Database management	[6]
Digital kiosk	[18][43][52][53]
Digital twins	[27][32]
Drones	[11]
(Face) recognition technologies	[30][36]

Technologies/tools	References
Geolocation technology, location-based and wearables	[28] [32][36]
Human resources software	[6]
In-store tablet, touchpoint, monitor, LCD screen, multi-touch display	[30][37][54][55]
Internet of Things (IoT)	[11]
Messaging applications	[28][30]
Near Field Communication (NFC)	[56]
Net promoter score	[28][29][30]
Neuroscience	[32]
On-line catalogues	[57]
Property management system	[6]
Quick Response (QR) code	[37]
Radio Frequency Identification (RFID)	[55][58]
Robotic Process Automation (RPA)	[59]
Self-service technologies	[11][18][33][60][61][62][63]
Smart services/devices	[64][65]
Social media	[6][7][18][30][32][66][67]
Technologies/applications enabling co-creation	[17][68]
Video recording	[69]
Virtual Reality (VR)	[32][36][37][70]
Web services	[71]

Results - Technologies & Tools Relevant to Each Step of the CEM Process



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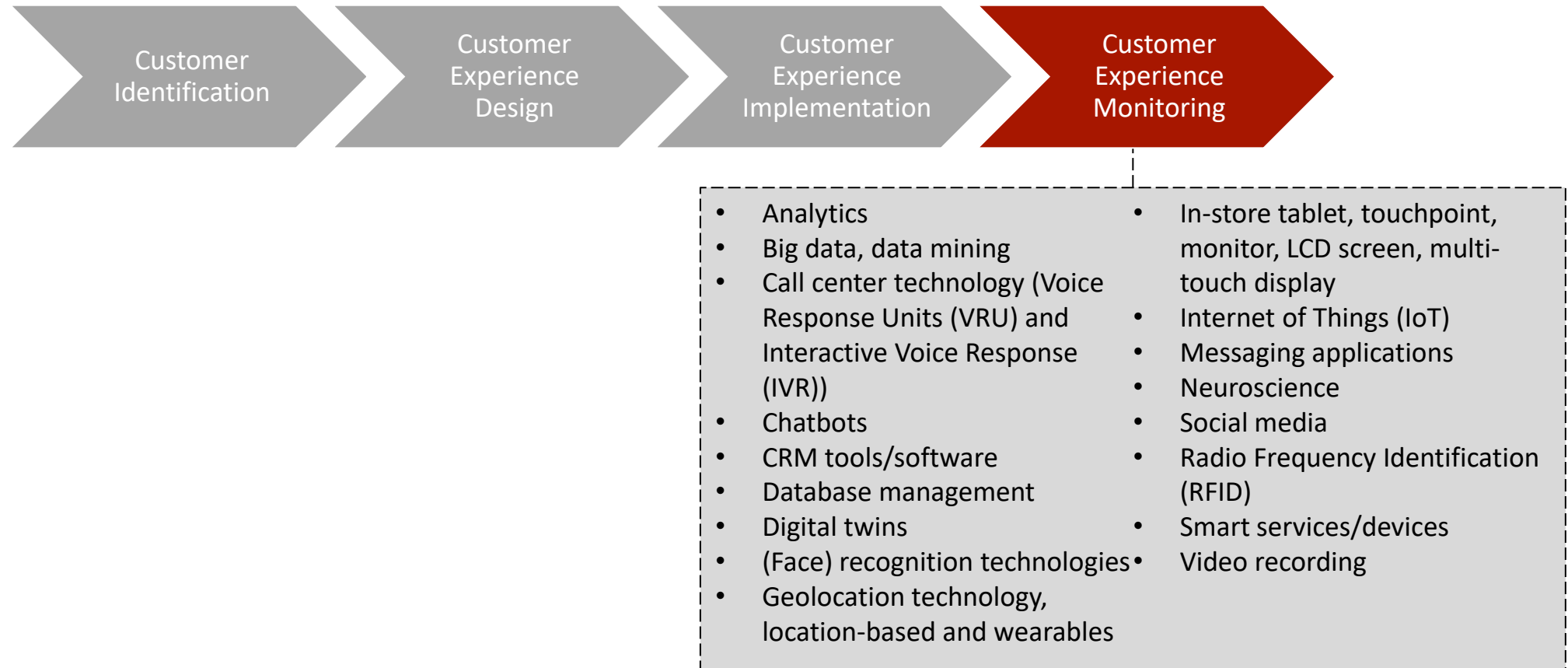


Results - Technologies & Tools Relevant to Each Step of the CEM Process



- Artificial Intelligence (AI)/Machine learning
- Augmented Reality (AR)
- Balanced Scorecard (BSC)
- Call center technology (Voice Response Units (VRU) and Interactive Voice Response (IVR))
- Chatbots
- Customer identity card
- CRM tools/software
- Database management
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Results - Technologies & Tools Relevant to Each Step of the CEM Process



Conclusion

- **Contribution:** This literature review allowed us to identify 35 technologies and tools that can help management in the CEM process, which were associated with the specific step(s) in which they can be used. This contributes to assisting organizations to manage the customer experience process from start to finish, thereby improving customer experience.
- **Limitation:** The scope of our research was limited, as we only searched in one database.
- **Future research:** We did not find any technology covering all four steps of the CEM process in our review of the literature. This could cause a lag between the time a weakness in the customer experience is flagged during customer experience monitoring and the time it is addressed during the continuous improvement of the customer experience design. We thus suggest **investigating how a system capable of covering all activities of CEM could be designed, or how some of the existing technologies and tools could be connected and organized to work seamlessly as one system.**

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