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Article · June 2022

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# Digital Transformation and Artificial Intelligence in Marketing for Startups Using a Customer Knowledge Management Approach

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## ARTICLE INFO

*Article history:*  
Received 31 Ags 2022  
Revised 6 Sept 2022  
Accepted 13 Sept 2022

*Keywords:*  
Digital Transformation, Artificial  
Intelligence, Marketing, Customer  
Knowledge Management, Startup

## ABSTRACT

Startups that need a comprehensive approach to managing Knowledge Management (KM) in a digital context face a significant challenge in taking advantage of the opportunities presented by digital transformation and artificial intelligence (AI) technologies, which are reshaping marketing organizations. There is a pressing need for more strategic marketing expertise to drive business value creation, and digital transformation and AI technologies offer great promise to help businesses overcome obstacles, challenges in practical application, and this shortage. In this paper, we take a resource-centric look at a central question: how can young companies with few resources and few employees push digital transformation in marketing forward? Integrating the methods of Knowledge Management and Customer Relationship Management (CRM), as in Customer Knowledge Management (CKM), can be crucial to achieving this objective. This study uses a qualitative approach with descriptive methods to analyze the research results. This research reveals that companies with limited capabilities and resources can still adopt technological developments in conducting marketing. Marketing departments can benefit from the big data that AI provides by mining it for useful customer insights that can be used to bolster customer relationship management strategies. Organizational factors such as customer focus, a culture of collaboration and knowledge sharing, strategy and support from top management, an organized structure, and the integration of functions are crucial to the success of CKM in the business.

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## I. Introduction

Startups face a significant challenge when it comes to embracing technology and digital transformation. The biggest obstacle for young companies is developing a comprehensive strategy for digital Knowledge Management. This will allow them to take full advantage of the opportunities presented by the digital transformation [1]. Organizations need to develop new capabilities in order to make a successful transition to digital [2]. Organizations could benefit from studies that guide and evaluate their current technological capabilities and procedures, as well as those that examine the compatibility of IT strategy with other functional and operational aspects of the business [3].

Recent findings from research indicate that startups are adopting digital technologies to enhance their knowledge management processes. This trend has repercussions for innovation, as well as for markets and financial performance [4]. Because of the constantly shifting technological and organizational landscape, businesses need to improve their knowledge management (KM) processes (such as acquisition, storage, and transfer) in order to foster innovation. Simply

concentrating on one's own internal knowledge or being exposed to the knowledge of others is not enough on its own [5].

Artificial intelligence (AI) technology is among the digital technologies adopted by startups. In light of the competitive business environment, the abundance of data, and the scarcity of resources, which necessitates swift decision-making, AI has held a prominent position and attracted the interest of researchers and the marketing industry [6]. AI is defined as the capacity of machines to learn from experience, adapt to new inputs, and perform tasks in a human-like manner; AI can now become the innovation entity with the most significant disruptive potential [7].

Several researchers looked at the existing literature on artificial intelligence (AI) from the viewpoint of management and customer knowledge management. Therefore, new businesses concentrate on digitizing their innovation processes [8], mainly improving customer knowledge management. The established organizational routines and processes that influence customer knowledge management strategies will likely change along with the directions identified by implementing digital transformation and leveraging AI for product and process innovation. This is because digital transformation and AI are geared toward innovation in products and processes [9].

There is nothing quite like customer knowledge management when it comes to the field of knowledge management. The dynamic set of organizational practices and skills that are related to the process of creating, storing, and transferring knowledge about customers is referred to as "customer knowledge management." Implementing particular growth strategies is one of the primary goals of customer knowledge management, which is geared toward achieving a long-term competitive advantage in the market and improving operational effectiveness [10]. However, despite the fact that knowledge management has been studied in a variety of fields and that customer knowledge management has been studied as a factor in sustainable and competitive success, additional research is required to investigate the role that customer knowledge management plays in the creative industries domain. This is due to the fact that knowledge management has been studied in a variety of fields and that customer knowledge management has been studied as a factor in sustainable and competitive success [11]. In this economic sector, the development of successful innovation practices requires the management of customer knowledge through collaborative innovation channels [12].

Furthermore, Prahalad and Ramaswamy [13] looked into how customer collaboration and enabling technology help businesses understand their customers' wants and needs, meet those wants and needs, and ultimately boost their performance. Even though prior works have focused on particular relational tools, marketing tools, and search optimization tools, it is clear that a comprehensive overview of the digital technologies used by startups to support their customer knowledge management strategies is required. Due to prior contributions' narrow emphasis on various relational, marketing, and search optimization instruments, this gap has been identified [14]. New digital technologies that are low-cost to implement and use while still being highly effective are becoming increasingly available to businesses, especially startups, as a result of technological evolution and the rise of the digital economy [15].

This research will establish further evidence of how startup entrepreneurs with insufficient capabilities and limited resources can drive digital transformation and the use of AI in their companies. Big Data's function in marketing activities has received little attention so far. This article will answer the following question: How can startups drive digital transformation in marketing with inadequate capabilities and limited resources? This question is posed from the perspective of limited resources. In particular, we investigate the changing function of AI in the context of marketing for knowledge management (KM) and the extraction of proper customer knowledge to improve the efficacy of customer knowledge management, also known as CKM. This article offers some advice, from the standpoint of an organization, for new businesses undergoing digital marketing transformation.

## II. Method

The method used in this study is descriptive analysis from a qualitative perspective. [16] define qualitative research as an approach for learning about and making sense of the different weights that various people and groups place on social and humanitarian issues. Extensive work goes into

qualitative research, including the formulation of research questions, adherence to established protocols for data collection, inductive analysis of results from particular to general themes, and interpretation of findings. In addition, [17] states, "A qualitative approach is characterized by research objectives that seek to comprehend phenomena in a manner that does not always necessitate quantification. Use qualitative research with analytical descriptions because descriptive research seeks to explain current problem-solving based on field data and gain a deeper understanding of digital transformation and artificial intelligence in marketing through a customer knowledge management strategy for startups.

### III. Result and Discussion

#### A. Digital Transformation in Marketing

According to this study, Digital Transformation is transformation "caused by transformational information technology." Fundamental changes in business processes, operational routines, and organizational capabilities are required for such transformation. The impact of ICT on organizational structure, routines, information flow, and an organization's ability to accommodate and adapt to ICT is highlighted by digital transformation. As a result, digital transformation emphasizes ICT's technological roots as well as the alignment of ICT and business. To fully capitalize on ICTs, businesses must develop ICT capabilities as well as complementary capabilities such as ICT human capabilities or new service delivery capabilities [18].

The increase in market globalization is closely related to the increase in information production, manipulation, distribution, and consumption technology. It is regarded as a critical contemporary transformative process that causes businesses to change their traditional marketing activities and organizational structures. Information is transformed into a corporate asset, and its acquisition, management, and distribution are tasks that marketing must perform effectively and efficiently, particularly in a dynamic and knowledge-rich environment. Understanding customer behavior, preferences, challenges, and interests is critical for gaining a competitive advantage [19].

Over the course of the last few decades, marketing has evolved from a resource- and investment-focused perspective to an integral part of organizations. Today, web-based network marketing is predicated on social media, where customer engagement is the key to long-term profits. Similar to other industries, marketing is becoming increasingly digital [20]. With digital transformation in place, numerous digital marketing strategies exist to provide value to customers. Due to this digital technology, customer retention is improved. Notably, its use of social media has been demonstrated to be effective by businesses that have failed with conventional marketing techniques. Digital disruption has shook the marketing industry, compelling businesses to revise their operating models [21]. Due to disruptive technology, traditional marketing governance funnels will only be effective if there is a significant gap between businesses and consumers. The most recent technology can increase marketing value and provide consumers of the future with a more engaging experience. AI and other sensory-enabled marketing techniques are among the most recent technologies influencing consumer behavior and purchasing habits. The current model of marketing governance is more interactive because it enables and enhances customer interactions [22].

The following stimuli are pertinent to the current integrative marketing strategy: Corporate value produced by the company's stakeholders. Marketing organizations are confronted with a demographically diverse population where customization, experience, convenience, and social connections are of the utmost importance, while customer expectations and needs are concurrently rising. Transformation was significantly influenced by technology [23]. Every aspect of our lives is impacted by digital transformation as a result of businesses embracing new technologies and their customers, individuals, and communities. Marketing organizations must disrupt themselves in order to create value in a more efficient and effective manner using modern technology. There is a need to automate business processes further; businesses must transform their vision alongside technological advancements. Technology has emerged as a market integrator in a world where geographic boundaries are becoming increasingly porous, allowing for deeper insights to be gleaned from data accessibility. For global presence and communication, robust connectivity is

essential [24]. Today's digital environment captures more data than ever before, and organizations use it to inform their marketing and business strategies.

### *B. Artificial Intelligence in Marketing*

Several industries have been revolutionized by artificial intelligence and technologies related to artificial intelligence. In addition to the realms of medicine, journalism, and public administration, areas of the economy such as marketing are also beginning to make use of AI. Because of the many benefits offered by this technology, it eliminates the need for humans to play a significant role in the operation of their functions [25].

Artificial Intelligence in Marketing, also known as AI Marketing, is a form of marketing that makes use of concepts and models from the field of artificial intelligence, such as machine learning, in order to anticipate the movements of customers and accomplish marketing goals. The faster use of computers and algorithms is the primary difference between this model and the conventional approach to marketing. The business discipline of marketing can make use of artificial intelligence to reduce the amount of work required and increase the level of marketing success [26]. The use of artificial intelligence in marketing has many advantages, some of which are listed below:

#### *1) Pay-per-click advertising*

Artificial intelligence can help find new marketing channels that competitors may not use. Systems using artificial intelligence can test platforms and optimize targeted marketing. Artificial intelligence can analyze, organize and optimize marketing efforts with paid advertising. That way, we can know whether marketing through the new channel is the right decision before actually doing it [27]. Of course, with this, we can save much money and avoid losses from failed marketing efforts on the test channel.

#### *2) Prediction of buying pattern*

With artificial intelligence, we can use predictive analytics. Predictive analytics uses large amounts of data to forecast future results or sales. It is difficult for ordinary people to process this data, although it is not impossible. Therefore, the ability of artificial intelligence is needed for this. Future sales information can make demand fulfillment more precise and efficient [28].

#### *3) Deep Learning*

Using deep learning, you can make a computer or machine study the pattern of a photo, text, sound, or another form of data to obtain valuable information. Deep learning by artificial intelligence can be used for marketing as well. With the correct data, consumer behavior predictions can be obtained using deep learning methods. With this information, a company's marketing department can increase the opportunity to reap more profits after knowing the forecast of consumer behavior in the future [29].

#### *4) Bot for better service*

Artificial intelligence can play a significant role in service improvement and customer retention. Artificial intelligence bots can serve consumers directly in the marketing field. With this, the company can save time and costs in hiring employees. In addition, artificial intelligence bots can access all data on the internet, information, search history, and so on. This can make the services provided far more efficient than humans [30].

#### *5) More precise advertising*

Artificial intelligence can collect relevant customer information and analyze the form of customer needs. With this information, artificial intelligence can select advertisements that match customer profiles. With the help of artificial intelligence, the process of collecting data and targeting consumers can be done more precisely. Consumer analysis with artificial intelligence can help marketers to understand consumers individually. Marketers using artificial intelligence can find potential clients or buyers and channel the most suitable content without having to choose manually. Artificial intelligence will automatically do it [31].

#### *6) Smarter search*

Not only technology continues to develop. Of course, customers are also getting more innovative, and many people are increasingly using technology. Social media and search engines such as Google use artificial intelligence to analyze search results and search patterns from



potential consumers. This information can be used in the marketing sector to identify essential areas that should be an important focus in marketing efforts for specific target markets [31].

### *C. Digital Transformation and Artificial Intelligence in Marketing Through a Customer Knowledge Management Approach*

"Customer Knowledge Management" aims to benefit both the company and its customers by accumulating, organizing, disseminating, and using information about customers. Definition of Customer Knowledge Experience, values, information scenarios, ideas, and expertise gained through interactions between a company and its clients are the foundation of customer knowledge. Understanding the ever-changing needs of a customer base calls for a wealth of information and analytical prowess. Management of customer knowledge can benefit from combining the approaches of customer relationship management and knowledge management, which come from different disciplinary roots and perspectives but have the potential to produce significant synergies [32].

CRM, or customer relationship management, is a technique with growing strategic importance that aims to manage information about customers. Customer relationship management should center on the marketing, sales, and customer service departments because these are the most important to the success of a business and require the most interaction with customers and the most in-depth understanding of their needs. Campaign management, lead management, bid management, contract management, complaint and service management, opportunity management, and bid management are all vital business processes. Metrics like customer satisfaction and loyalty, as well as acquisition costs, defection rates, and retention rates, are commonly used to assess the success of a company's customer relationship management (CRM) system [33].

To better leverage Big Data for Marketing and gain insightful customer knowledge to enhance CRM system performance, startups can use the CKM provided by several AI tools. In prior studies, adopting CKM practices has been shown to boost both organizational effectiveness and competitiveness. To put it another way, CKM has the potential to aid businesses in better comprehending their customers, which in turn could lead to more effective marketing and higher sales [21].

CKM could help businesses enhance customer service, attracting and retaining more satisfied customers. Additionally, since consumers know that businesses store vast amounts of data, they anticipate that businesses will tailor their purchases to their individual preferences. Common approaches to this objective involve employing Datamining (DM) methods, discovering patterns of customer behavior, and thereby realizing efficient Customer Relationship Management (CRM) [34].

"Big Data" and "Data Science" are synonymous in many ways. In its basic form, "small data" makes up Big Data. Generally speaking, some of this data offers profound individual insight into profiles, purchases, and consumer behavior. The company's customers are its most valuable asset. Recently, marketing has become a primary proving ground for numerous uses of big data. Big Data stores result from the current trend in which startups and marketers compile customer information from various channels, such as social media, mobile devices, and online browsing. When Business Development is appropriately interpreted and managed, marketers can access several opportunities for managing customer knowledge [35].

Businesses that put a premium on their clientele must be prepared to answer their questions, keep track of their client's data, and use that data to serve their clientele better. Social media analytics would be a part of customer big data analytics, the primary purpose of which is to enhance advertising methods. Social media platforms such as Facebook and Twitter allow users to instantly share their opinions with their contemporaries about which products and brands they enjoy and which they do not. BD can help businesses become more nimble, adaptable, and responsive to both expected and unexpected opportunities and challenges. Companies can use big data analytics (like Google Cloud and Microsoft Azure) to learn crucial information about their clientele, which they can apply to their marketing strategies [36].

There can be little doubt that new businesses play a crucial role in the growth of individual sectors and the economy. When discussing "Big Data" or "Knowledge Management," large corporations like Google, Amazon, Microsoft, and others were often mentioned in the past. The

proliferation of cloud computing and SaaS makes it possible for more people to use the latest innovations from the startup world. In turn, this helps new businesses better control their data flows and streamline their operations, which benefits their customers. Data science and big data analytics require specific characteristics in a startup. Optionality and adaptability were cited as early points of emphasis. The best big data solutions for startups will let them cherry-pick the features they need and those that work with their current infrastructure. In addition, big data solutions need to be user-friendly.

Finally, costs should be reasonable and proportional to requirements, with a primary emphasis on those abilities that will be put to use by the startup. It has been noted that the true challenge is in finding the appropriate, scalable tools to accommodate the unique needs of startups and their rapid growth. In order to create value, new businesses can benefit from utilizing big data and knowledge management. Even though they may lack the resources to develop sophisticated cloud-based collaboration tools or artificial intelligence (AI)-powered call centers, SMBs can still utilize cutting-edge innovations by repurposing existing information and expanding their expertise in relevant areas.

Knowledge discovery is just one area where AI can be helpful in the knowledge management process; another trouble spot is knowledge maintenance. Here is how it went down: an intensive effort was made to record information and store it in shiny new enterprise wikis. Your knowledge base contains a wealth of information that would be excellent if only someone would go back and update the current information. Your knowledge management efforts will suffer if you keep out-of-date information in your database. Employees lose faith in your knowledge base when they find out-of-date information and make mistakes. They eventually abandoned its use.

#### IV. Conclusion

The study drew conclusions regarding how small businesses with limited resources can implement digital transformation using Big Data and technology to manage the flow of customer data and facilitate a seamless digital transformation in marketing. Research into how Customer Relationship Management (CRM) tools utilize the Customer Knowledge Management cycle demonstrates their worth. Therefore, due to their user-friendly interfaces and low learning curves, Zoho CRM, the Mix Panel analytics tool, Google Dashboard, and Tableau are all accessible to SMBs. All of these solutions are artificial intelligence (AI) marketing analysis tools. The pricing and usability of big data solutions must be tailored to a startup business's specific needs and features. The business stands to gain considerably from gaining insight into its clientele. Startups have used Customer Knowledge via CRM business processes to maintain a data-driven and knowledge-management-based competitive advantage. They were able to boost their marketing, sales, and customer service with the help of Customer Knowledge Management tools. In addition to the technical aspects of IT and CRM, many organizational factors aid in their seamless integration. It facilitates the adoption of digital marketing strategies. There is no denying that data mining and other IT support for the KM process are helpful. Information about customer behavior can be easily gathered, analyzed, shared, and applied thanks to customer relationship management systems. CKM in startups is supported by a combination of technological elements and, as has been shown in previous research, cultural, strategic, and structural aspects of the organization. The success of customer relationship management (CRM) depends on several internal factors, including an emphasis on the customer, a culture of collaboration and sharing of knowledge, a strategy, the backing of upper management, an appropriate organizational structure, and the integration of various functions. Organizational factors like these are more critical to CRM success than knowledge management (KM) capabilities and technological support. Startups can benefit from the digital shift in advertising by adopting a CKM perspective

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