

Research Paper

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Designing and explaining the model of artificial intelligence competencies on organizational performance considering B2B marketing capabilities

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Abstract

The purpose of this research is to design a model of artificial intelligence competencies on organizational performance, taking into account business-to-business marketing capabilities. The research method is exploratory (qualitative-quantitative). In the qualitative part, it is considered with the Shannon entropy approach, and in the quantitative part, it is descriptive-survey. The participants of the present research in the qualitative part are faculty members and elites of artificial intelligence and marketing and management, which was conducted with 14 people based on the theoretical saturation rule, and in the quantitative part, the 540 number of executive directors of industrial towns in northern Iran, of which 190 were selected as statistics sample. The data collection tool was semi-structured interview in the qualitative part, and researcher made questionnaire in the quantitative part. The method of data analysis was selected in the quantitative part of confirmatory factor analysis tests using SmartPLS software. The results showed that the mechanisms of artificial intelligence competencies have an effect on business-to-business marketing capabilities and organizational performance, and also the model of artificial intelligence competencies on organizational performance is confirmed considering the aspect of business-to-business marketing capabilities.

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Extended Abstract

Introduction

The huge increase in the amount of data along with access to processing power capabilities and storage space on digital devices, have attracted new attention in the last few years to artificial intelligence in several fields and scientific courses (Enholm et al., 2021). The intense competition among organizations around the world has also accelerated the need to use artificial intelligence to achieve a competitive advantage over competitors (Ransbotham et al., 2018). Most C-level executives do not see AI as a core competency that organizations must employ to remain competitive in the long term (Kietzmann & Pitt, 2020). One of the key areas of using artificial intelligence in organizational activities has been business-to-business marketing (Mikalef et al., 2021). Smart solutions are needed to enhance business-to-business marketing capabilities in a complex business environment, because business-to-business operations are often associated with enormous information complexity and the need to make quick decisions. In this sense, artificial intelligence has the potential to revolutionize the way of performing common activities due to the ability to process increasing amounts of data and provide rich insights about key business partners and customers (Bag et al., 2021). In addition, it has been stated that artificial intelligence applications enable the automation of many manual processes, and this can help eliminate bottlenecks and increase operational efficiency in business-to-business activities (Paschen et al., 2020). In fact, a recent survey study on corporate executives conducted by Garner showed that the majority believe that artificial intelligence is likely to become a key development in their organization in the next few years (Shin & Kang, 2022).

Therefore, the main questions of this research are: What effect does artificial intelligence competencies have on organizational performance considering the B2B variable? Through what mechanism, the effects of artificial intelligence competencies on organizational performance are realized? And finally, what is the model of artificial intelligence competencies on organizational performance considering the aspect of B2B marketing capabilities?

Theoretical framework

Until now, there is not a complete understanding of how organizations should plan the development of artificial intelligence and turn it into a strategic asset applicable to achieve a competitive advantage. This issue is very evident and prominent in the field of business-to-business marketing, because there is still very little knowledge about the impact of artificial intelligence and the potential mechanisms of value generation from such technologies (Huang et al., 2019). Understanding the value of AI in business-to-business marketing and how to achieve it is critical to reducing the number of failed initiatives within organizations, as well as accelerating the development of AI in these types of operations. Similarly, recent survey studies of industry professionals show that there are still a number of significant bottlenecks preventing the adoption and use of AI that go beyond technical challenges. In addition, from the point of view of many managers, the value of adopting artificial intelligence is still not clear and certain, which prevents its further application in key organizational operations (Bhalerao et al., 2022). A recent study by McKinsey noted that the most popular use cases for AI in organizations relate to optimizing business-to-business marketing and service processes, and this is where respondents placed the most value. However, there are still several challenges associated with realizing such value by investing in AI and specifically with creating an AI competency that can always support business needs (McKinsey, 2022). To address this gap, this study uses the core competence theory (Prahalad, 1993) and provides a definition of the use of artificial intelligence within organizational boundaries, following the

key followers of this theory. Especially, we express the concept of artificial intelligence competence as a central competence of organizations, which indicates the need for creative and coordinated use of artificial intelligence. The stated theories explain that organizations able to develop an artificial intelligence competency are organizations that are able to realize a competitive advantage over their competitors; because the application of artificial intelligence is unique in nature and requires comprehensive efforts from various organizational entities to produce artificial intelligence applications difficult to imitate and add value.

Methodology

In the current research, a systematic approach is used. This approach inductively uses a systematic set of procedures to formulate a theory in relation to a phenomenon. Content analysis is one of the documentary methods that deal with the systematic, objective, quantitative and generalizable examination of communication messages. This method is considered a concealer in the classification of methods, and it is used to check the obvious content of the messages in a text, and as a result, it does not enter into the interpretation and semiotics of the message content. The Delphi method is a structured communication method or technique that was originally invented and developed for the purpose of systematic and interactive forecasting by relying on the deliberation of experts. This method used in future research mainly pursues goals such as discovering innovative and reliable ideas or providing appropriate information for decision making. The Delphi method is a structured process for collecting and classifying the knowledge available to a group of experts, which is done through the distribution of questionnaires among these people and the controlled feedback of the answers and opinions received. Research method is fundamental-applied according to the goal; mixed (qualitative-quantitative) of sequential exploratory type according to the type of data; cross-sectional according to the time of data collection; and descriptive-survey according to the method of data collection or the nature and method of the research.

Discussion and Results

According to the results of Shannon's entropy technique for evaluating the capabilities of artificial intelligence, it can be seen that all the dimensions and indicators were higher than the average level of the group's weight, and remain in the model. Therefore, using the results of semi-structured interviews and inspired by the theoretical and empirical literature of the research, the identified categories will be categorized as described in the table below. As mentioned in the previous discussions, the sample size in the qualitative part of the research follows the principle of theoretical saturation, which is reflected in the next table on how to reach theoretical saturation.

Conclusion

The main goal of this research was to design a model of artificial intelligence competencies on organizational performance, considering the aspect of business-to-business marketing capabilities. The research method was exploratory (qualitative-quantitative). It was taken into account with the Delphi technique approach in the qualitative part, and descriptive-survey in the quantitative part. The participants of the present research in the qualitative part were academic faculty members and elites of artificial intelligence and marketing and management, which was conducted with 14 people based on the theoretical saturation rule; and in the quantitative part, 540 people of the industrial managers of the industrial towns in northern Iran, of which 190 people were selected a statistical sample. The data collection tool was a semi-structured interview in the qualitative part, and a researcher-made questionnaire in the quantitative part. The method of data analysis was carried out in the quantitative part of

confirmatory factor analysis tests using SmartPLS software. One of the goals of this research was to try to understand whether, and under what conditions, artificial intelligence can lead to organizational value for companies. In order to answer this question, we grounded artificial intelligence based on the theory of core competencies. Therefore, the competencies of artificial intelligence were considered from the aspect of one of the key organizational capabilities that has the potential to create a competitive advantage for organizations. Therefore, the competencies of artificial intelligence are not only understood from the technical aspect, but also include management's ability to creatively anticipate applications that add value to the organization and include the ability to experience and test new methods of using artificial intelligence. Also, based on this approach, AI competency is considered as a core competency that organizations should strive to enhance, rather than just an ancillary and auxiliary set of capabilities that can support certain operations.