

Managing B2B customer journeys in digital era: Four management activities with artificial intelligence-empowered tools

Sami Rusthollkarhu, Sebastian Toukola, Leena Aarikka-Stenroos, Tommi Mahlamäki *

Tampere University, Unit of Industrial Engineering and Management, P.O. Box 541, 33014 Tampereen yliopisto, Finland

ARTICLE INFO

Keywords:

Customer journey
B2B
Artificial intelligence
Management
Digital tools
Activities

ABSTRACT

Business-to-business (B2B) customer interactions and customer journeys increasingly occur in digital spaces, often aided with diverse digital and artificial intelligence (AI)-empowered tools. This requires more in-depth understanding of how to manage such journeys and interactions, particularly with AI-empowered tools that enhance B2B companies' diverse and crucial marketing management operations, ranging from forecasting to managing relationships. To reach this research goal, this paper integrates the current scattered understanding of B2B customer journeys and their management into AI research and presents a two-phase empirical study. First, through an integrative literature review, this study analyzes the relevant contemporary B2B management activities for managing customer journeys and identifies four key management activities: analyze, design, engage, and guide. Second, through mapping over 150 digital tools under 16 marketing management-tool categories and identifying and analyzing AI functions within those tools, the study examines how AI supports companies in the B2B customer journey management activities. The study makes contributions to B2B digital marketing, management and sales research, as well as customer journey management. It also provides guidance for B2B marketers and AI tool technology developers on how AI-empowered tools can be applied and developed to support B2B marketing management, particularly B2B customer journeys.

1. Introduction

Business-to-business (B2B) customer interactions increasingly occur in digital spaces, requiring companies to adopt novel technological solutions and tools to manage their customers' journeys (Steward, Narus, Roehm, & Ritz, 2019; Zolkiewski et al., 2017). As complex B2B buying and selling processes turn to digital (Steward et al., 2019), the shift requires companies and managers to develop their managerial practices and digital toolboxes in order to survive and thrive in the digital era. Customers' movements across multiple channels and touchpoints call for companies' fusion of marketing and sales operations to offer a coherent customer experience, from their first brand exposure to purchase and use (Rusthollkarhu, Hautamaki, & Aarikka-Stenroos, 2021), comprising B2B customers' journeys to be managed (Steward et al., 2019). Technologies, such as artificial intelligence (AI) (Syam & Sharma, 2018), virtual reality (VR) and augmented reality (AR) (Flavián, Ibáñez-Sánchez, & Orús, 2019), and Internet of Things (Aunkofer, 2018), offer B2B companies new possibilities to manage customer interactions in digital environments. Due to the data-

generative nature of digital buying environments, AI technologies in particular are expected to transform and enhance marketing and sales processes (Davenport, Guha, Grewal, & Bressgott, 2020; Iansiti & Lakhani, 2020; Syam & Sharma, 2018). In this paper, we focus on AI, specifically AI-empowered tools in B2B customer journey management. We define AI-empowered tools on the basis of AI as computational agents that demonstrate intelligence (Shankar, 2018) by acting or reasoning (Russell & Norvig, 2016) and are technologically based on their ability to recognize patterns in data (i.e., machine learning [Murphy, 2012]). Thus, AI-empowered tools are tools that have one or more functions based on their pattern recognition ability, allowing the tools to demonstrate intelligence by acting or reasoning. We develop an understanding of the management of increasingly digital B2B customer journeys and related interactions with AI-empowered tools. This research goal is crucial in contemporary B2B settings because (in addition to its theoretical contributions) it may help diverse B2B companies manage their marketing management operations better throughout the customer journey.

With our particular focus on AI-empowered B2B customer journey

* Corresponding author.

E-mail addresses: sami.rusthollkarhu@tuni.fi (S. Rusthollkarhu), sebastian.toukola@tuni.fi (S. Toukola), leena.aarikka-stenroos@tuni.fi (L. Aarikka-Stenroos), tommi.mahlamaki@tuni.fi (T. Mahlamäki).

<https://doi.org/10.1016/j.indmarman.2022.04.014>

Received 3 February 2021; Received in revised form 19 April 2022; Accepted 20 April 2022

Available online 12 May 2022

0019-8501/© 2022 The Author(s). Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

management, we also rely on the current understanding of (B2B) customer journeys. A customer journey refers to an entity consisting of multiple touchpoints – moments of interaction between a prospect/customer and a service provider that form the holistic customer experience (Lemon & Verhoef, 2016). The current theoretical understanding of the customer journey has focused on conceptualizing what customer journeys comprise (e.g., touchpoints [Lemon & Verhoef, 2016; Steward et al., 2019]; phases, i.e., prepurchase, purchase, and postpurchase [Frambach, Roest, & Krishnan, 2007; Lemon & Verhoef, 2016] and offline and online channels [Edelman & Singer, 2015; Frambach et al., 2007; Wolny & Charoensuksai, 2014]). While different customer journey “building blocks” are well established, the realm of customer journey management is quite scattered and lacks conceptual coherence. Despite the growing research interest in customer journeys, surprisingly, there is little discussion about managing B2B customer journeys. Customer journey management-related issues are largely covered by sales and marketing literature that uses conceptualizations differing from those of customer journey’s touchpoints and phases. In B2B, particularly the topics regarding relationship management (Viio & Grönroos, 2014), key account management (Guesalaga, Gabriellsson, Rogers, Ryals, & Marcos Cuevas, 2018; Peters, Ivens, & Pardo, 2020), as well as buying (Diba, Vella, & Abratt, 2019) and selling processes (Mahlamäki, Storbacka, Pyllkkönen, & Ojala, 2020; Moncrief, 2017), address customer journey management-related issues. However, these streams provide a limited understanding of B2B customer journey management as they only address handling a limited set of touchpoints on a specific process, phase, or channel of the customer journey. This disregards the complexity of linking multiple touchpoints on different channels to provide a seamless experience for customers. This is a crucial gap since the management of different touchpoints is usually dispersed among multiple teams and people within an organization, introducing challenges for customer journey management as a whole (Rustholkarhu et al., 2021).

Although the B2B literature elaborates less on the role of AI in customer journey management, some complementary knowledge can be sourced from the literature on marketing-related decision systems, suggesting that AI can enhance selling and marketing processes and different areas of their management. AI has been found to improve demand forecasting (O’Neil, Zhao, Sun, & Wei, 2016; Yuan, Xu, & Yang, 2014), lead generation and qualification (D’Haen & Van Den Poel, 2013), pricing (Ferreira, Lee, & Simchi-Levi, 2016), and gaining customer insights (Prasasti & Ohwada, 2014; Shimomura, Nemoto, Ishii, & Nakamura, 2018). The marketing literature has also discussed the potential of AI through the lens of marketing (Davenport et al., 2020) and sales (Syam & Sharma, 2018) in general, as well as in the B2B setting through the lens of market knowledge (Paschen, Kietzmann, & Kietzmann, 2019). Extant research on the potentials of AI has applied also a more critical lens by focusing on customer dissatisfaction caused by AI failure (Castillo, Canhoto, & Said, 2021), its’ disrupting effects to human work (Ozkazanc-Pan, 2019), or ethical concerns (Jobin, Ienca, & Vayena, 2019).

The aforementioned studies highlight the relevance of AI in management, but they do not mention anything about how AI can be utilized to manage B2B customer journeys, the perspective that is increasingly crucial in the field of B2B marketing (Steward et al., 2019). In this paper, we contribute to this research gap by analyzing how AI-empowered tools enable companies to manage B2B customer journeys. Thus, we focus on B2B companies’ management activities that are needed to manage B2B customer journeys, as well as the AI-empowered tools that support such activities.

To bridge the identified knowledge gaps, our study intends to contribute to the existing literature with our analysis of *how AI-empowered tools and their AI functions enable companies to manage B2B customer journeys*. Therefore, we identify companies’ B2B customer journey management activities and the digital, particularly AI-empowered, tools and their AI functions that support such activities.

This requires a two-phase research design. First, by reviewing the current literature on customer journeys, as well as B2B sales, marketing, and relationship management, we recognize four customer journey management activities: analyze, design, engage, and guide. Second, to understand the possibilities of AI in customer journey management, we systematically review 152 commonly used sales and marketing tools, validate our tool selection using an online questionnaire, and categorize the tools based on the core functionality of each. Based on our AI definition, we then identify 58 AI-empowered tools and analyze the managerial benefit of each AI functionality in customer journey management activities. Our identification of customer journey management activities contributes to the B2B marketing and customer journey literature by synthesizing previously scattered knowledge on the required managerial actions. Our analysis on the possibilities of AI in these activities continues the discussion on AI in the contexts of marketing (Davenport et al., 2020), sales (Syam & Sharma, 2018), and B2B market knowledge (Paschen et al., 2019).

We start by building an understanding of AI, customer journeys, and their management. Next, we explain our research design and present the findings on AI in customer journey management activities. Finally, we highlight our key contributions to theory and practice, as well as discuss our study’s limitations and future directions.

2. Artificial intelligence in customer journey management

We start this section by discussing AI and its role in business and marketing management. We then elaborate on the literature on customer journey and its management and synthesize this section by presenting a priori framework for B2B customer journey management activities and supporting AI-empowered tools.

2.1. AI and its role in business and marketing management

The marketing management and business literature has commonly approached AI through its management applications (see, e.g., automation of management accounting [Korhonen, Selos, Laine, & Suomala, 2021], transformation of management tasks [Kolbjornsurd, Amico, & Thomas, 2016], robotization of customer service [Wirtz et al., 2018], and applications to future marketing [Davenport et al., 2020]). Also more critical remarks on AI failure and customer dissatisfaction (Castillo et al., 2021), disrupting effects of AI to human work (Ozkazanc-Pan, 2019), or ethical concerns pertaining to the use of AI (Jobin et al., 2019) have been discussed in literature. In business and marketing management, AI is often labeled as technology for intelligence that enables the argued managerial application. However, since it is difficult to define exactly what constitutes an intelligence, in this paper, intelligence-based AI definitions (Nilsson, 2009; Paschen et al., 2019; Russell & Norvig, 2016; Shankar, 2018) are complemented with a technology-based focus on pattern recognition (Louridas & Ebert, 2016; Murphy, 2012). We then define AI as follows: *Artificial intelligence is a term for computational agents equipped with properties that enable them to interact with their surroundings and, based on recognized patterns in data, are able to reason or modify their behavior or surroundings in a goal-oriented way*. Our intention is not to find “a superior” AI definition but to build definition toward a solution that provides a managerially relevant understanding of AI while minimizing the risk of AI becoming an “all-inclusive concept” for all IT management systems. Next, we present a more detailed discussion on which we base our AI definition.

2.1.1. AI as a form of non-human intelligence

In general terms, AI refers to algorithms, systems, and machines that demonstrate intelligence (Shankar, 2018). Traditionally, intelligence is perceived as a property of the mind and tightly linked to consciousness. In this human context, intelligence is defined as the abilities to learn, understand abstract concepts, deal with new situations, and use previously gained knowledge to manipulate one’s environment (Legg &

Hutter, 2007). As the term *artificial* disconnects the link between consciousness and intelligence, in AI the concepts of learning, understanding, and dealing with new situations change to the more general abilities of interacting with the surroundings and perceiving and processing data, as well as the ability to behave in a goal-directed manner (Nilsson, 2009; Paschen et al., 2019).

Depending on the context, different AI definitions consider intelligence either through acting or thinking, as well as measure AI's success in its fidelity to human performance or opposition to the ideal performance, referred to as rationality (Russell & Norvig, 2016). Regardless of the approach, deciding whether or not something is AI, based on its intelligence, is tightly linked to human perception of intelligence (i.e., whether humans observe a non-human agent's thinking or acting that demonstrates its interaction with the environment and goal-directed behavior). In practice, this leaves intelligence-based AI definitions interpretive. For example, early water clocks used in 270 BCE utilized mechanical means to interact with the environment in order to modulate the water flow to a system (Nilsson, 2009). While these early systems technically interacted with their surroundings and could achieve their goals based on the environmental input they received through mechanical means that utilized rods and corks, we rarely consider them AI systems.

2.1.2. AI as technology

Modern AI applications that solve problems, reason, plan, learn, communicate, perceive, and act (Russell & Norvig, 2016) are methodologically linked to advanced data processing technologies that enable the utilization of vast data masses (Iansiti & Lakhani, 2020; Paschen et al., 2019). The umbrella term machine learning (ML) is used to describe the functioning of these methods. ML allows the machine (instead of preprogrammed rules) to learn to perform a task by examining previous examples (Louridas & Ebert, 2016). The process of examining examples is also referred to as ML's ability to automatically find patterns from the data (Murphy, 2012). ML methods include artificial neural networks, decision trees, regression methods, and random forests, among others (Asare-Frempong & Jayabalan, 2017). Different ML methods are also often discussed by referring to the area of application without identifying the exact statistical method. Two examples are natural language processing (NLP), which refers to ML in the context of written texts (Nuruzzaman & Hussain, 2018), and image recognition in the context of picture data (He, Zhang, Ren, & Sun, 2016).

Whereas AI concepts focus on the abilities of an entity or the outcome of a process (e.g., learning, adapting, pattern recognition, language understanding), ML describes the way that the outcome is obtained. To demonstrate, we refer to Meire, Ballings, and Van den Poel's (2017) study in which they used 225 different variables to develop the ML model that would identify the most promising restaurant company leads for Coca-Cola Refreshments Inc. The authors trained the model to identify the restaurants that (based on these variables) would best correspond to the company's current B2B customers. After each training round, the ML model changed the weight for each parameter to correspond to the customer profiles in the training set. After extensive repetitions, the model was able to learn the right weights for the parameters to choose which prospective restaurant would match the customer profile. Because of this more thorough way of presenting the thinking process of AI, ML has also been referred to as the brains of AI (Chatterjee, Ghosh, Chaudhuri, & Nguyen, 2019).

Research on business and management usually approaches AI through intelligent-based definitions that do not say much on technological principles (see, e.g., Davenport et al., 2020; Iansiti & Lakhani, 2020). Different technology concepts are mentioned but often cited as examples, not as criteria for including an application under an AI category. That is understandable as non-technical business managers assumingly are more interested in the benefits and value of the tool than how it technically works. However, as this approach includes the risk of AI becoming an all-inclusive, empty concept, in this paper, we want to

avoid this by focusing purely on AI-empowered tools in which AI functions are based on ML. As we are interested in how such functions empower B2B customer journey management, we next discuss the approach to the customer journey.

2.2. Managing customer journeys

2.2.1. Theoretical background of customer journeys

The customer journey concept originates from experience management (Lemon & Verhoef, 2016), but in the B2B context, it has also been used to conceptualize buying and selling processes (Steward et al., 2019), giving more emphasis on the beginning of the journey. In this paper, we utilize customer journey with its original purpose to conceptualize the whole B2B customer experience. This broad conception naturally implies that sales, marketing, and service science discussions (see, e.g., environmental and atmospheric topics [Bitner, 1990], sales processes [Moncrief & Marshall, 2005], or service recovery [Kelley & Davis, 1994]) include relevant knowledge on the topic.

The customer journey literature has divided the journey into multiple phases. For the theoretical framework of this paper, we utilize the three-phase typology of prepurchase, purchase, and postpurchase (Lemon & Verhoef, 2016). Customer behaviors in these phases include need recognition, consideration, and search (prepurchase stage); choice, ordering, and payment (purchase stage); and consumption, usage, engagement, and further service requests (postpurchase stage). Similar types of phase categorizations are presented especially in the sales literature on the sales process (e.g., three-phase categorization, comprising identification of new business opportunities, persuasion, and relationship management used in the context of sales communication [Fraccastoro, Gabrielsson, & Pullins, 2021], seven-step model, consisting of prospecting, pre-approach, approach, presentation, overcoming objection, close, and follow-up [Dubinsky, 1981], and its updated version, consisting of customer retention and detection, database and knowledge management, nurturing the relationship, marketing the product, problem solving, adding value/satisfying needs, and customer relationship maintenance [Moncrief & Marshall, 2005]). For the purposes of this paper, we consider Lemon and Verhoef's (2016) customer journey-focused categorization the most suitable, due to its designed purpose of conceptualizing the customer journey.

From the perspective of customer journey management, it is important to emphasize that customers' interaction with a brand is not limited to their interaction with the company offering the solution. This interaction also includes the company's partners (Lemon & Verhoef, 2016), industry experts (Hartmann, Wieland, & Vargo, 2018), the customers' social spheres (Lemon & Verhoef, 2016), and communication within the customer organization (Sheth, 1973). The term *interaction* is used in a broad sense to include all possible ways of brand exposure, such as advertising (Kietzmann, Paschen, & Treen, 2018), communication with service employees (Lemon & Verhoef, 2016), as well as traditional (Baxendale, Macdonald, & Wilson, 2015) and electronic word-of-mouth (Wolny & Charoensuksai, 2014). This increased complexity in forming experiences calls for the shift in the locus of negotiation power from sellers to buyers (Marcos Cuevas, 2018) and requires companies to adopt technological solutions in order to gain access to customers' buying processes (Steward et al., 2019).

2.2.2. Toward an a priori framework: B2B customer journey management activities and supporting AI-empowered tools

Next, we integrate our approaches – B2B customer journey management, and AI as management supporting technology – into an a priori framework. By customer journey management, we refer to the companies' actions that aim to manage the customer experience emerging from multiple touchpoints. Here, the managerial challenge arises from the divergence of touchpoints to multiple environments, both offline and online (Rustholkarhu et al., 2021). In the B2B context, companies need to consider the B2B-specific issues originating from the complexity

of B2B markets. These issues include acknowledging the importance of customers’ own customers (Homburg, Wilczek, & Hahn, 2014), the complexity of products and decision-making processes (Appio & Lacoste, 2019; Töllner, Blut, & Holzmüller, 2011) as well as the fact that multiple people from different organizations take part in the those processes (Hartmann et al., 2018). Furthermore, B2B markets particularly focus on relationships, (Chandler & Johnston, 2012; Viio & Grönroos, 2014), with explicit attention on catering the most important and strategic customers (key accounts) with particular programs (Feste, Ivens, & Pardo, 2020).

In this study, we aim to improve the understanding of AI in B2B customer journey management through AI-empowered digital tools. In managerial context, AI is generally harnessed either through statistical methods (e.g., neural networks, decision trees, random forests) (see, e.g., Fiig, Le Guen, & Gauchet, 2018; Quijano-Sanchez & Liberatore, 2017) that are developed for specific task by companies themselves, or through software tools with AI functions (i.e., AI-empowered tools) used by company employees, managers, or customers (see, e.g., Davenport et al., 2020; Paschen et al., 2019). In this paper, we focus purely on the latter. Our goal is to acknowledge the full potential of these tools for B2B customer journey management, while explicitly articulating what part of this potential is enabled by AI. In Fig. 1, we integrate the theoretical setting of the research problem into an a priori model.

Following the logic of the model, first, we synthesize the scattered knowledge on customer journey management and conceptualize the required managerial activities. Second, we detect the AI-empowered tools that support such management and analyze the AI functions that serve certain activities in specific parts of or throughout the customer journey, offering us a holistic understanding of AI in B2B customer journey management.

3. Methodology

3.1. Research design

To analyze and in particular, to explore the AI-empowered tools in B2B customer journey management, we have developed a two-phase qualitative research design. Phase 1 comprises structuring a theoretical framework with an extensive literature review from which the B2B customer journey management activities are explored and conceptualized, as the current research does not provide a comprehensive framework for this management aspect. Phase 2 identifies empirical real-life AI-empowered tools supporting such activities and examines them further, specifically how the tools and their AI functions support the identified management activities. The design is illustrated in Fig. 2.

3.2. Research phases, data sources, and analysis

In Phase 1, we aimed to theorize the B2B customer journey management activities from the extant research on B2B (particularly sales, marketing, and buying literature), the customer journey, and related research. We relied particularly on a delineating analysis, referring to the conceptual work that aims to explicate in detail the entity under the study (MacInnis, 2011). This analysis phase is based on an integrative literature review (see, e.g., Torraco, 2016) of 72 peer-reviewed articles, conference proceedings, and book chapters published between 1973 and 2020. To identify the relevant literature, we conducted a database search on Scopus and Web of Science (using the search words “customer journey,” “customer process,” “buying journey,” “buying process,” “purchase journey,” or “purchase process”). This generated 742 hits on Scopus and 403 on Web of Science. We skimmed through titles and abstracts and eliminated the hits that did not represent the focus of this paper. This resulted in a total of 64 articles selected for content analysis.

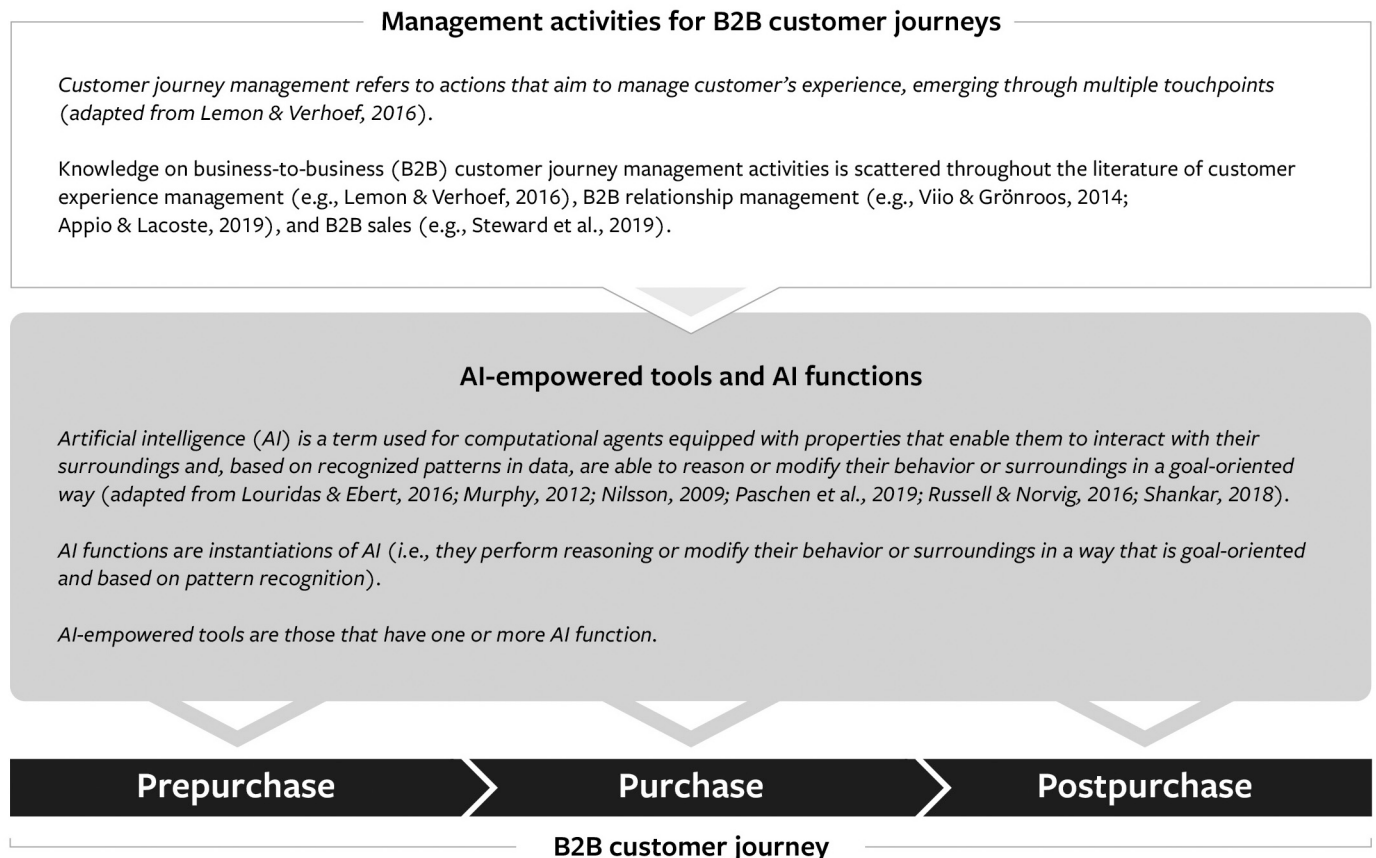


Fig. 1. A priori framework for B2B customer journey management activities and supporting AI-empowered tools.

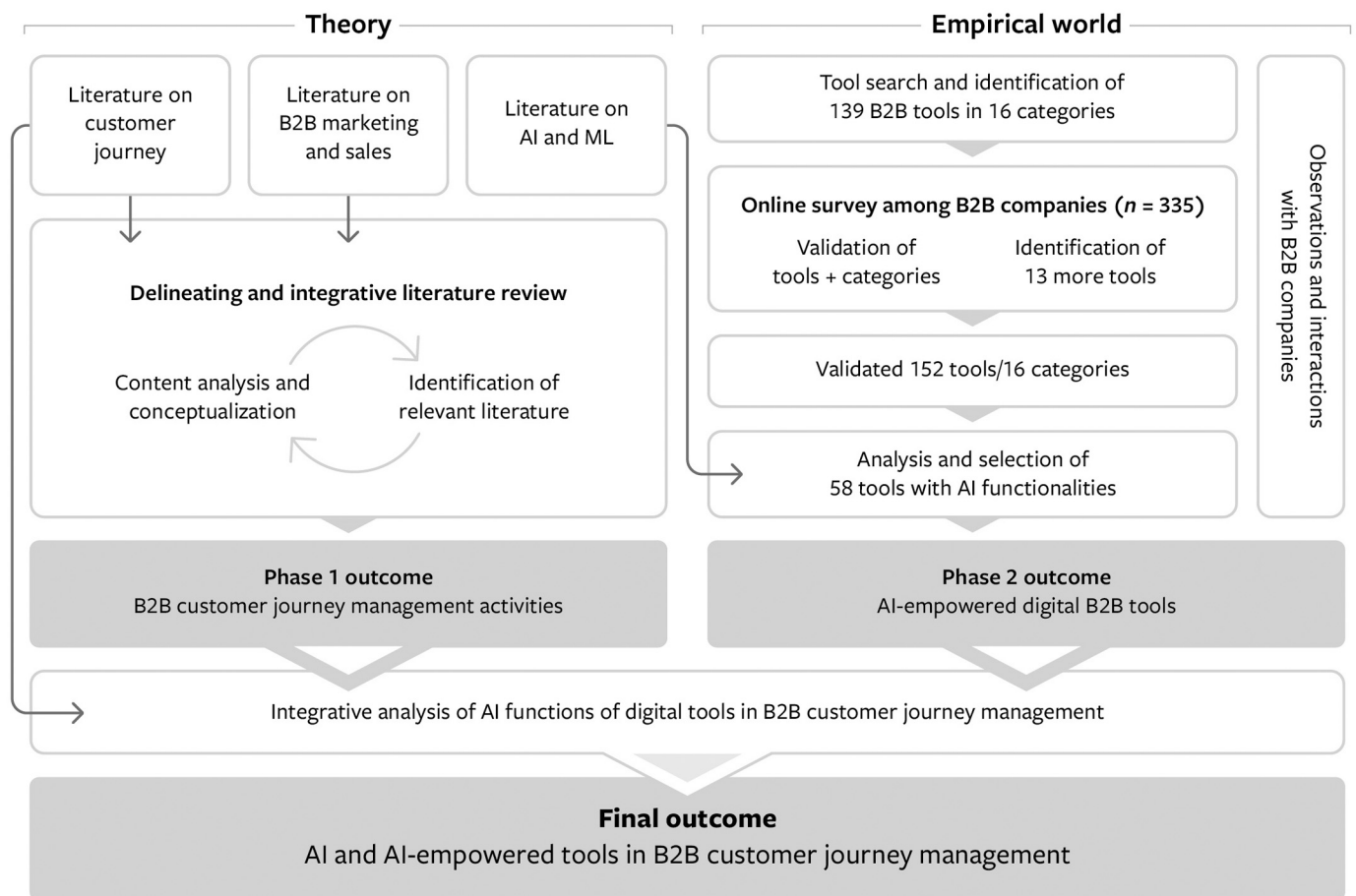


Fig. 2. Research design.

During the analysis, we continued the identification of relevant literature with a citation search and expert polling until we reached the saturation point (for literature identification strategies, see Savin-Baden & Howell, 2013). At the end, this yielded eight more journal articles for inclusion. Our analysis proceeded by first detecting subcategories, which were then condensed into the management activities proposed in this paper. These subcategories are presented with bullet points as we report our results (Table 1, column 2 and 3) in the next section of this paper.

In Phase 2, aiming to identify, analyze, and categorize diverse AI-empowered tools for B2B customer journey management, we started by detecting the tools via four information sources: Google keyword searches (e.g., “digital marketing tools,” “digital sales tools,” and “sales force tools”) with different Boolean operators, digital marketing influencers (e.g., blogs and expert interviews), web pages that had listings of these tools (see Appendix A), and managers’ perceptions and usage of AI-empowered tools for marketing and sales management, obtained in a workshop among Finnish B2B small and medium-sized enterprises (SME). The search for and analysis of AI-empowered tools was iterative. To cite examples, the first analysis rounds led to finding more tools by using their functions as keywords in a Google search (e.g., “digital tools for prospecting”), or when we explored web pages from already known tools, we found comparisons to similar tools.

Altogether, 152 commonly used sales and marketing tools were structurally analyzed and categorized based on their core functionalities; 139 were identified via searches and web pages. Next, 13 more tools were identified, and the already identified tools were validated with an online survey among sales and marketing managers in Finnish B2B companies. The target sample comprised 3869 marketing and sales managers from different industries; 335 responses were received,

representing a 6% response rate. These identification and analysis rounds resulted in a comprehensive list of 152 different tools under 16 categories (Table 2).

From the 152 tools validated by managers, we then selected 58 for further analysis, due to their AI-empowered features, based on our AI definition. Next, we analyzed the functionalities and positioning of each tool in the customer journey and its management. We analyzed the tool functionalities regarding two facets: 1) main functions (the starting point for our categorization), which are the top-level functions comprising various smaller tasks, and 2) AI-empowered functions, defined as those that use AI to perform certain tasks. Based on our definition, it means that we can identify the used data, as well as the ML-based data processing method. During the process, we analyzed the value of each tool regarding the three stages of the customer journey. Similarly, we assessed each tool’s suitability for different customer journey management activities. Our analysis of the functions was based on the information provided by the tool’s supplier on its web pages and other online sources. During the analysis, we also ensured that the tool was targeted for B2B use.

The quality of the results and the research process was ensured using different modes of triangulation (Flick, 2004). In all phases and analysis rounds, researcher triangulation was applied (Phase 1: multiple researchers participated in the literature identification, selection, and analysis; Phase 2: multiple researchers participated in tool identification and analysis). All phases also benefited from data triangulation, as tool-oriented data were multisourced and the whole research process was supported via close empirical observations, manager workshops and interviews, and ethnographic follow-ups among SMEs implementing tools and pursuing the management of their customer journeys (Fig. 2). Furthermore, diverse means of analysis and jointly generated

Table 1
Management activities for the business-to-business (B2B) customer journey.

B2B Customer journey management activity	The main aspects to consider in customer journey management based on literature	The role/contribution of digital tools in activity-related actions
<p>ANALYZE: Activities that detect and gather data on a prospect's/customer's behavior and develop an understanding of it in relation to sales/marketing processes. Thus, <i>analyze</i> activity structure's understanding of how the actions of a prospect/customer and B2B provider affect each other throughout the customer journey.</p> <p><i>B2B companies should especially focus on implementing customer data-based analytics, since the purchase amounts of one given customer usually carry great significance (Hallikainen, Savimäki, & Laukkanen, 2020).</i></p>	<ul style="list-style-type: none"> • From the <i>Analyze</i> perspective, the customer journey is to be utilized as a framework to understand how B2B customer and provider actions affect each other throughout the B2B customer experience (Folstad & Kvale, 2018; Lemon & Verhoef, 2016; Steward, Narus, Roehm, & Ritz, 2019). • To successfully utilize the customer journey as an analysis framework, B2B companies need to: <ul style="list-style-type: none"> o Build metrics for understanding how customers utilize different channels (Li & Kannan, 2014) and contents (Lee, 2010) in each phase of the journey; o Understand how individual touchpoints form a continuous flow constituting a full B2B customer journey (Edelman, 2010); o Consider the reasoning for choosing the metrics, in order to understand the link between customer and company actions (Järvinen & Karjaluoto, 2015). 	<ul style="list-style-type: none"> • To gather data, B2B companies need to: <ul style="list-style-type: none"> o Acknowledge the role of digital tools as an important method for data gathering, crucial for <i>analyze</i> activity (Lee, 2010); o Overcome the challenge of extracting the most informative user data in a smart way (Aunkofer, 2018), (e.g., utilizing innovative mobile interfaces [Wozniak, Schaffner, Stanoevska-Slabeva, & Lenz-Kesekamp, 2018]).
<p>DESIGN: Actions aimed at planning the journey for the customer. This includes architecting journey elements (how and when to utilize online/offline channels, what to offer in each channel, etc.) and architecting sales and marketing processes (e.g. content production, lead generation, sales negotiations) in a way that produces a seamless experience for the prospect/customer.</p> <p><i>In B2B markets, longer purchase times, fact-based decision characteristics (Bakhtieva, 2016), and recognizing the needs of the customers' own customers (Homburg et al., 2014) should receive special attention in the journey design.</i></p>	<ul style="list-style-type: none"> • B2B companies should: <ul style="list-style-type: none"> o Design customer journeys like products (Edelman & Singer, 2015); o Tailor journeys for each segment (Burke, 2002); o Recognize channel preferences (Sands, Ferraro, Campbell, & Pallant, 2016) and buyer characteristics (Wolny & Charoensuksai, 2014); o Overcome the challenge of presenting the right information at the right time at the right touchpoint (Grant et al., 2013). • Customer journey design can include processual design elements such as preparation, component development, relation definition, and opportunity discovery (Moon et al., 2016). 	<ul style="list-style-type: none"> • B2B companies cannot only depend on digital tools in complex B2B e-service innovation designs. They also need to re-architect inter-organizational process and system links (Legner, 2008), which also requires commitment from senior management (Dasser, 2019).
<p>ENGAGE: Actions aim to tempt the prospect/customer to be engaged in the journey with interesting, accurate content and channel decisions.</p> <p><i>In B2B, engaging strategically important customers can take multiple forms of co-creation and development (Aarikka-Stenroos & Jaakkola, 2012).</i></p>	<ul style="list-style-type: none"> • B2B companies need to acknowledge the drivers for customer engagement such as: <ul style="list-style-type: none"> o Brand-owned drivers like brand-facilitated conversation (Hollis, 2005; Powers, Advincola, Austin, Graiko, & Snyder, 2012), paid, earned, and owned media (Barley, 2016), message creativity (Baack, Wilson, van Dessel, & Patti, 2016), product presentation videos (Flavián, Gurra, & Orús, 2017) and technology interfaces (e.g., virtual [VR] [Willems, Brengman, & Van Kerrebroeck, 2019] and augmented reality [AR] [Hilken et al., 2018]); o Customer-owned drivers like customers' web skills and abilities (Wu, Chen, & Chiu, 2016), convenience (Schroder & Zaharia, 2008) and perceived usefulness (Liao et al., 2010). • Customer engagement in online channels is indicated by the frequency of visits (Fedorko, Bačfk, Kot, & Kakalejčik, 2015). 	<ul style="list-style-type: none"> • Different channels serve different purposes throughout the journey (Narayanan & Nandagopal, 2016). <ul style="list-style-type: none"> o Online channels are most engaging in the early stage (Molesworth & Suorrti, 2002) information-seeking (Flavián, Gurra, & Orús, 2016). o Online channels are utilized excessively in both online and offline purchases (Voorveld, Smit, Neijens, & Bronner, 2016). o Online channels trigger more account engagement, leading to a more positive effect on lead generation compared with offline in-person events, such as conferences (Wang, Malthouse, Calder, & Uzunoglu, 2019). o However, offline procurement methods are still preferred in highly important cases (Schoenherr & Mabert, 2011). o Mobile channels are not recommended for new product launch engagement (Wang, Malthouse, & Krishnamurthi, 2015).
<p>GUIDE: Actions that steer the prospect/customer to find the next step in the customer journey.</p> <p><i>B2B companies need to ensure that the right people are engaged in decision making to successfully guide the customer forward (Sheth, 1973).</i></p>	<ul style="list-style-type: none"> • B2B companies need to recognize that customer touchpoint choices vary individually (Herhausen, Kleinlercher, Verhoef, Emrich, & Rudolph, 2019), the identified drivers for touchpoint being: <ul style="list-style-type: none"> o Customer-owned drivers, such as personal habits, expected benefits, and hedonic motivation (Mosquera et al., 2018), as well as affective experiences (Andersson, Boedeker, & Vuori, 2017), personal decision-making styles, and product knowledge (Karimi, Papamichail, & Holland, 2015); o Interaction-dependent drivers like limited data processing capabilities and information asymmetries (Rippé, Weisfeld-Spolter, Yurova, & Sussan, 2015), information availability (Burke, 2002), social communication (Blackie, 2015), the multi-person decision-making character of the B2B setting (Sheth, 1973), and the language of communication (Carter & Yeo, 2018); o Company-owned drivers like checkout time (Kotni, 2017), product availability checks (Wollenburg, Holzapfel, & Hübner, 2019), the possibility for direct contact (Vaghela, 2014), instore communication (Baxendale et al., 2015), search costs (Su, 2008), means for transaction, availability of merchandise, and payment security (Kotni, 2017). 	<ul style="list-style-type: none"> • Digital tools are crucial in guiding customers throughout the journey. Literature has identified the following ways B2B companies can influence customers' touchpoint choice through technological means: <ul style="list-style-type: none"> o Individual customization of web pages (Jacobs et al., 2018); o Utilization of the Internet of Things (Higgins, McGarry Wolf, & Wolf, 2014; Kaczorowska-Spychalska, 2017) and VR technologies (Boyd & Koles, 2019); o Social media communication (Cao, Meister, & Klante, 2014; Diba et al., 2019; Gustafson, Pomirleanu, John Mariadoss, & Johnson, 2019; Lindsey-Mullikin & Borin, 2017; Zhang & Li, 2019); o The quantity, type, and timing of contacting (George & Wakefield, 2018).

Table 2
Tools and AI functions for business-to-business (B2B) customer journey management.

Category	How the tools support companies' management actions	Number of AI tools/ total tools in category	AI functions, utilized data and machine learning method	Activity types to which the AI functions contribute to			
				Analyze	Design	Engage	Guide
1. Prospecting and mapping	Enables companies to find potential customers and gather their contact details.	5 /14	1. Gathers relevant data about leads and predicts their potential, finds prospects interested in a company's offerings 2. News, public statistics, lead's activities, social media data 3. Natural language processing (NLP), image recognition 4. Vainu, Qualifier.ai, SocialMiningAi				X
2. Interactive content	Enables companies to interact with and gather information from web page visitors or potential customers.	2/8	1. Chatbots, contextual content (personalized web content to customer's needs), predicts customer's willingness to buy 2. Existing user data, traffic sources, customer behavior 3. NLP 4. Giosg, Rightmessage			X	X
3. Contacting and mass marketing	Enables companies to contact customers and do mass marketing.	7/25	1. Personalized content creation, next contact step and timing suggestions, subject line writing helper (helps write, e.g., enticing subjects for emails) 2. Existing user and customer data 3. Not identified 4. Creamailer, Mailchimp			X	X
4. Making appointments	Enables companies to schedule meetings.	1/3	1. Automatic meeting scheduling between participants 2. For example, emails, which inform recipients about the need for a meeting. 3. NLP 4. x.ai				X
5. Social media management	Enables companies to facilitate usage of and advertising on social media.	6/16	1. Automatic posts, analyzes best timing for posts, personalized ads 2. Data from existing users and their behaviors 3. NLP 4. Facebook ads, MeetEdgar			X	
6. CRM/Marketing automation	Comprehensive tools that enable companies to automate marketing and manage the customer relationship.	11/18	1. Automatic transcriptions of business calls, enricher of customer data, automatic report generation, automatic creation of new contacts, next-step suggestions on sales (e.g., how to proceed with a customer), personalized experiences for the customer (e.g., ads, campaigns), sales forecasting, predict when a customer is likely to cancel 2. For example, available data from customer (and CRM user) behaviors and actions (e.g., engagement, click-through rates, search patterns, purchase history, past queries, or help tickets), multiple data sources 3. NLP 4. Hubspot, Salesforce	X	X	X	X
7. Search engine optimization (SEO) and search engine marketing (SEM)	Improve companies' marketing visibility and advertising in search engines.	5/11	1. Responsive testing of alternative ads, auto-generation of SEO-optimized titles and text 2. Ad conversion data, data from target groups 3. Generative Pre-trained Transformer 3 (GPT-3) method 4. Ahrefs, Google ads, Outranking		X	X	
8. Digital signature tools	Manage companies' contract signing and analysis process.	1/6	1. Automatic extraction of clauses and terms from new contracts, identifying and offering suggestions to replace risky clauses and terms (e.g., that might include a high risk for the company) in contracts, risk analysis of contracts 2. Contract database, specific data from business and industry 3. NLP, machine learning (ML), rules-based logic 4. DocuSign				X
9. Sales analytics	Analytics that help companies measure sales success.	2/11	1. Helps find the right information from analytics data, automatically highlights analytical facts for improvement, monitors competitors and captures their meaningful actions 2. Social data, analytics data, competitor data 3. Not found 4. Google Analytics, Crayon	X	X		X
10. Social media analytics	Enables companies to analyze social media.	4/8	1. Recognizes visual mentions of brands and sentiments on social media texts 2. All kinds of social media data (including posts, images) 3. Image recognition, NLP	X			

(continued on next page)

Table 2 (continued)

Category	How the tools support companies' management actions	Number of AI tools/ total tools in category	AI functions, utilized data and machine learning method 1. AI functions 2. Utilized data 3. Utilized method 4. Examples of tools	Activity types to which the AI functions contribute to			
				Analyze	Design	Engage	Guide
11. Market research	Tools that companies can use for market research.	2/4	4. Facebook Analytics, Talkwalker 1. Based on customer's experience, suggests things that need further development and design, classifies market survey responses by their sentiments and quality 2. Marketing survey data, user behavior and action data 3. NLP	X	X		
12. Content production	Enables companies to create sales and marketing content and presentations.	1/5	4. Google Trends, SurveyMonkey 1. Connects user (provider) with relevant marketing content (e.g., marketing images and templates) 2. User's history data (behaviors, actions) 3. NLP				X
13. Tools for integrating	Helps companies integrate and automate different tools to work together.	0/3	4. Canva Not found				
14. Social media platforms	The most used social media platforms that companies can exploit.	6/6	1. Personalized social media feeds, recognizes prohibited posts, image and face recognition 2. All kinds of data from social media 3. Image recognition, NLP 4. Facebook, Instagram, Twitter				X
15. Web page platforms	Software and tools that help companies create and maintain web pages.	2/4	1. Helps in web page creation, improved search features (e.g., voice search) 2. User's action and behavior data 3. NLP 4. Wix, WordPress		X		X
16. E-commerce	Software and tools that help companies create and maintain online stores.	3/10	1. Image search, monitors competitor's prices and stocks, inventory management and automatic supplement orders 2. Product information, user's behaviors and actions, data from competitors 3. Image recognition, NLP 4. Shopify, WooCommerce				X

visualizations (Excel sheets, conceptual maps, and visualized summaries) supported our analysis and served as boundary objects when researchers compared and integrated findings.

4. Results: management activities and AI-empowered tools supporting them

In this section, we present the results of our two-phase research. We start with the literature findings generated in Phase 1 on B2B journey management activities and then explain our findings on empirical AI-tool analysis for those activities in Phase 2.

4.1. Management activities for the B2B customer journey

Through delineating analysis of the extant, relevant literature, we identified and conceptualized four management activities for B2B customer journeys: *Analyze, Design, Engage, and Guide* (Table 1). The *Analyze* activity comprises actions that address detecting customers' diverse characteristics, generating data and understanding of customers' (realized and expected) behavior, and measuring the realized and anticipated success of sales and marketing processes (e.g., Lee, 2010; Li & Kannan, 2014). From the perspective of *analyze* activity, the customer journey not only represents the continuum of prospect/customer interactions with a brand, but also provides a three-phase (prepurchase, purchase, postpurchase) framework to categorize and understand data (Lemon & Verhoef, 2016; Steward et al., 2019) and thus better identify sales and marketing processes that cause the changes in a given metric.

The *Design* activity refers to actions that aim to plan the customer's journey. In practice, this does not only mean designing the journey elements (e.g., how and when to utilize online/offline channels and what to offer in each channel) but also architecting sales and marketing processes (e.g., content production, lead generation, sales negotiations) in a way that produces seamless experiences for customers. Regarding design activity, the literature identifies pursuable ideals for B2B customer journeys that emphasize temporal continuation and flow of actions and touchpoints from the customer perspective (e.g. Burke, 2002; Edelman & Singer, 2015), but anticipates that right timing and touchpoint choice for information are challenging to design (Grant, Clarke, & Kyriazis, 2013). Long purchase times, fact-based decision characteristics (Bakhtieva, 2016), and the needs of the customers' own customers (Homburg et al., 2014) are identified as crucial B2B characteristics to acknowledge in customer journey design. The literature also proposes a particular process that guides managers to design customer journeys (Moon, Han, Chun, & Hong, 2016). Furthermore, and unsurprisingly the bridge between the *Analyze* and *Design* activities is also acknowledged by identifying data based understanding as key, yet underutilized input for improving customer journey designs and related sales and marketing processes (Järvinen & Karjaluoto, 2015).

The *Engage* activity refers to actions through which a B2B company aims to capture the customer's attention and ensure customer engagement during the journey. The current literature identifies multiple drivers for customer engagement to touchpoints, acknowledging which is crucial for B2B customer journey management (e.g. Hollis, 2005; Liao, Palvia, & Lin, 2010). In B2B, strategically important customers can also be engaged with shared co-creation and co-development practices (Aarikka-Stenroos & Jaakkola, 2012). The literature also emphasizes the importance of channel choices in driving customer engagement. (e.g. Molesworth & Suortti, 2002; Narayanan & Nandagopal, 2016).

The last activity, *Guide*, couples actions aiming to steer the customer through their journey and particularly to find the next step/touchpoint of said journey. The literature identifies ways in which B2B companies can affect the customer's next touchpoint choice and thus lead the customer forward in the journey (e.g. Diba et al., 2019; Jacobs, Holland, & Prinz, 2018). Furthermore, the literature also identifies individual differences among the customers regarding the ways they select the next touchpoints (e.g. Mosquera, Juaneda-Ayensa, Olarte-Pascual, &

Pelegrín-Borondo, 2018).

When reviewing more closely what the literature says about AI in such B2B customer management and the four management activities we identified from the literature, it becomes evident that previous studies have not provided specific, focused views on how AI could contribute to customer journey management. However, the literature has discussed digital technologies' role, which we also explain in Table 1 (see the third column).

4.2. Tools and AI functions in B2B customer journey management

To understand AI-empowered tools used in customer journey management, we began Phase 2 of the study by identifying 16 categories of digital tools that help B2B companies to manage their customer journey. From those tools, we further identified the AI functions and analyzed how such functions can support B2B customer journey management activities. In Table 2, we provide the tool categories with brief explanations, list AI functions (with utilized data and AI method) found in tools within the given category, specify the B2B customer journey management activities the AI functions contribute to, and mention examples of AI-empowered tools in each category.

To build toward a more comprehensive understanding of how AI can, through AI-empowered tools, support B2B sales and marketing professionals in customer journey management, we next examine more closely the support of AI functions for each management activity in each or all of the three phases of the B2B customer journey (prepurchase, purchase, and postpurchase [Lemon & Verhoef, 2016]). The AI functions' support for each B2B customer journey management activity in certain phases or throughout the journey is presented in Table 3. Table 3 also includes specific AI functions constituting the managerial support and categories of digital tools associated with functions.

From the total sample of 152 digital sales and marketing tools, 58 (approximately 38% of the sample) were AI-empowered (i.e., had AI functions). As Table 2 shows, AI enables B2B companies to use data masses (e.g., click-through rates, search patterns, open social media data) that they would otherwise be unable to utilize in customer journey management. AI functions thus increase the efficiency of all management activities throughout the customer journey by fully automating tasks or enabling human-AI collaboration. Automatic documentation enhancing postpurchase analysis or AI chatbots guiding the customer in online channels throughout the journey are examples of automated customer journey management activities. On the other hand, AI proposing sufficient marketing materials or website designs for engaging and guiding a prospect/customer in all phases of the journey are examples of AI collaborating with human professionals. Human-AI collaboration also positively affects the quality aspects of B2B customer journey management, since human professionals can base their actions on vast data; without AI, they could not do so. Furthermore, this highlights the link between analysis and other management activities. *Tools for integrating*, specifically designed to help marketing and sales professionals manage their workflow by making simultaneous use of multiple different tools easier, are not explicitly mentioned in Table 3, since we did not find any AI-related functions in this category. Moreover, the number of integrative tools was surprisingly low relative to the number of the other digital tools.

5. Integrating and discussing the findings

With our study, we build a deeper understanding of how the B2B customer journey is and could be managed using AI. Therefore, we not only capture state of art in current possibilities of AI in B2B customer journey management but also provide a valuable view on digital tool categories that make AI accessible for companies (see Tables 2 and 3). Next, we highlight our key observations based on our findings.

Our key findings include the identified four B2B customer journey management activities and the analysis of how diverse AI-empowered

Table 3

Artificial intelligence (AI) in business-to-business (B2B) customer journey management: AI contributions, functions, and tools in management activities for a full customer journey process.

AI throughout the journey	Customer Journey as a process to be managed and AI contributions and functions via AI-empowered tools		
AI in management	Prepurchase	Purchase	Postpurchase
Analyze	<p>AI contribution: AI provides managers with the general view of the company's possibilities to attract new customers by highlighting meaningful data, analyzing the public image and attractiveness of the company concerning competitors while enabling faster market survey analysis.</p> <p>AI functions:</p> <p>10. Recognizes visual mentions of brands and sentiments in social media texts</p> <p>11. Classifies market survey responses by their sentiments and quality</p> <p>Tool category:</p> <p>10. Social media analytics</p> <p>11. Market research</p>	<p>AI contribution: AI increases documentation efficiency by automatically transcribing calls and highlighting important data.</p> <p>AI functions:</p> <p>6. Automatic transcriptions of business calls</p> <p>Tool category:</p> <p>6. CRM/Marketing automation</p>	<p>AI contribution: AI enhances sales analytics by automatically generating reports and highlighting essential data. Furthermore, the success of the company's products and services can be analyzed based on sentiment analysis of social media content and efficient market research.</p> <p>AI functions:</p> <p>6. Automatic report generator</p> <p>10. Recognizes visual mentions of brands and sentiments in social media texts</p> <p>11. Classifies market survey responses by their sentiments and quality</p> <p>Tool category:</p> <p>6. CRM/Marketing automation</p> <p>10. Social media analytics</p> <p>11. Market research</p>
Design	<p>All customer journey phases</p> <p>AI contribution: AI enables real-time sales forecasts and increases their efficiency and accuracy, enabling predictive planning for sales resources in all phases of the customer journey. AI functions also highlight important datapoints for managers for all journey phases.</p> <p>AI functions:</p> <p>6. Sales forecasting</p> <p>9. Helps find the right information from analytics data</p> <p>Tool category:</p> <p>6. CRM/Marketing automation</p> <p>9. Sales analytics</p>	No AI functions particularly only to the purchase phase	<p>AI contribution: By identifying customers that are likely to end the customer relationships and cancel the service subscription. AI can reveal severe issues in the postpurchase phase.</p> <p>AI functions:</p> <p>6. Predicts when a customer is likely to cancel an order</p> <p>Tool category:</p> <p>6. CRM/Marketing automation</p>
Engage	<p>All customer journey phases</p> <p>AI contribution: AI aids marketing professionals in designing web page structures for all phases of the customer journey and identifying development needs throughout the journey. Furthermore, AI functions that support analysis (e.g., data highlighting functions) are also relevant to design activities, as they can indicate journey elements that need rearchitecting.</p> <p>AI functions:</p> <p>9. Automatically raises analytical facts for improvement</p> <p>11. Based on customer's experience, suggests things that need further development and design</p> <p>15. Helps in web page layout creation</p> <p>Tool category:</p> <p>9. Sales analytics</p> <p>11. Market research</p> <p>15. Web page platforms</p>	No AI functions particularly only to the purchase phase	<p>AI contribution: Like the prepurchase phase, AI-enhanced content production also serves postpurchase engagement for existing customers.</p> <p>AI functions:</p> <p>5. Automatic social media posts and the best timing for them and personalized ads</p> <p>6. Personalized experiences for the customer (e.g., ads, campaigns)</p> <p>7. Responsive testing of alternative ads</p> <p>14. Personalized social media feeds, recognizes prohibited posts on social media</p> <p>Tool category:</p>

(continued on next page)

Table 3 (continued)

AI throughout the journey	Customer Journey as a process to be managed and AI contributions and functions via AI-empowered tools		
AI in management	Prepurchase	Purchase	Postpurchase
	<p>social media</p> <p>Tool category:</p> <p>5. Social media management</p> <p>6. CRM/Marketing automation</p> <p>7. SEO & SEM</p> <p>14. Social media platforms</p> <p>All customer journey phases</p> <p>AI contribution: AI helps sales and marketing professionals to produce engaging content by aiding in writing engaging text, enabling content personalization based on prospects'/customers' actions and stage in the decision process, automating social media posts, optimizing timing for contacting, and proposing relevant marketing content for publishing.</p> <p>AI functions:</p> <p>2. Contextual content (personalized web content to user's needs)</p> <p>3. Next contact step and timing suggestions, personalized content creation, and subject line writing helper (helps write, e.g., enticing subjects for e-mails)</p> <p>12. Connects user (B2B company) with relevant marketing content (e.g., images and templates)</p> <p>Tool category:</p> <p>2. Interactive content</p> <p>3. Contacting and mass marketing</p> <p>12. Content production</p>		<p>5. Social media management</p> <p>6. CRM/Marketing automation</p> <p>7. SEO & SEM</p> <p>14. Social media platforms</p>
Guide	<p>AI contribution:</p> <p>AI supports customer journey management by helping to allocate sales professionals time for most potential leads and providing the necessary information on the lead (e.g., company size, company-related news, and the contact information of key decision-makers).</p> <p>AI functions:</p> <p>1. Finds prospects interested in the company's offerings and predicts their potential, and gathers relevant data about leads</p> <p>6. Enricher of customer data, next-step suggestion on sales (e.g., how to proceed with the customer), and automatic creation of new contacts</p> <p>Tool category:</p> <p>1. Prospecting and mapping</p> <p>6. CRM/Marketing automation</p>	<p>AI contribution:</p> <p>AI supports sales and marketing professionals in contract formulation by aiding sales and marketing professionals to avoid unfavorable clauses. Furthermore, predictive inventory management and automatic competitor analysis help negotiate realistic and competitive terms for the customers.</p> <p>AI functions:</p> <p>8. Automatic extraction of clauses and terms from new contracts, identifies and suggests replacing risky clauses and terms (e.g., that might include a high risk for the company) in contracts, and risk analysis of contracts</p> <p>9. monitors competitors and captures their meaningful actions</p> <p>16. Competitor's price and stock monitoring, inventory management, and automatic supplement orders</p> <p>Tool category:</p> <p>8. Digital signature tools</p> <p>9. Sales analytics</p> <p>16. E-commerce</p>	<p>AI contribution:</p> <p>In the postpurchase stage, AI can help to allocate sales resources to critical customers who are most likely to cancel their order and end the customer relationship</p> <p>AI functions:</p> <p>6. Predict when a customer is likely to cancel an order</p> <p>Tool category:</p> <p>6. CRM/Marketing automation</p>
	<p>All customer journey phases</p> <p>AI contribution: Throughout the whole customer journey, AI chatbot interfaces and AI-enhanced search functions guide the prospect/customer to find relevant information on online channels. Furthermore, AI supports sales professionals by automatically recommending how to proceed with each customer in each phase of the journey (e.g. when and how to contact) and automatically schedules meetings.</p> <p>AI functions:</p> <p>2. Chatbots</p> <p>3. Next contact step and timing suggestions</p> <p>4. Automatic meeting scheduling between participants</p> <p>6. Next-step suggestion on sales (e.g., how to proceed with customers)</p> <p>15. Voice search on web pages</p> <p>16. Image search</p> <p>Tool category:</p> <p>2. Interactive content</p> <p>3. Contacting and mass marketing</p> <p>4. Making appointments</p> <p>6. CRM/Marketing automation</p> <p>15. Web page platforms</p> <p>16. E-commerce</p>		

tools can support such management throughout the customer journey (Fig. 3). The management activity types that we propose conceptualize the necessary company actions in managing complex B2B customer journeys in offline and online environments. In Fig. 3, we explain and visualize how diverse AI-empowered tools can – in each activity type, and throughout the whole journey – support B2B companies in customer journey management.

As illustrated in Fig. 3, *analysis* is supported by AI functions in a total of four different tool categories: CRM/Marketing automation AI functions enable accurate sales forecasts that provide information throughout the journey and automatic report generation in the post-purchase phase. Social media analytics AI functions enable companies to analyze the general attractiveness of a company in prepurchase and understand the success of the company’s product and services in post-purchase. Sales analytics AI functions can highlight important data for managers for all journey phases. Finally, AI functions in market research tools enable more efficient survey analysis for company attractiveness in

the prepurchase phase and customer satisfaction in postpurchase phase.

AI functions support *design* activity in five-tool categories. Sales analytics AI functions can highlight useful data that can benefit the designing of all journey phases. Based on customer feedback, AI functions of market research tools can provide suggestions for improvement for all journey phases. AI functions of web page platforms can propose designs and page structures that provide an optimized browsing experience for the customer in all phases of the journey. AI functions in SEO and SEM especially support the prepurchase phase by generating SEO optimized texts, and CRM/Marketing automation-related AI functions support postpurchase phase design by predicting whether the customer is likely to end the customer relationship and help identify critical issues in the postpurchase phase.

AI functions in a total of seven tool categories support *engage* activity. AI functions in interactive content, contacting, and mass marketing tools help sales and marketing professionals in content production, personalization, and publishing in all phases of the customer journey. AI

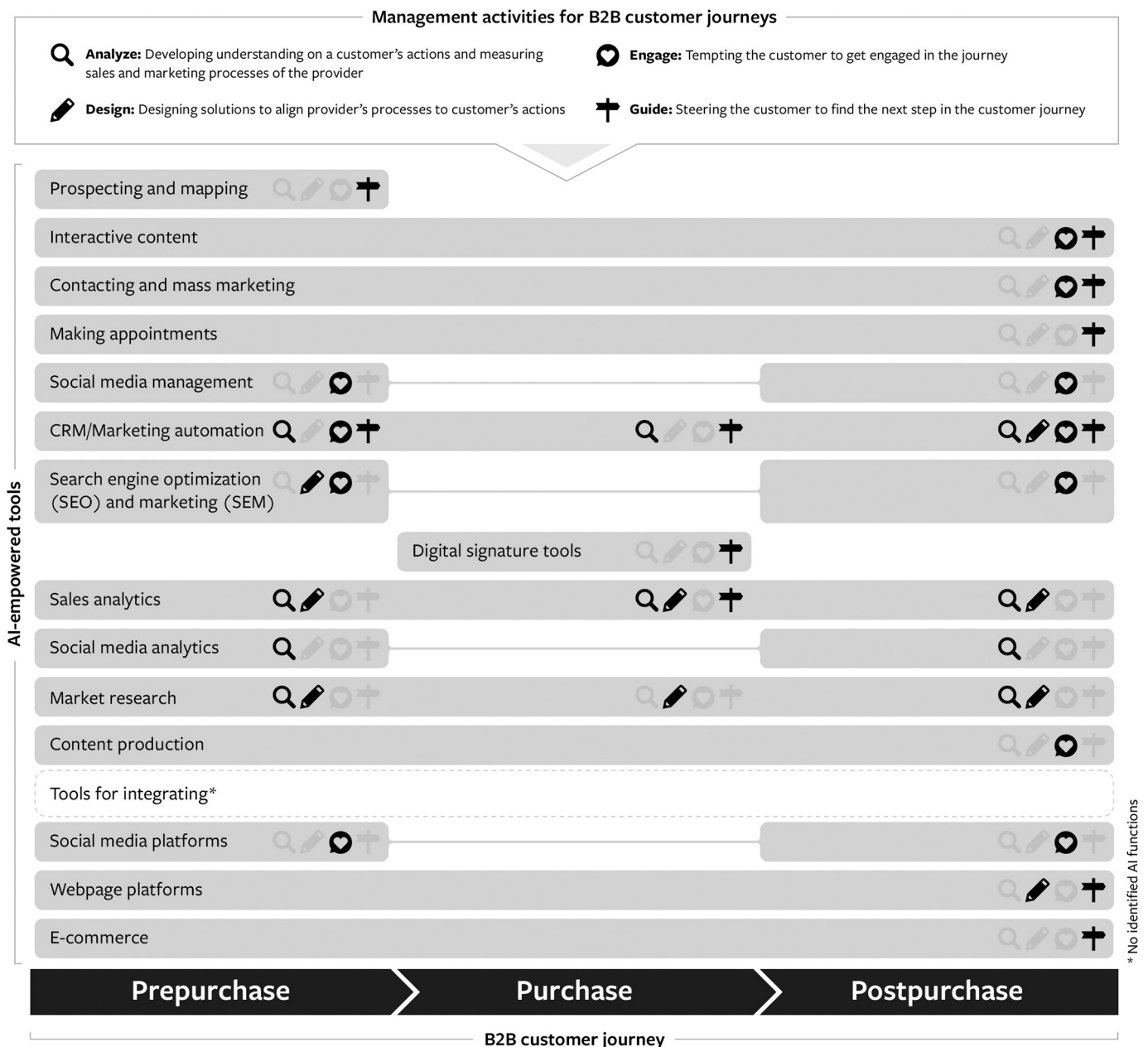


Fig. 3. Managing business-to-business (B2B) customer journey with AI-empowered tools.

functions in social media management, CRM/Marketing automation, SEO and SEM tools, and social media platforms support journey management, especially in prepurchase and postpurchase phases, by increasing the targeting efficiency of content to both prospects and current customers.

AI functions in nine tool categories support *guide* activity: AI functions in interactive content, contacting and mass marketing, appointment making CRM/marketing automation, web page platforms, and e-commerce guide the customer in all phases of the journey (e.g., chatbots and advanced search functions). CRM/marketing automation and contacting and mass marketing tools also include AI functions that provide sales and marketing professionals suggestions on how and what time certain prospects/customers are best to be contacted. In the prepurchase phase, prospecting and mapping AI functions help sales professionals allocate resources to the most promising prospects, and CRM/Marketing automation AI functions can enrich customer-related data. In the postpurchase phase, CRM/Marketing automation-related AI functions help identify customers that are likely to cancel their subscription and help to allocate sales resources to the most critical cases.

Our analysis also reveals that many of the studied tools use AI functions in highly focused actions, such as transcribing calls or generating titles and text for SEO. We consider two possible explanations. First, the scope of an AI function is naturally limited by its engine (i.e., the utilized ML method). ML-based pattern recognition serves a purpose only if the resulting recognized patterns serve a purpose in a given meaning, in the case of this study, in customer journey management activities. As the ML method, utilized data, and recognized patterns are interdependent (Murphy, 2012), the possibilities for different applications are also naturally limited (e.g., NLP-based chatbots cannot conduct click stream-based lead qualification). Although broad AI solutions and artificial general intelligence have been discussed (see, e.g., Goertzel & Pennachin, 2007), it is debatable whether they can be achieved with the current-generation AI engines (Müller & Bostrom, 2016). Second, by including limited AI capabilities, tool providers may act on their tendency to window-dress their products. By communicating to prospective/current customers that their products use AI, even in a limited way, they give their products an image of being at the forefront of technology development.

In practice, narrowly focused AI functions mean that comprehensive customer journey management still requires the combination of multiple tools and systems (see Table 3). The role of AI in given tools for customer journey management reflects the automation–augmentation dichotomy present in the current managerial AI discussion. Recent literature has argued for the benefit of deploying AI augmentatively (i.e., AI collaborating with a human professional) rather than automating (AI replacing human professional) way (see e.g., Brynjolfsson & McAfee, 2014; Daugherty & Wilson, 2018; Davenport et al., 2020). While both automation and augmentation are present in our findings, we emphasize that our results do not provide any particular reason to argue that AI functions automating sales and marketing tasks (e.g., chatbots or automated report generation) would be less significant than augmentative AI functions (e.g., providing content suggestions for sales/marketing professionals). We consider this observation, or rather lack of it, to support Raisch & Krakowski (2021) critique for approaching AI-based automation and augmentation as an either-or-dilemma and encourage further studies to approach both aspects open-mindedly.

In this study, our particular focus to digital tools and AI functions highlighted technological aspects of B2B customer journey management. However, we do not want this to deceptively over-emphasize the role of technology in customer journey management. Tools are used by sales and marketing professionals of the companies. Thus, successful implementation of tools depends not only on the properties of tools themselves but also on the organizational element guiding the use. For example, advanced analytics provide little benefit without a systematic way of interpreting the information provided by tools and understanding how it can be implemented in customer journey design and everyday

operations. Especially relevant this is in customer journey management, as it crosses multiple sales and marketing operations and, thus, challenges traditional marketing processes operating in particular departments.

As customer journey management crosscuts multiple sales and marketing operations, it touches multiple established B2B topics, such as advertising (Swani, Brown, & Mudambi, 2020), content marketing (Järvinen & Taiminen, 2016), relationship management (Viio & Grönroos, 2014), key account management (Guesalaga, Gabrielsson, Rogers, Ryals, & Marcos Cuevas, 2018; Peters et al., 2020), buying (Diba et al., 2019), and selling processes (Mahlamäki et al., 2020; Moncrief, 2017). Hence, the customer journey approach calls for finding interlinkages between these separate research streams in academia and improving collaboration among company departments, in practice, to enable more comprehensive analyses that will capture and allow management of entire customer journeys.

5.1. Theoretical contributions and directions for future research

Our study on AI-empowered tools in B2B customer journey management develops two primary contributions to the B2B marketing and customer journey literature. First, we conceptualized four B2B customer journey management activities that conceptualize companies' core management activities: analyze, design, engage, and guide. These activities then allowed us to detail how AI-empowered tools and AI functions support B2B customer journey management. These findings extend the current understanding of how interactions with B2B customers, often assisted with digital means (Steward et al., 2019) and touching several practices from content creation (Järvinen & Taiminen, 2016) to sales (Moncrief & Marshall, 2005), CRM, and account management (Guesalaga et al., 2018; Peters et al., 2020), should be managed. Previous literature on (B2B) customer journeys focused on conceptualizing the “building blocks” of the customer journey (e.g., touchpoints [Lemon & Verhoef, 2016; Steward et al., 2019]; phases, i.e., prepurchase, purchase, and postpurchase [Frambach et al., 2007; Lemon & Verhoef, 2016], and offline and online channels [Edelman & Singer, 2015; Frambach et al., 2007; Wolny & Charoensuksai, 2014]), leaving the realm of company activities and the role of digital technologies in them unconceptualized. This study particularly develops an understanding of how B2B customer journeys requiring the activities cross-setting the traditional sales-marketing divide should be managed.

Second, our study created a new understanding of how AI contributes to B2B management. By identifying 15 categories of AI-empowered tools, we tracked how AI-empowered tools support managers to analyze and design interactions with B2B customers and engage and guide the customer throughout the B2B experience. These results uncover the role and potential of AI in B2B management and particularly the management of interactions with customers. This contribution adds to the discussion on AI possibilities in the contexts of management (Brynjolfsson & McAfee, 2014; Daugherty & Wilson, 2018; Raisch & Krakowski, 2021) and marketing (Davenport et al., 2020). B2B marketing research has by far focused on individual digital tools and means, such as social media marketing (Iankova, Davies, Archer-Brown, Marder, & Yau, 2019), big data analytics (Hallikainen et al., 2020) or AI in sales (Syam & Sharma, 2018), and B2B market knowledge (Paschen et al., 2019). Decision support system literature has also focused on more narrowly studies on AI methods in demand forecasting (O'Neil et al., 2016; Yuan et al., 2014), lead generation and qualification (D'Haen & Van Den Poel, 2013), and pricing (Ferreira et al., 2016). While current literature has generated an understanding of AI implementations in specific tasks, it has not clarified how AI can help B2B sales and marketing managers link these individual tasks constituting a seamless experience for customers.

Furthermore, several future research avenues stem from our results and observations. The literature review revealed the dire need for purely B2B-centric customer journey literature. Although the management activity types conceptualized in this study can assumingly be

generalized to both B2B and business-to-consumer (B2C) settings, no particular study before our study has addressed the particular issues of B2B customer journeys, such as multi-actor decision making, organizational structures (Hartmann et al., 2018), and conflicting roles and preferences among multiple decision-makers (Chandler & Johnston, 2012). This calls for both conceptual and empirical efforts to contrast customer journey and AI concerning more established topics in the field of B2B (including relationship management [Viio & Grönroos, 2014], key account management [Guesalaga et al., 2018; Peters et al., 2020], buying [Diba et al., 2019], and selling processes [Moncrief, 2017]). Furthermore, while not the focus of this study, we want to emphasize the importance of the emerging field of AI ethics and data privacy. AI ethical guidelines for transparency, justice and fairness, non-maleficence, responsibility, and privacy (Jobin et al., 2019) are also relevant in the managerial context of the customer journey and B2B management. We also highlight the need for critical engagement with AI in marketing management and managerial discussion in general. Recent literature has raised not only benefits of AI but also issues, such as the customer dissatisfaction caused by AI failure (Castillo et al., 2021) or AI's disrupting effects to human work (Ozkazanc-Pan, 2019), and it has also emphasized the need for conceptual development and clarity on AI concept (Raisch & Krakowski, 2021). We consider customer journey management to be an important domain for critically oriented AI research—both empirically and conceptually. Future research directions stemming from our work include:

- Elaboration on company activities and B2B characteristics. How do B2B characteristics manifest in the companies' customer journey activities?
- The relative importance of activity types in different phases of the customer journey. Which are the most critical activities in each phase of the customer journey?
- Contribution of company's cross-departmental practices to customer journey management activities. Which company departments need to collaborate for comprehensive customer journey management? How should that collaboration be facilitated?
- Customer journey activities of B2B buyer. What are the activities of B2B customer, and how does AI affect those activities?
- Intertwined B2B customer and B2B provider activities. How are the activities of buyers and providers intertwined during the customer journey? What are the key activities, and how does technology affect intertwining?
- Ethical dimensions of AI-empowered tools in B2B. How should company (both the customer and provider) and individual worker data creation, integration, and analysis be addressed in the development of AI marketing tools?
- Critical engagement and conceptual development of AI concept. What kind of negative outcomes might potentially be caused by implementing AI in customer journey management? How should AI be conceptually approached in marketing management?

5.2. Limitations of the study

In this study, we focused on AI-empowered tools in B2B customer journey management. The tool categorization and AI functionalities are mainly based on the information provided by the tool manufacturers. As AI is often related to a technologically advanced image, this includes the risk of companies over-emphasizing the role of AI in the functioning of the tool. We have aimed at minimizing this risk by including only the tools where we have been able to identify the data and the ML method utilized by the tools. Furthermore, we focused on the AI applications currently available for B2B companies through the market. However, this approach does not provide access to the specific tools that B2B companies are internally developing for their identified challenges. We consider that the literature on decision support systems, ML, and statistics covers these issues better by more thoroughly considering the

alignment of problem characteristics, available data, and specific ML methods. However, we considered the integration and intertwining of specific, company-developed AI functionalities and third-party marketing and sales solutions an interesting research topic from both technical and managerial perspectives.

5.3. Managerial implications

The results presented in this study mainly benefit the B2B marketing and sales professionals responsible for the customer experience, sales, or marketing activities and processes (e.g., content creation or lead qualification). We considered two important implications. First, we hope that the activity types proposed in this study provide B2B marketing and sales professionals with a framework for planning management practices for B2B customer journeys and the use of AI-empowered tools in such practices.

Second, we hope that Table 3 provides marketing and C-level managers with a baseline for evaluating the level of AI utilization in their companies' marketing and sales processes. We also hope that the table reveals areas for development and ideas for guiding the development endeavors by revealing the possibilities for AI in the customer journey management context.

Adding to these two key implications, our study provides AI tool developers with a general view of AI utilization in customer journey-related management. While our observations do not focus on technology development-related insight, they explain how AI manifests in relation to customer journey management activities and other tools available to the customers of tool developers. This overall view provides tool developers with a broad understanding of the possibilities currently available to their customers.

6. Conclusion

In this study, we have examined how digital tools, particularly AI-empowered functions, can support B2B companies in their customer journey management. Based on integrative literature review, we synthesized scattered understanding of B2B customer journeys and their management. We proposed four customer journey management activities: *analyze*, *design*, *engage*, and *guide* that conceptualize the necessary company actions in managing B2B customer journeys. These activities develop a managerial understanding of how B2B customer journeys, requiring the activities cross-setting the traditional sales–marketing divide, should be managed. These activities were then complemented with the analysis of digital, AI-empowered tools. The study found 16 categories of digital tools that help B2B companies in customer journey management (Table 2). Furthermore, this study created understanding on the effects of AI in B2B customer journey management by identifying AI functions within the tools and analyzing their benefit for each customer journey management activity in certain phases or throughout the journey (Table 3 and Fig. 3). In addition to contributing in B2B customer journey and marketing management discussions, the findings of the study provide marketing and sales managers a comprehensive view on the possibilities of AI in managing customer journeys.

Acknowledgements

The data generation and writing of this paper have been supported by ROBINS research project funded by Business Finland 2019–2022 (document numbers 7885/31/2018 and 7802/31/2018), the Strategic Research Council, Academy of Finland, through the research project “Sustainable Industry Ecosystem” (SIE) (grant ID 337722), and European Union's Horizon 2020 research and innovation program through the research project “AI-REGIO” (grant agreement no. 952003). Special thanks to research assistant Roosa Lahtinen for her efforts in participating in the process of identifying relevant literature for this study.

Appendix A. The example list of webpages of reviewed tools and their background

<https://blog.hubspot.com/marketing/digital-marketing-tools>
<https://chiefmartec.com/>
<https://en.rockcontent.com/blog/digital-marketing-tools/>
<https://mailchimp.com/>
<https://neilpatel.com/blog/10-online-marketing-tools-you-need-when-starting-a-business/>
<https://sproutsocial.com/insights/digital-marketing-tools/>
<https://technologyadvice.com/crm/>
<https://www.bluefountainmedia.com/blog/the-10-best-digital-marketing-blogs-you-should-be-reading>
<https://www.capterra.com>
<https://www.g2.com/>
<https://www.hubspot.com/>
<https://www.itewiki.fi/>
<https://www.leadfeeder.com/>
<https://www.salesforce.com/fin/?ir=1>
<https://www.singlegrain.com/digital-marketing/digital-marketing-trends-2020/>
<https://www.trustradius.com/>

References

- Aarikka-Stenroos, L., & Jaakkola, E. (2012). Value co-creation in knowledge intensive business services: A dyadic perspective on the joint problem solving process. *Industrial Marketing Management*, 41(1), 15–26. <https://doi.org/10.1016/j.indmarman.2011.11.008>
- Andersson, T., Boedeker, M., & Vuori, V. (2017). Emotion-gauge: Analyzing affective experiences in B2B customer journeys. In *Strategic innovative marketing* (pp. 31–36). Cham: Springer.
- Appio, F. P., & Lacoste, S. (2019). B2B relationship management in complex product systems (CoPS). *Industrial Marketing Management*, 79, 53–57.
- Asare-Frempong, J., & Jayabalan, M. (2017). Predicting customer response to bank direct telemarketing campaign. In *2017 international conference on engineering technology and entrepreneurship, ICE2T* (pp. 1–4). IEEE. <https://doi.org/10.1109/ICE2T.2017.8215961>
- Aunhofer, R. (2018). Connecting the world and reinventing customer centrality. *GfK Marketing Intelligence Review*, 10(2), 54–59. <https://doi.org/10.2478/gfkmir-2018-0019>
- Baack, D. W., Wilson, R. T., van Dessel, M. M., & Patti, C. H. (2016). Advertising to businesses: Does creativity matter? *Industrial Marketing Management*, 55, 169–177. <https://doi.org/10.1016/j.indmarman.2015.10.001>
- Bakhtieva, E. (2016). The role of customer journey in B2B content marketing. In *Conference proceedings DOKBAT e* (pp. 31–42). <https://doi.org/10.7441/dokbat.2016.04>
- Barley, N. (2016). Google me senseless: Skills and expertise that B2B firms are looking for in graduates today. *Journal of Consumer Behaviour*, 15(1), 15–30.
- Baxendale, S., Macdonald, E. K., & Wilson, H. N. (2015). The impact of different touchpoints on brand consideration. *Journal of Retailing*, 91(2), 235–253. <https://doi.org/10.1016/j.jretai.2014.12.008>
- Bitner, M. J. (1990). Evaluating service encounters: The effects of physical surroundings and employee responses. *Journal of Marketing*, 54(2), 69–82. <https://doi.org/10.2307/1251871>
- Blackie, R. (2015). Do you know what you're doing in social. *Journal of Direct, Data and Digital Marketing Practice*, 16(4), 282–284. <https://doi.org/10.1057/dddmp.2015.24>
- Boyd, D. E., & Koles, B. (2019). Virtual reality and its impact on B2B marketing: A value-in-use perspective. *Journal of Business Research*, 100, 590–598. <https://doi.org/10.1016/j.jbusres.2018.06.007>
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. New York: W.W. Norton.
- Burke, R. R. (2002, September). Technology and the customer interface: What consumers want in the physical and virtual store. *Journal of the Academy of Marketing Science*, 30, 411–432. <https://doi.org/10.1177/009207002236914>
- Cao, P., Meister, S., & Klante, O. (2014). How social media influence apparel purchasing behavior. *Marketing Review St. Gallen*, 31(6), 77–86. <https://doi.org/10.1365/s11621-014-0427-y>
- Carter, S., & Yeo, A. C. M. (2018). Internet-enabled collective intelligence as a precursor and predictor of consumer behaviour. *Economics, Management, and Financial Markets*, 13(4), 11–38. <https://doi.org/10.22381/EMFM13420181>
- Castillo, D., Canhoto, A. I., & Said, E. (2021). The dark side of AI-powered service interactions: Exploring the process of co-destruction from the customer perspective. *Service Industries Journal*, 41(13–14), 900–925. <https://doi.org/10.1080/02642069.2020.1787993>
- Chandler, J. D., & Johnston, W. (2012). The organizational buying center as a framework for emergent topics in business-to-business marketing. *Advances in Business Marketing and Purchasing*, 18, 41–87. [https://doi.org/10.1108/S1069-0964\(2012\)0000018008](https://doi.org/10.1108/S1069-0964(2012)0000018008)
- Chatterjee, S., Ghosh, S. K., Chaudhuri, R., & Nguyen, B. (2019). Are CRM systems ready for AI integration? *The Bottom Line*, 32(2), 144–157. <https://doi.org/10.1108/BL-02-2019-0069>
- Dasser, M. (2019). Marketing, the change catalyst for digital business transformation: Lessons learned from the modernisation of a B2B marketing organisation. *Journal of Brand Strategy*, 8(1), 20–41.
- Daugherty, P., & Wilson, H. J. (2018). *Human + machine: Reimagining work in the age of AI*. Boston, MA: Harvard Business Review Press.
- Davenport, T., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, 48(1), 24–42. <https://doi.org/10.1007/s11747-019-00696-0>
- D'Haen, J., & Van Den Poel, D. (2013). Model-supported business-to-business prospect prediction based on an iterative customer acquisition framework. *Industrial Marketing Management*, 42(4), 544–551. <https://doi.org/10.1016/j.indmarman.2013.03.006>
- Diba, H., Vella, J. M., & Abratt, R. (2019). Social media influence on the B2B buying process. *The Journal of Business and Industrial Marketing*, 34(7), 1482–1496. <https://doi.org/10.1108/JBIM-12-2018-0403>
- Dubinsky, A. J. (1981). A factor analytic study of the personal selling process. *Journal of Personal Selling and Sales Management*, 1(1), 26–33. <https://doi.org/10.1080/08853134.1981.10754192>
- Edelman, D., & Singer, M. (2015). Competing on customer journeys. *Harvard Business Review*, 1, 2001–2002. Retrieved from <https://hbr.org/2015/11/competing-on-customer-journeys>.
- Edelman, D. C. (2010). Branding in the digital age: You're spending your money in all the wrong places. *Harvard Business Review*, 88(12). Retrieved from <https://hbr.org/2010/12/branding-in-the-digital-age-youre-spending-your-money-in-all-the-wrong-places>.
- Fedorok, R., Bačík, R., Kot, S., & Kakalejčík, L. (2015). The analysis of blog use as a marketing communication tool by the selected target group in the conditions of the Slovak market. *Journal of Advanced Research in Law and Economics*, 6(1), 66–72. [https://doi.org/10.14505/jarle.v6.1\(1\).07](https://doi.org/10.14505/jarle.v6.1(1).07)
- Ferreira, K. J., Lee, B. H. A., & Simchi-Levi, D. (2016). Analytics for an online retailer: Demand forecasting and price optimization. *Manufacturing & Service Operations Management*, 18(1), 69–88. <https://doi.org/10.1134/s1062360408050056>
- Feste, J., Ivens, B. S., & Pardo, C. (2020). Key account selection as a political process: Conceptual foundation and exploratory investigation. *Industrial Marketing Management*, 90, 417–434. <https://doi.org/10.1016/j.indmarman.2020.07.024>
- Fiig, T., Le Guen, R., & Gauchet, M. (2018). Dynamic pricing of airline offers. *Journal of Revenue and Pricing Management*, 17(6), 381–393. <https://doi.org/10.1057/s41272-018-0147-z>
- Flavián, C., Gurrea, R., & Orús, C. (2016). Choice confidence in the webrooming purchase process: The impact of online positive reviews and the motivation to touch. *Journal of Consumer Behaviour*, 15(5), 459–476. <https://doi.org/10.1002/cb.1585>
- Flavián, C., Gurrea, R., & Orús, C. (2017). The influence of online product presentation videos on persuasion and purchase channel preference: The role of imagery fluency and need for touch. *Telematics and Informatics*, 34(8), 1544–1556. <https://doi.org/10.1016/j.tele.2017.07.002>
- Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2019). The impact of virtual, augmented and mixed reality technologies on the customer experience. *Journal of Business Research*, 100, 547–560. <https://doi.org/10.1016/j.jbusres.2018.10.050>
- Flick, U. (2004). Triangulation in qualitative research. In , vol. 3. *A companion to qualitative research* (pp. 178–183).
- Følstad, A., & Kvale, K. (2018). Customer journeys: A systematic literature review. *Journal of Service Theory and Practice*, 28, 196–227. <https://doi.org/10.1108/JSTP-11-2014-0261>
- Fraccastoro, S., Gabriellson, M., & Pullins, E. B. (2021). The integrated use of social media, digital, and traditional communication tools in the B2B sales process of international SMEs. *International Business Review*, 30(4), Article 101776. <https://doi.org/10.1016/j.ibusrev.2020.101776>
- Frambach, R. T., Roest, H. C. A., & Krishnan, T. V. (2007). The impact of consumer internet experience on channel preference and usage intentions across the different stages of the buying process. *Journal of Interactive Marketing*, 21(2), 26–41. <https://doi.org/10.1002/dir.20079>
- George, M., & Wakefield, K. L. (2018). Modeling the consumer journey for membership services. *Journal of Services Marketing*, 32(2), 113–125. <https://doi.org/10.1108/JSM-03-2017-0071>
- Goertzel, B., & Pennachin, C. (2007). In C. Pennachin (Ed.), *Artificial general intelligence*. New York: Springer. https://doi.org/10.1007/1-4020-4107-1_14
- Grant, R., Clarke, R. J., & Kyriazis, E. (2013). Modelling real-time online information needs: A new research approach for complex consumer behaviour. *Journal of Marketing Management*, 29(7–8), 950–972. <https://doi.org/10.1080/0267257X.2011.621440>
- Guesalaga, R., Gabriellson, M., Rogers, B., Ryals, L., & Marcos Cuevas, J. (2018). Which resources and capabilities underpin strategic key account management? *Industrial Marketing Management*, 75, 160–172. <https://doi.org/10.1016/j.indmarman.2018.05.006>
- Gustafson, B. M., Pomirleanu, N., John Mariados, B., & Johnson, J. L. (2019). The social buyer: A framework for the dynamic role of social media in organizational buying. *Journal of Business Research*, 125, 806–814. <https://doi.org/10.1016/j.jbusres.2019.05.004>
- Hallikainen, H., Savimäki, E., & Laukkanen, T. (2020). Fostering B2B sales with customer big data analytics. *Industrial Marketing Management*, 86, 90–98. <https://doi.org/10.1016/j.indmarman.2019.12.005>

- Hartmann, N. N., Wieland, H., & Vargo, S. L. (2018). Converging on a new theoretical foundation for selling. *Journal of Marketing*, 82(2), 1–18. <https://doi.org/10.1509/jm.16.0268>
- He, K., Zhang, X., Ren, S., & Sun, J. (2016). Deep residual learning for image recognition. In *Proceedings of the IEEE computer society conference on computer vision and pattern recognition, 2016-Decem* (pp. 770–778). <https://doi.org/10.1109/CVPR.2016.90>
- Herhausen, D., Kleinlercher, K., Verhoef, P. C., Emrich, O., & Rudolph, T. (2019). Loyalty formation for different customer journey segments. *Journal of Retailing*, 95(3), 9–29. <https://doi.org/10.1016/j.jretai.2019.05.001>
- Higgins, L. M., McGarry Wolf, M., & Wolf, M. J. (2014). Technological change in the wine market? The role of QR codes and wine apps in consumer wine purchases. *Wine Economics and Policy*, 3(1), 19–27. <https://doi.org/10.1016/j.wep.2014.01.002>
- Hilken, T., Heller, J., Chylinski, M., Keeling, D. I., Mahr, D., & de Ruyter, K. (2018, October 8). Making omnichannel an augmented reality: The current and future state of the art. *Journal of Research in Interactive Marketing*, 12, 509–523. <https://doi.org/10.1108/JRIM-01-2018-0023>
- Hollis, N. (2005). Ten years of learning on how online advertising builds brands. *Journal of Advertising Research*, 45, 255–268. <https://doi.org/10.1017/S0021849905050270>
- Homburg, C., Wilczek, H., & Hahn, A. (2014). Looking beyond the horizon: How to approach the customers' customers in business-to-business markets. *Journal of Marketing*, 78(5), 58–77. <https://doi.org/10.1509/jm.12.0529>
- Iankova, S., Davies, E., Archer-Brown, C., Marder, B., & Yau, A. (2019). A comparison of social media marketing between B2B, B2C and mixed business models. *Industrial Marketing Management*, 81, 169–179.
- Iansiti, M., & Lakhani, K. R. (2020). Competing in the age of AI. *Harvard Business Review*, 98(1), 60–67. Retrieved from <https://hbr.org/2020/01/competing-in-the-age-of-ai>.
- Jacobs, J., Holland, C., & Prinz, A. (2018). Online consumer search and buying behaviour: Brand analysis in the airline industry. In *International conference on tourism research*. Academic Conferences International Limited.
- Järvinen, J., & Karjaluo, H. (2015). The use of web analytics for digital marketing performance measurement. *Industrial Marketing Management*, 50, 117–127. <https://doi.org/10.1016/j.indmarman.2015.04.009>
- Järvinen, J., & Taiminen, H. (2016). Harnessing marketing automation for B2B content marketing. *Industrial Marketing Management*, 54, 164–175. <https://doi.org/10.1016/j.indmarman.2015.07.002>
- Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence*, 1(9), 389–399. <https://doi.org/10.1038/s42256-019-0088-2>
- Kaczorowska-Spychalska, D. (2017). Consumer perspective of omnichannel commerce. *Management*, 21(2), 95–108. <https://doi.org/10.1515/manment-2017-0007>
- Karimi, S., Papamichail, K. N., & Holland, C. P. (2015). The effect of prior knowledge and decision-making style on the online purchase decision-making process: A typology of consumer shopping behaviour. *Decision Support Systems*, 77, 137–147. <https://doi.org/10.1016/j.dss.2015.06.004>
- Kelley, S. W., & Davis, M. A. (1994). Antecedents to customer expectations for service recovery. *Journal of the Academy of Marketing Science*, 22(1), 52–61. <https://doi.org/10.1177/0092070394221005>
- Kietzmann, J., Paschen, J., & Treen, E. (2018, September 1). Artificial intelligence in advertising: How marketers can leverage artificial intelligence along the consumer journey. *Journal of Advertising Research*, 58, 263–267. <https://doi.org/10.2501/JAR-2018-035>
- Kolbjornsd, V., Amico, R., & Thomas, R. J. (2016). How artificial intelligence will redefine management. *Harvard Business Review*, 2, 1–6.
- Korhonen, T., Selos, E., Laine, T., & Suomala, P. (2021). Exploring the programmability of management accounting work for increasing automation: An interventionist case study. *Auditing & Accountability Journal*, 34(2), 253–280. <https://doi.org/10.1108/AAAJ-12-2016-2809>
- Kotni, V. V. D. P. (2017). Paradigm shift from attracting footfalls for retail store to getting hits for e-stores: An evaluation of decision-making attributes in e-tailing. *Global Business Review*, 18(5), 1215–1237. <https://doi.org/10.1177/0972150917710133>
- Lee, G. (2010). Death of “last click wins”: Media attribution and the expanding use of media data. *Journal of Direct, Data and Digital Marketing Practice*, 12(1), 16–26. <https://doi.org/10.1057/ddmp.2010.14>
- Legg, S., & Hutter, M. (2007). A collection of definitions of intelligence. Advances in artificial general intelligence: Concepts, architectures and algorithms. In *Proceedings of the AGIWorkshop 2006* (pp. 17–24). Retrieved from www.idsia.ch/~shanewww.hutter1.net.
- Legner, C. (2008). The evolution of B2B e-services from first generation e-commerce solutions to multichannel architectures. *Journal of Electronic Commerce in Organizations*, 6(2), 58–77. <https://doi.org/10.4018/jeco.2008040104>
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing*, 80(6), 69–96. <https://doi.org/10.1509/jm.15.0420>
- Li, H., & Kannan, P. K. (2014). Attributing conversions in a multichannel online marketing environment: An empirical model and a field experiment. *Journal of Marketing Research*, 51(1), 40–56. <https://doi.org/10.1509/jmr.13.0050>
- Liao, C., Palvia, P., & Lin, H. N. (2010). Stage antecedents of consumer online buying behavior. *Electronic Markets*, 20(1), 53–65. <https://doi.org/10.1007/s12525-010-0030-2>
- Lindsey-Mullikin, J., & Borin, N. (2017). Why strategy is key for successful social media sales. *Business Horizons*, 60(4), 473–482. <https://doi.org/10.1016/j.bushor.2017.03.005>
- Louridas, P., & Ebert, C. (2016). Machine learning. *IEEE Software*, 33(5), 110–115. <https://doi.org/10.1109/MS.2016.114>
- MacInnis, D. J. (2011). A framework for conceptual contributions in marketing. *Journal of Marketing*, 75, 136–154. <https://doi.org/10.1509/jmkg.75.4.136>
- Mahlamäki, T., Storbacka, K., Pyllkönen, S., & Ojala, M. (2020). Adoption of digital sales force automation tools in supply chain: Customers' acceptance of sales configurators. *Industrial Marketing Management*, 91, 162–173. <https://doi.org/10.1016/j.indmarman.2020.08.024>
- Marcos Cuevas, J. M. (2018). The transformation of professional selling: Implications for leading the modern sales organization. *Industrial Marketing Management*, 69 (December 2017), 198–208. <https://doi.org/10.1016/j.indmarman.2017.12.017>
- Meire, M., Ballings, M., & Van den Poel, D. (2017). The added value of social media data in B2B customer acquisition systems: A real-life experiment. *Decision Support Systems*, 104, 26–37. <https://doi.org/10.1016/j.dss.2017.09.010>
- Molesworth, M., & Suortti, J.-P. (2002). Buying cars online: The adoption of the web for high-involvement, high-cost purchases. *Journal of Consumer Behaviour*, 2(2), 155–168. <https://doi.org/10.1002/cb.97>
- Moncrief, W. C. (2017). Are sales as we know it dying ... or merely transforming? *Journal of Personal Selling and Sales Management*, 37(4), 271–279. <https://doi.org/10.1080/08853134.2017.1386110>
- Moncrief, W. C., & Marshall, G. W. (2005). The evolution of the seven steps of selling. *Industrial Marketing Management*, 34(1), 13–22. <https://doi.org/10.1016/j.indmarman.2004.06.001>
- Moon, H., Han, S. H., Chun, J., & Hong, S. W. (2016). A design process for a customer journey map: A case study on mobile services. *Human Factors and Ergonomics in Manufacturing & Service Industries*, 26(4), 501–514. <https://doi.org/10.1002/hfm.20673>
- Mosquera, A., Juaneda-Ayensa, E., Olarte-Pascual, C., & Pelegrín-Borondo, J. (2018). Key factors for in-store smartphone use in an omnichannel experience: Millennials vs. nonmillennials. *Complexity*. <https://doi.org/10.1155/2018/1057356>
- Müller, V. C., & Boström, N. (2016). Future progress in artificial intelligence: A survey of expert opinion. In *Fundamental issues of artificial intelligence* (pp. 555–572). https://doi.org/10.1007/978-3-319-26485-1_33
- Murphy, K. (2012). Machine learning: A probabilistic perspective. Retrieved from <http://mitpress.mit.edu>.
- Narayanan, S., & Nandagopal, R. (2016). From multi-channel to omni-channel: Determinants of channel choice. *Asian Journal of Research in Social Sciences and Humanities*, 6(9), 1016. <https://doi.org/10.5958/2249-7315.2016.00851.0>
- Nilsson, N. J. (2009). *The quest for artificial intelligence: A history of ideas and achievements*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511819346>
- Nuruzzaman, M., & Hussain, O. K. (2018). A survey on Chatbot implementation in customer service industry through deep neural networks. In *Proceedings—2018 IEEE 15th international conference on e-business engineering, ICEBE 2018* (pp. 54–61). <https://doi.org/10.1109/ICEBE.2018.00019>
- O'Neil, S., Zhao, X., Sun, D., & Wei, J. C. (2016). Newsvendor problems with demand shocks and unknown demand distributions. *Decision Sciences*, 47(1), 125–156. <https://doi.org/10.1111/dec.12187>
- Ozkazanc-Pan, B. (2019). Diversity and future of work: Inequality abound or opportunities for all? *Management Decision*, 59(11), 2645–2659. <https://doi.org/10.1108/MD-02-2019-0244>
- Paschen, J., Kietzmann, J., & Kietzmann, T. C. (2019). Artificial intelligence (AI) and its implications for market knowledge in B2B marketing. *Journal of Business & Industrial Marketing*. <https://doi.org/10.1108/JBIM-10-2018-0295> (June), JBIM-10-2018-0295.
- Peters, L., Ivens, B. S., & Pardo, C. (2020). Identification as a challenge in key account management: Conceptual foundations and a qualitative study. *Industrial Marketing Management*, 90, 300–313. <https://doi.org/10.1016/j.indmarman.2020.07.020>
- Powers, T., Advincula, D., Austin, M. S., Graiko, S., & Snyder, J. (2012). Digital and social media in the purchase-decision process: A special report from the advertising research foundation. *Journal of Advertising Research*, 52(4), 479–489. <https://doi.org/10.2501/JAR-52-4-479-489>
- Prasasti, N., & Ohwada, H. (2014, March). Applicability of machine-learning techniques in predicting customer defection. In *ISTMET 2014—1st international symposium on technology management and emerging technologies proceedings* (pp. 157–162). <https://doi.org/10.1109/ISTMET.2014.6936498>
- Quijano-Sanchez, L., & Liberatore, F. (2017). The BIG CHASE: A decision support system for client acquisition applied to financial networks. *Decision Support Systems*, 98 (April 2017), 49–58. <https://doi.org/10.1016/j.dss.2017.04.007>
- Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation augmentation paradox. *Academy of Management Review*, 46(1), 192–210. <https://doi.org/10.5465/2018.0072>
- Rippé, C. B., Weisfeld-Spöter, S., Yurova, Y., & Sussan, F. (2015). Is there a global multichannel consumer? *International Marketing Review*, 32(3–4), 329–349. <https://doi.org/10.1108/IMR-10-2013-0225>
- Russell, S., & Norvig, P. (2016). *Artificial intelligence: A modern approach* (3rd ed.). Pearson Education Limited.
- Rustholkarhu, S., Hautamaki, P., & Aarikka-Stenroos, L. (2021). Value (co-)creation in B2B sales ecosystems. *The Journal of Business and Industrial Marketing*, 36(4), 590–598. <https://doi.org/10.1108/JBIM-03-2020-0130>
- Sands, S., Ferraro, C., Campbell, C., & Pallant, J. (2016). Segmenting multichannel consumers across search, purchase and after-sales. *Journal of Retailing and Consumer Services*, 33, 62–71. <https://doi.org/10.1016/j.jretconser.2016.08.001>
- Savin-Baden, M., & Howell, C. (2013). *Qualitative research the essential guide to theory and practice*. Routledge.
- Schoenherr, T., & Mabert, V. A. (2011). A comparison of online and offline procurement in B2B markets: Results from a large-scale survey. *International Journal of Production Research*, 49(3), 827–846. <https://doi.org/10.1080/00207540903473359>
- Schröder, H., & Zaharia, S. (2008). Linking multi-channel customer behavior with shopping motives: An empirical investigation of a German retailer. *Journal of*

- Retailing and Consumer Services, 15(6), 452–468. <https://doi.org/10.1016/j.jretconser.2008.01.001>
- Shankar, V. (2018). How artificial intelligence (AI) is reshaping retailing. *Journal of Retailing*, 94(4), vi–xi. [https://doi.org/10.1016/s0022-4359\(18\)30076-9](https://doi.org/10.1016/s0022-4359(18)30076-9)
- Sheth, J. N. (1973). A model of industrial buyer behavior. *Journal of Marketing*, 37(4), 50. <https://doi.org/10.2307/1250358>
- Shimomura, Y., Nemoto, Y., Ishii, T., & Nakamura, T. (2018). A method for identifying customer orientations and requirements for product–service systems design. *International Journal of Production Research*, 56(7), 2585–2595. <https://doi.org/10.1080/00207543.2017.1384581>
- Steward, M. D., Narus, J. A., Roehm, M. L., & Ritz, W. (2019). From transactions to journeys and beyond: The evolution of B2B buying process modeling. *Industrial Marketing Management*, 83, 288–300. <https://doi.org/10.1016/j.indmarman.2019.05.002>
- Su, B. C. (2008). Characteristics of consumer search on-line: How much do we search? *International Journal of Electronic Commerce*, 13(1), 109–129. <https://doi.org/10.2753/JEC1086-4415130104>
- Swani, K., Brown, B. P., & Mudambi, S. M. (2020). The untapped potential of B2B advertising: A literature review and future agenda. *Industrial Marketing Management*, 89, 581–593. <https://doi.org/10.1016/J.INDMARMAN.2019.05.010>
- Syam, N., & Sharma, A. (2018). Waiting for a sales renaissance in the fourth industrial revolution: Machine learning and artificial intelligence in sales research and practice. *Industrial Marketing Management*, 69(December 2017), 135–146. <https://doi.org/10.1016/j.indmarman.2017.12.019>
- Töllner, A., Blut, M., & Holzmüller, H. H. (2011). Customer solutions in the capital goods industry: Examining the impact of the buying center. *Industrial Marketing Management*, 40(5), 712–722. <https://doi.org/10.1016/J.INDMARMAN.2011.06.001>
- Torraco, R. J. (2016). Writing integrative literature reviews: Using the past and present to explore the future. *Human Resource Development Review*, 15, 404–428. <https://doi.org/10.1177/1534484316671606>
- Vaghela, B. (2014). The voice as a relationship milestone. *Journal of Direct, Data and Digital Marketing Practice*, 16(2), 98–101. <https://doi.org/10.1057/dddmp.2014.62>
- Viiö, P. H., & Grönroos, C. (2014). Value-based sales process adaptation in business relationships. *Industrial Marketing Management*, 43(6), 1085–1095. <https://doi.org/10.1016/J.INDMARMAN.2014.05.022>
- Voorveld, H. A. M., Smit, E. G., Neijens, P., & Bronner, F. (2016). Consumers' cross-channel use in online and offline purchases: An analysis of cross-media and cross-channel behaviors between products. *Journal of Advertising Research*, 56(4), 385–400. <https://doi.org/10.2501/JAR-2016-044>
- Wang, R. J. H., Malthouse, E. C., & Krishnamurthi, L. (2015). On the go: How mobile shopping affects customer purchase behavior. *Journal of Retailing*, 91(2), 217–234. <https://doi.org/10.1016/j.jretai.2015.01.002>
- Wang, W. L., Malthouse, E. C., Calder, B., & Uzunoglu, E. (2019). B2B content marketing for professional services: In-person versus digital contacts. *Industrial Marketing Management*, 81, 160–168. <https://doi.org/10.1016/j.indmarman.2017.11.006>
- Willems, K., Brengman, M., & Van Kerrebroeck, H. (2019). The impact of representation media on customer engagement in tourism marketing among millennials. *European Journal of Marketing*, 53(9), 1988–2017. <https://doi.org/10.1108/EJM-10-2017-0793>
- Wirtz, J., Patterson, P. G., Kunz, W. H., Gruber, T., Lu, V. N., Paluch, S., & Martins, A. (2018). Brave new world: Service robots in the frontline. *Journal of Service Management*, 29(5), 907–931. <https://doi.org/10.1108/JOSM-04-2018-0119>
- Wollenburg, J., Holzapfel, A., & Hübner, A. (2019). Omni-channel customer management processes in retail: An exploratory study on fulfillment-related options. *Logistics Research*, 12(1). https://doi.org/10.23773/2019_7
- Wolny, J., & Charoensuksai, N. (2014). Mapping customer journeys in multichannel decision-making. *Journal of Direct, Data and Digital Marketing Practice*, 15(4), 317–326. <https://doi.org/10.1057/dddmp.2014.24>
- Wozniak, T., Schaffner, D., Stanoevska-Slabeva, K., & Lenz-Kesekamp, V. (2018). Psychological antecedents of mobile consumer behaviour and implications for customer journeys in tourism. *Information Technology and Tourism*, 18(1–4), 85–112. <https://doi.org/10.1007/s40558-017-0101-8>
- Wu, I. L., Chen, K. W., & Chiu, M. L. (2016). Defining key drivers of online impulse purchasing: A perspective of both impulse shoppers and system users. *International Journal of Information Management*, 36(3), 284–296. <https://doi.org/10.1016/j.ijinfomgt.2015.11.015>
- Yuan, H., Xu, W., & Yang, C. (2014). A user behavior-based ticket sales prediction using data mining tools: An empirical study in an OTA company. In *11th international conference on service systems and service management, ICSSSM 2014* (pp. 1–6). IEEE. <https://doi.org/10.1109/ICSSSM.2014.6874135>
- Zhang, C. B., & Li, Y. (2019). How social media usage influences B2B customer loyalty: Roles of trust and purchase risk. *The Journal of Business and Industrial Marketing*, 34(7), 1420–1433. <https://doi.org/10.1108/JBIM-07-2018-0211>
- Zolkiewski, J., Story, V., Burton, J., Chan, P., Gomes, A., Hunter-Jones, P., & Robinson, W. (2017). Strategic B2B customer experience management: The importance of outcomes-based measures. *Journal of Services Marketing*, 31(2), 172–184. <https://doi.org/10.1108/JSM-10-2016-0350>