

## Artificial Intelligence and Human Talent in Decision Making in the Sphere of Marketing in an Enterprise

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### Abstract

**Purpose:** The analysis of the content of publications concerning decision-making processes in an enterprise indicates that one of the tasks of modern management is to identify effective solutions based on the synergy of human and technological resources that support decision-making processes. This also applies to marketing, which is subject to virtualization related both to its concept and instruments, as well as marketing activities. The purpose of the paper is to show the role of artificial intelligence and human talent in decision making in the field of marketing in an enterprise.

**Design/methodology/approach:** Critical literature review; the research procedure that is based on the review of the literature is focused on formulating the answers to the following questions:

- What factors determine the effective implementation of artificial intelligence as a technology supporting decision-making processes in the sphere of marketing in enterprises?
- What are the identified models of application of artificial intelligence and human talent in making decisions in enterprises?

**Findings:** The use of the opportunities offered by artificial intelligence in supporting marketing decisions brings many benefits, but it also requires overcoming mental and cultural barriers. It should be emphasized that relying on artificial intelligence in decision-making processes does not mean eliminating people, especially the talented ones, because it is the employee who can revise the decision-making criteria or state that the algorithm on the basis of which decisions are made in the company is outdated.

**Research limitations/implications:** Empirical verification of the proposed model would allow for identifying the role performed by talented employees and algorithms in decision-making processes in the era of development of innovative IT solutions along with determination of the hierarchy of factors stimulating these processes.

**Originality/value:** Proposing a model of determinants and types of solutions that allow for effectively combining human resources described as talent and artificial intelligence in making decisions in the field of marketing in enterprises is the result of the considerations provided in the paper.

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**Keywords:** talent, artificial intelligence, machine learning, marketing.

**JEL:** M1, M2, M3

## **Sztuczna inteligencja i ludzki talent w podejmowaniu decyzji z zakresu marketingu w przedsiębiorstwie**

### **Streszczenie**

**Cel:** analiza treści publikacji z zakresu procesów podejmowania decyzji w przedsiębiorstwie wskazuje, że jednym z zadań współczesnego zarządzania jest identyfikowanie efektywnych, bazujących na synergii zasobów ludzkich i technologicznych, rozwiązań stanowiących wsparcie w procesach decyzyjnych. Dotyczy to także marketingu, który podlega wirtualizacji odnoszonej zarówno do jego koncepcji, jak i instrumentów oraz działań marketingowych. Celem artykułu jest ukazanie roli sztucznej inteligencji i ludzkiego talentu w procesach podejmowania decyzji z zakresu marketingu w przedsiębiorstwie.

**Metodologia:** krytyczny przegląd literatury; bazujące na kwerendzie literatury postępowanie badawcze ukierunkowane zostało na sformułowanie odpowiedzi na następujące pytania:

- jakie czynniki warunkują skuteczne wdrażanie sztucznej inteligencji jako technologii stanowiącej wsparcie w procesach decyzyjnych w obszarze marketingu w przedsiębiorstwie;
- jakie wyróżnia się modele zastosowania sztucznej inteligencji w podejmowaniu decyzji w przedsiębiorstwie?

**Wyniki:** wykorzystanie możliwości stwarzanych przez sztuczną inteligencję we wspieraniu decyzji marketingowych przynosi wiele korzyści, lecz wymaga przełamywania barier mentalnych i kulturowych. Należy podkreślić, że bazowanie na sztucznej inteligencji w procesach decyzyjnych nie oznacza eliminacji ludzi, w szczególności utalentowanych, ponieważ to pracownik może zrewidować kryteria decyzyjne, czy też stwierdzić, że zdezaktualizował się algorytm, w oparciu o który podejmowane były decyzje w przedsiębiorstwie.

**Ograniczenia/implikacje badawcze:** empiryczna weryfikacja zaproponowanego modelu pozwoliłaby na identyfikację roli, którą odgrywają utalentowani pracownicy oraz algorytmy w procesach decyzyjnych w dobie rozwoju innowacyjnych rozwiązań informatycznych wraz z określeniem hierarchii czynników stymulujących te procesy.

**Originalność/wartość:** efektem prowadzonych w artykule rozważań jest propozycja modelu czynników i typów rozwiązań pozwalających na efektywne łączenie zasobów ludzkich określanych jako talent i sztucznej inteligencji w podejmowaniu decyzji z zakresu marketingu w przedsiębiorstwie.

**Słowa kluczowe:** talent, sztuczna inteligencja, uczenie maszynowe, marketing.

## **1. Introduction**

Making decisions, which is one of the fundamental functions of a manager, is determined multi-dimensionally. On the one hand, the way in which decisions are made depends on the level of their complexity and significance from the point of view of company functioning, time for making decisions and available information, and on the other hand the mental features of decision makers. The style and the way in which decisions are made are affected by organizational culture and the attitude to risk, as well as emotional involvement, intra-group processes (Beach & Connolly, 2005, pp. 97–136), approaching knowledge as an enterprise resource and the level

of market orientation of the enterprise, perceived in the context of gaining information about the market by the enterprise and its application at various levels of management targeted at customer (Lado, Maydeu-Olivares, & Rivera, 1998, pp. 23–39).

Growing complexity of the market environment of enterprises and processes observed in it are accompanied by increasing interest in multi-criteria methods supporting decisions and their integration. The analysis of the content of publications concerning the behavior of decision-makers in enterprises and the decision theory also indicates that determining the scope and areas of the use of human talent and artificial intelligence in decision-making processes is one of the challenges facing modern management. This also applies to marketing, which shows increasingly stronger relationships with new media at specific stages of the development of information and communication technology, including the computer age, the PC age, the communication age, the co-creation age, the automation age and the transformation age, in which physical markets are transformed into data sets (Mazurek, 2019, pp. 25–27).

The great importance of technology in shaping social and business reality is reflected in the concept of technological determinism, which occurs in the soft and hard versions (Smith & Marx, 1994; MacKenzie & Wajcman, 1999). The first form means that technology is one of many determinants of changes that take place in the enterprise and its management as well as in the economy. On the other hand, according to technological determinism of hard type, the occurring changes mainly result from the development of technology, whereas other development determinants are less important. At the same time, it should be stated that regardless of which form of technological determinism is recognized as the leading one, it should be agreed that the implementation of new technologies brings changes that go far beyond the scope of its functioning.

The purpose of the paper is to show the role of artificial intelligence and human talent in decision making in the sphere of marketing in enterprises.

The research procedure that is based on the review of the literature is focused on formulating the answers to the following questions:

- What factors determine the effective implementation of artificial intelligence as a technology supporting decision-making processes in the sphere of marketing in enterprises?
- What are the identified models of application of artificial intelligence and human talent in making decisions in enterprises?

The achievement of the objective of the paper requires showing the ways in which the notion of talent is conceptualized and the importance of talent in enterprises as well as identifying the premises for using artificial intelligence in processes of making marketing decisions, and the areas of its application. Special attention is focused on the determinants of artificial intelligence implementation. Proposing a model of determinants and types

of solutions that allow for effectively combining human resources described as talent and artificial intelligence in making decisions in the field of marketing in enterprises is the result of the considerations provided in the paper.

## 2. Ways of Conceptualizing the Notion of Talent and Its Importance in the Enterprise

The decisions made in the company are affected on the one hand by new IT solutions that provide significant support, and on the other by the very decision makers. It is important for the people to have the attributes included in the category of talent, which is related both to specific human abilities and to people with high development potential and outstanding professional competences. The literature analysis allows for stating that talent is distinguished by potential, passion, skills, strong internal motivation, intellectual abilities, entrepreneurship and openness to new challenges, the ability to inspire others, as well as having a large impact on achievement of assumed goals by the organization. Selected ways of talent conceptualization are shown in Table 1.

Author	The way in which the concept of talent / talented person is defined
L.A. Berge, R.B. Bergerr	Talented people are distinguished by having above-average achievements and at the same time the ability to inspire others to achieve above-average results. The people understand the mission, key competences and organization values, and their loss translates into hampering the development of the organization due to their disproportionately significant impact on the achievement of the current and future targets of the market entity.
H. Bieniok	A highly talented person is distinguished by intelligence and above-average intellectual potential or, on the contrary, does not have a high intelligence quotient but is genetically extremely talented in a specific area. A highly talented individual is also a person with a high level of key competences from the point of view of the targets of the market entity.
S. Borkowska	A talented person is a creative, entrepreneurial person with great development potential, who has a great impact on the growth of the value of the market entity.
T. Ingram	A talented person is someone who is characterized by potential, abilities, strong motivation and knowledge, who significantly affects functioning of the organization through their activities, while implementing assigned goals and caring for their own development. A talented worker is an individual of high potential, achieving above-average results, who can also be a key employee.

Table cont.

Author	The way in which the concept of talent / talented person is defined
M. Juchnowicz	A talented person has above-average potential, which is formed of intellectual capabilities, specific abilities, as well as creativity. The concept of talent is closely related to such features as: strong achievement motivation, commitment to work and entrepreneurship.
K. Kwiecień	Talent is a natural potential or ability to perform certain activities on an above-average level. According to the definition, talent cannot be created, but it can be developed or destroyed.
E. Maliszewska	Talent is defined as special abilities, a form of being and expressing oneself through the capability to create concepts and ideas.
T. Peters	Intangible distinguishing features of talents include passion, inspiring others, strong motivation to act and overcome difficulties, the ability to complete work or think ahead.
A. Poczowski	A person who, while acting, is guided by an internal goal that is unchanging for a long time and who contributes his/her own goal to the organization. For such a person, work is a factor that allows for pursuing passion. The people have their own standard of perfection and the sense of self-realization, as well as the ability to take advantage of the opportunities created by the organization.
M. Schoemaker	Talented people have the unique ability to execute tasks through which they contribute to the growth of the added value for the organization in which they work.
A. Tannenbaum, S. Chełpa	Talent consists of above-average intellectual potential and directional skills referring to specific areas of functioning, as well as emotional maturity, mental resilience and achievement motivation.

Tab. 1. Selected ways of talent conceptualization. Source: Based on: Ingram, 2011, pp. 14–21; Kopeć, 2012, pp. 8–17.

The concept of talent is not the same as knowledge and skills that can be transferred to others more easily than talent. It is the combination of knowledge, skills and talent that makes a person achieve extraordinary results in their work (Buckingham & Coffman, 1999, p. 71). Revealing a talent is determined by the interaction that occurs between the elements it is formed of, which include above-average general and directional abilities, as well as creativity, understood in the context of originality, independence and ability to think, ability to analyze and synthesize, an aptitude to face new unconventional problems, as well as commitment to work and related discipline, internal motivation and fascination with performed tasks (Chełpa, 2005, pp. 29–30). Most of these features play a key role in decision-making processes and determine their proper course.

Aiming to show the role of talent in the functioning of an organization, reference should be made to the resource theory of the enterprise. Its authors emphasize that not all resources determine permanent com-

petitive advantage of a market entity, but only those that have features defined through the prism of their value, uniqueness, imperfect imitability and limited substitutability (Barney, 1991, pp. 105–106). The features reflect well the character and significance of talented employees. At the same time, it should be stated that changes on the labor market caused by the development of new information and communication technologies are expressed in growing expectations in the sphere of effective use of artificial intelligence in decision-making processes, including marketing decisions, by talented employees.

### **3. Premises for Using Artificial Intelligence in the Processes of Making Marketing Decisions and Areas of Its Application**

Artificial intelligence is defined in the context of creation of machines and their use for such activities that would require involvement of intelligence from people (Kurzweil, 2000). The features of artificial intelligence include the automation of the capabilities that are characteristic of human thinking. They comprise decision making as well as problem solving and learning, among others (Syam & Sharma, 2018, pp. 135–146; Mazurek, 2019, p. 154).

The solutions in the sphere of artificial intelligence lead to changes in managing enterprises, which is increasingly manifested by automated customer service. New solutions regarding organizational structures are also the consequence of the development of application of artificial intelligence. Support for decision-making processes, including those related to marketing, has a prominent place among the applications of artificial intelligence.

The premises for implementation of artificial intelligence and its use in the processes of making marketing decisions in an enterprise include the imperfection of thinking processes of the people participating in making these decisions. The reasons for making wrong decisions can comprise various types of cognitive errors that distort the way of thinking (Kahneman, Lovallo, & Sibony, 2014, p. 25) and related psychological traps, including the anchoring trap that makes people attach disproportionate significance to the first received information, the trap of attachment to the status quo, the trap of sunk costs that causes perpetuation of errors from the past, the trap of evidence verifying one's own thesis, the trap of problem definition, the trap of overconfidence, the trap of assurance or a trap resulting from paying too much attention to critical events from the recent past (Hammond, Keeney, & Raiffa, 2014, pp. 3–21).

It should also be stated that the development of artificial intelligence is associated with the introduction of innovative solutions in the field of robotics, computer vision and computer speech recognition. Supporting decision making in the sphere of marketing in an enterprise by artificial intelligence

results from the fact that it plays a significant role in analyzing large data sets regarding, for example, consumers and in preparing forecasts concerning preferences and demand. Considering the purpose of the paper, it needs to be emphasized that there are many applications of computer vision technology in data management. This is even more important because of the fact that the data collected, stored and used in decision-making processes have an increasingly more visual character (Kaplan, 2016, pp. 71–84).

The development of applications of artificial intelligence also results from the fact that it can recognize emotions, interpret speech and engage in a dialogue that is similar to a conversation with a human (Power, 2016, pp. 578–588). Consequently, bots using artificial intelligence find application in customer service.

The tools of artificial intelligence are used to analyze and evaluate content. They also perform the functions of assistants executing specific tasks, as well as they generate and present solutions to specific problems.

Among required solutions based on the synergy of human talent and technology, it seems necessary to indicate such cooperation of the decision maker in the enterprise with artificial intelligence that the machine learning based on artificial neuron networks serves to capture repetitive patterns in complex data sets, and people formulate conclusions and new hypotheses thanks to the knowledge about the context and their general knowledge (Jordan & Mitchell, 2015, pp. 255–260). At the same time, it should be noticed that deep learning is a type of artificial intelligence that is a form of machine learning (Mazurek, 2019, p. 160). Its essence is learning on the basis of available data and information, as well as making decisions regarding for example sending more and more individualized marketing messages without human participation in decision-making processes. In this context, there is a need to identify factors determining effective implementation of artificial intelligence as a technology applied in the processes of making marketing decisions in an enterprise.

#### **4. Determinants for Implementation of Artificial Intelligence as a Technology Supporting Marketing Decisions**

Effectiveness in the implementation of artificial intelligence is associated with the transformation of pilot actions into enterprise-wide programs and requires a shift of attention from specific, individual business problems, such as customer segmentation, to broader categories such as optimization of the entire customer management process. It is also extremely important to go beyond silos and build interdisciplinary and inter-functional teams of people with various skills and points of view, so that employees responsible for individual business issues cooperate with experts in the field of analytics and artificial intelligence. The use of artificial intelligence in a company

on a large scale also requires creating conditions for employees of various organizational levels so that they can use algorithm recommendations in improving their evaluation and search for solutions better than those that people or machines can individually develop. This requires not only building trust in the solutions suggested by the algorithms, but also moving from the traditional top-down control model so that employees feel responsible for their decisions. The task of senior management is to create a vision of company transformation and to communicate to employees what the premises for implementing artificial intelligence in the enterprise are and what role employees will play in the organization. This is even more important because the resistance of employees is associated with their fear of losing their jobs due to replacement by advanced technology. An important role in identifying and reducing barriers is performed by experts defined as data interpreters. While being the link between the world of technology and the business world, including marketing, they make emerging new solutions in the field of artificial intelligence respond better to business needs. When identifying the determinants of effective implementation of artificial intelligence in an enterprise, attention should also be paid to financial issues. The analysis of good practices occurring in this area indicates that enterprises that have successfully increased the scope of applications of artificial intelligence have spent more than half of the budget of the analytical department on activities aimed at promotion and diffusion of this technology, and on training the employees how to use it. It should also be added that in the case of projects based on human involvement, return on incurred financial investment is achieved over a longer period of time. Customer service supported by artificial intelligence is a good example here (Saleh, Fountaine, & McCarthy, 2019, pp. 71–83).

Furthermore, it is often necessary not only to have funds for implementation of artificial intelligence, but also to initiate many marketing activities, including those supporting collection of customer data, so that it could be possible to perform for example micro-segmentation with the use of artificial intelligence.

It should also be emphasized that increasing the scope of applications of artificial intelligence in business management and shaping positive attitudes of employees towards this technology requires the development of incentive programs that would prevent the desirable behaviors from conflicting with the solutions recommended by artificial intelligence.

## 5. Conclusions

The development of application of artificial intelligence and growing automation of many processes bring formulation of the question about the scope of replacement of human work by artificial intelligence. Although the impact of artificial intelligence on changes in the labor market and the expected com-



petences of employees is highly significant, comparable to the invention of the computer as a breakthrough innovation, more exceptional competences, a talent that the employees have, and their work are less of a routine character, the less they are at risk of being replaced by artificial intelligence. At the same time, it should be stated that the development of advanced IT solutions for data management makes such systems work in identifying patterns that are too subtle and elusive for human analysis (Kaplan, 2016, p. 144).

The use of the opportunities offered by artificial intelligence in supporting marketing decisions brings many benefits, but it also requires overcoming mental and cultural barriers. It should be emphasized that relying on artificial intelligence in decision-making processes does not mean eliminating people, especially the talented ones, because it is the employee who can revise the decision-making criteria or state that the algorithm on the basis of which decisions are made in the company is outdated.

Conducted literature studies lead to the creation of a proposal of a model of determinants and types of solutions allowing for effective combination of human resources described as talent and artificial intelligence in making marketing decisions in an enterprise. Figure 1 is a graphic illustration of this model.

The proposed model includes four types of application of new technologies in decision-making processes in the enterprise, including the sphere of marketing, that refer to the concept of anthropomorphization in which artificial intelligence can play a role of:

- an autonomous strategic advisor, expressed in the fact that autonomous algorithms support evaluation and recommendations based on data, but it is the task of the employees who supervise the algorithms to determine what to autonomize and how to implement these decisions; in this model, data analysts act as an intermediary between senior management supervising the autonomous software and the areas of the company where algorithms are implemented,
- an independent outsourcer, in which algorithmicizing takes the form of outsourcing of business processes with all its advantages and disadvantages; data analysts are project managers in this model,
- an autonomous employee, treated as a "colleague", providing the right solutions thanks to the use of machine learning, which is not a static part of code, but new data is introduced into it; in this model, the role of data analysts is to reduce the tension arising at the human-machine interface,
- the boss making decisions and making human leadership yields to the strength of algorithms, and the role of employees is to expand the boundaries of effective algorithm autonomy; in enterprises implementing this model of artificial intelligence, machines make transactions and investments that people do not understand in a cognitive sense, and produce justifications and narratives explaining the decisions that are made to people (Schrage, 2017, pp. 100–105).

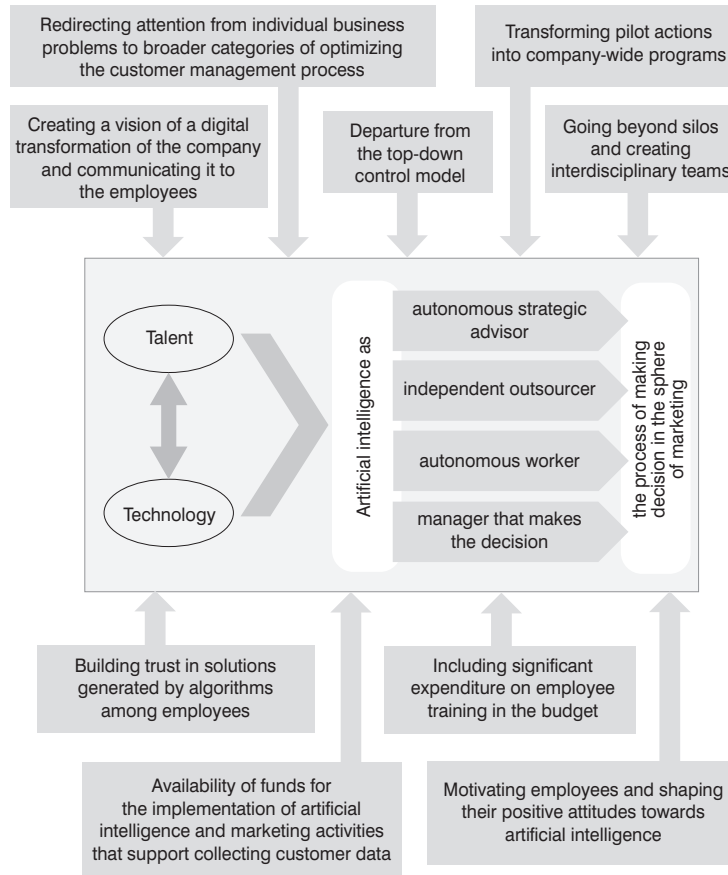


Fig. 1. Determinants and types of applications of artificial intelligence in the processes of making marketing decision in an enterprise – a model approach. Source: Own case study.

The considerations provided in the paper show the need for further research in the field of presented issues. Empirical verification of the proposed model would allow for identifying the role performed by talented employees and algorithms in decision-making processes in the era of development of innovative IT solutions along with determination of the hierarchy of factors stimulating these processes. Studies should take into account the industry, the size of the enterprise and the level of internationalization of the business as well as the scope of implementation of market orientation.

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