
The Determinants of Harnessing AI in Shaping Company's Image

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Abstract:

Purpose: The article explores the role of Artificial Intelligence (AI) in shaping a company's image. The research hypothesis states: Artificial intelligence is a significant factor influencing the perception of a company's image in contemporary economic reality.

Design/Methodology/Approach: A detailed literature review was contained in the theoretical section. In the empirical part a survey was conducted among 160 enterprises to identify factors influencing company image and assess the impact of AI technologies. In this section were used the exploratory factor analysis, which serves to identify key factors and explicate correlations among variables, to verify the research hypothesis. The number of factors was indicated by means of Cattell's method and Kaiser criterion.

Findings: The research confirms the hypothesis that AI is a significant factor influencing a company's image in today's economic reality. The analysis of 20 variables revealed that most companies perceive AI as beneficial for various aspects of their operations, with applications like monitoring online reviews, detecting social trends, and user recommendation analysis receiving high ratings for enhancing brand reputation. Factor analysis identified four key determinants impacting a company's image through AI: Automation/Optimization, Strategic Analysis, Content Management, CSR (Corporate Social Responsibility).

Practical Implications: The results are applicable to the work of both scientists and practitioners. Businesses should leverage AI technologies to automate and optimize processes, strategic analysis and support CSR initiatives. Implementing AI can enhance brand reputation, customer satisfaction, and long-term growth.

Originality/Value: This study contributes to the understanding of how AI can be used to achieve sustainable organizational growth while simultaneously shaping a positive company image. Moreover the identification of four key determinants through factor analysis provides valuable insights for businesses seeking to strategically integrate AI into their operations.

Keywords: AI, CSR, innovations, management.

JEL codes: M31, O33, L86, D83.

Paper type: Research article.

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1. Introduction

The development, implementation, and adoption of artificial intelligence are widely recognized as a breakthrough technology that is currently progressing continuously and dynamically. This trend is facilitated by the increasing computational power of computers, the growing amount of available data, and the development of algorithms used in programming. Artificial intelligence is a general-purpose technology that spans or will span all sectors of the economy.

Businesses, governments, as well as international organizations and institutions, recognize the enormous potential inherent in artificial intelligence-based systems. Currently, the increase in efficiency and productivity of enterprises is achieved through the implementation of innovative solutions, which are developed based on the integration of various resources including tangible, intangible, and human resources (Rowell-Jones and Howard, 2019).

These resources form the foundation for leveraging AI technologies to achieve market success. Therefore, to better understand the full impact of artificial intelligence on a company's reputation, it is necessary to consider its role in Shaping Company's Image. In this way, artificial intelligence contributes not only to improving the company's reputation but also to its long-term, sustainable growth, which in today's economic reality becomes a crucial factor of competitiveness.

Consequently, this article further analyzes how AI can support management through optimizing production processes, reducing resource consumption, and supporting social and environmental initiatives.

The aim of the article was to highlight the role of artificial intelligence in shaping a company's image. To achieve this aim, the following research hypothesis was adopted:

H1: Artificial intelligence is a significant factor influencing the perception of a company's image in contemporary economic reality.

The content analysis of the literature focused on examining the company's image and its determinants, with particular emphasis on the role of artificial intelligence. The conducted research and statistical analysis allowed for the identification of key factors influencing the perception of a company's image and assessing to what extent AI technologies contribute to shaping it.

2. AI and the Company's Image

In the literature, there is no single, universal definition of artificial intelligence (AI) (Kaplan and Haenlein, 2017; Płocha, 2020; Hearst and Hirsch, 2000; Broekhuizen *et al.*, 2023; Tyagi *et al.*, 2023), reflecting the dynamically changing environment

and ongoing technological progress. The term is attributed to McCarthy (1955), who viewed AI as the science and engineering of creating intelligent machines (Andersen, 2002; Araszkiwicz, 2018). Russel and Norvig (2020) referred to this as the "birth of artificial intelligence," although its history dates back much further (Dennehy, 2020; Velinov *et al.*, 2023; Grima *et al.*, 2023).

AI is defined as "a system's ability to correctly interpret external data, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation" (Kaplan and Haenlein, 2019, p. 17). It involves the study of intelligent machines and software capable of reasoning, learning, acquiring knowledge, communicating, manipulating objects, and perceiving (Verma, 2018, p. 5). Business studies have expanded on these general definitions to conceptualize the tasks or functions that AI applications can perform.

It is indicated, that AI can perform „mechanical” tasks such as documentation, „thinking” tasks including analysis and estimation, and „feeling” tasks like communications (Huang and Rust, 2021). It also emphasises human cognitive functions such as perceiving, reasoning, problem-solving, decision-making, and creativity (Rai *et al.*, 2019). Artificial intelligence enables the creation of new business models (Duan *et al.*, 2019), improves work efficiency (Wilson and Daugherty, 2018), and can even enhance human capabilities (Dwivedi *et al.*, 2021).

Focusing on managerial functions, AI is described as "the ability of a system to identify, interpret, make inferences, and learn from data to foster productivity by performing the management functions of mapping, coordinating, and controlling" (Broekhuizen *et al.*, 2023).

The first function, mapping, involves analyzing the organizational environment (both internal and external) to solve organizational problems or identify new business solutions. AI can assist in identifying potential new customers in marketing or evaluating and selecting candidates in recruitment processes. Additionally, AI can integrate various data sources and use analyses to generate new business solutions.

The second function, coordinating, refers to integrating and linking different partners to accomplish a collective set of tasks. In the operational realm, artificial intelligence can contribute to improving the efficiency of resource utilization, such as coordinating supply chains (as seen in Walmart and Samsung), forecasting demand changes (IKEA), or communicating with customers (chatbots in Starbucks, Domino's) to prioritize tasks and prevent communication disruptions.

The implementation of control functions by artificial intelligence involves supporting and influencing human behavior towards desirable outcomes, including identifying anomalies and predicting undesirable outcomes in the future (for example, in healthcare).

In the field of marketing, artificial intelligence enables the analysis and processing of vast amounts of data to identify consumer needs and tailor published content and offerings accordingly. AI is a widely adopted emerging technology that allows organizations to track real-time data, analyze it, and respond quickly to customer requirements (Wirth, 2018).

AI tools are invaluable for understanding customer expectations and navigating future strategies (Shabbir, 2015). It is also worth noting their importance for real-time competitive analysis and strategic decision-making (Weinert, 2024).

Some examples of AI applications in marketing highlighted by Sadowski (2023) include:

Content Optimization – using AI to check the quality and correctness of content, as well as to tailor it to user preferences and intentions (tools such as Chat GPT, AIPRM, Jasper.ai). This includes creating titles and meta descriptions, headers and subheadings, content creation and editing, and generating frequently asked questions (FAQs).

Marketing Strategy Creation – leveraging AI for market analysis, competitive analysis, audience segmentation, and generating recommendations and action scenarios (tools like Daydrm.ai). This tool facilitates the creation of marketing strategy briefs and the development of creative ideas for promotional activities (live events and product promotion on social media).

Content Creation – utilizing AI for generating ideas for keywords, slogans, product or service names, and conceptual visualization (tools including anyword, Jasper.ai). AI assists employees in creating engaging and personalized content used across communication channels and targeted at various audience groups.

Graphic Content Creation – utilizing AI for generating and editing photos, graphics, and video materials based on descriptions or sketches (tools like Stable Diffusion). This tool employs the latest natural language generation and machine learning technologies to create realistic and high-quality images based on natural language descriptions.

Audio Content Creation – using AI for converting speech to text and vice versa, as well as synthesizing and modifying voices based on text or an individual's image (tools including InVideo.io, Simplified).

Marketing Automation – employing AI to automate processes such as running campaigns, influencer marketing, creating newsletters, content publication, social media management, and remarketing (tools such as Sales Manago, Ontraport, ActiveCampaign).

Influencer Marketing – using AI to personalize content and offers for each user based on their data and behaviors (tools such as IMAI, CreatorIQ).

Measuring Marketing Effectiveness – leveraging AI to analyze campaign results, monitor key performance indicators, and generate reports and insights (tools like MarketMuse, Import.io).

The study conducted by Gartner (gartner.com) showed that by 2022, 70% of customer interactions will involve emerging technologies such as machine learning applications, chatbots and mobile messaging, up from 15% in 2018.

The use of AI in the form of machine learning algorithms in customer service not only streamlines the entire process but can also positively impact the company's image. Customer service is crucial for its reputation, especially when issues arise. A dissatisfied customer is likely to leave negative reviews online, share them with others, and ultimately may refrain from choosing the same product or service again.

Therefore, companies should seize every opportunity to provide excellent service, facilitated significantly by modern technologies (BANK.PL, 2023). With AI-enabled brand reputation management you can alert a potential brand threat before it turns into a big issue. Monitoring negative sentiments in real time, choosing the right influencers and ambassadors and providing proactive customer care – all this can be achieved seamlessly with AI marketing tools (Chacko, 2023).

3. Research Methods

To explore the role of artificial intelligence (AI) in shaping a company's image and verify the research hypothesis, a survey was conducted among 160 enterprises. The study aimed to identify key determinants of company image with a particular focus on the implementation and impact of AI technologies.

On obtaining responses from 160 enterprises, data analysis commenced. The multidimensional nature of the study allowed for a variety of analytical techniques factor analysis, in order to grasp the patterns and relationships among the determinants and their effect on the importance of using artificial intelligence in shaping the company's image.

Exploratory factor analysis serves to verify the hypothesis proposed. It helps to identify variables referred to as factors, which explicate correlation patterns within the sets of observed variables. The number of factors is indicated by means of (StatSoft, 1997):

Cattell's method – the scree graph is linear; in order to select the number of components (factors), the point is sought where the graph is no longer steep (no

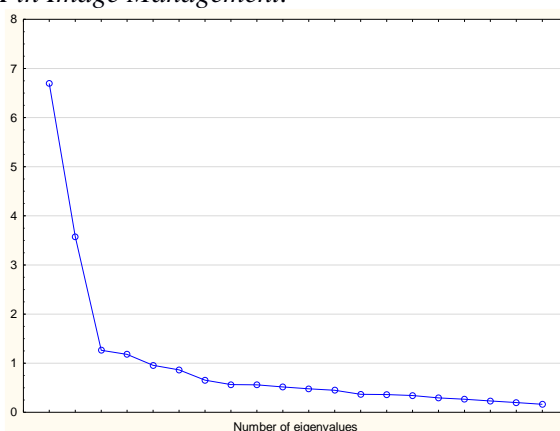
longer a scree). The components above that point are the quantity of factors to be distinguished as part of the analysis,

Kaiser criterion – it's assumed that if more than one component (factor) explains more variance than a single variable, or where the eigenvalue is more than 1, that component should be adopted as part of the factor solution. Stastica 12 software and MS Excel 2016 spreadsheets assist with the statistical analyses.

4. Results

In the next step was to undertake the exploratory factor analysis to clarify the mutual relationships among the observable variables. To determine an appropriate number of factors, Cattell's scree test was applied to analyze eigenvalue reductions and the Kaiser criterion to address only the factors with eigenvalues above 1. A drop to the right of the scree point indicated the presence of the so-called 'factor scree', which helped to determine the number of factors subject to further analysis.

Figure 1. *The scree plot of eigenvalues for the factors describing the determinants of the impact of AI in Image Management.*



Source: Authors' own research.

Figure 1 illustrates a steep declining curve turning into a mild factor scree with four distinct factors. This means the successive factors contain but little information. They have low eigenvalues and are thus rejected. A model of four factors is selected for the continuing analysis, therefore.

Table 1 contains a matrix of eigenvalues for the selected factors and Table 2 a matrix of factor loads for the factors describing the impact of AI in Image Management., i.e., a correlation between the observable variables and the factors introduced to the model. 0.6 is assumed as the minimum correlation qualifying as important.

Table 1. A matrix of eigenvalues for the factors describing the determinants of the impact of AI in Image Management

Factor	Eigenvalue	Percentage of total variance	Accumulated eigenvalue	Accumulated percentage
1	6,70	33,48	6,70	33,48
2	3,58	17,88	10,27	51,35
3	1,27	6,33	11,54	57,68
4	1,18	5,90	12,72	63,58

Source: Authors' own research.

Table 1 shows the subsequent eigenvalues or parts of the variance explicated for the individual three factors are as follows:

- for factor one, 6.70, or 33.48% of the total variance,
- for factor two, 3.58, or 17,88% of the total variance,
- for factor three, 1.27, or 6,33% of the total variance,
- for factor four, 1.08, or 5.38% of the total variance.

The accumulated eigenvalue for the four factors is 12.72. This means such a system of factors explains as much as 63.58% of the total variance.

Table 2. A matrix of factor loads for the determinants of the impact of AI in Image Management

Factor loads (normalised Varimax) Key components (The loads are greater than 0.6)				
Variable	Factor 1	Factor 2	Factor 3	Factor 4
V1	0,77	-0,28	-0,17	-0,07
V2	0,79	0,15	0,02	0,01
V3	0,82	-0,25	-0,03	-0,12
V4	-0,20	0,41	0,59	-0,13
V5	-0,03	0,65	0,04	0,31
V6	-0,06	0,69	0,24	0,08
V7	0,02	0,22	0,68	0,28
V8	-0,01	0,07	0,81	0,11
V9	0,00	0,22	0,23	0,75
V10	-0,08	0,16	-0,02	0,81
V11	-0,01	0,65	0,18	0,13
V12	-0,13	0,33	0,13	0,40
V13	-0,27	0,74	0,14	0,06
V14	-0,24	0,73	0,23	0,26
V15	-0,08	0,84	-0,08	0,09
V16	0,80	-0,11	0,05	0,01
V17	0,82	-0,16	0,04	-0,15
V18	0,83	-0,19	-0,02	-0,14
V19	0,83	-0,04	-0,05	0,01
V20	0,82	-0,01	-0,13	0,05

Source: Authors' own research.

Table 2 implies:

- the first factor is loaded with a total of nine variables numbered: V1-V3 and V16-V20,
- the second factor is loaded with six variables numbered V5,V6, V11 and V13-V15,
- the third factor is loaded with two variables numbered V7 and V8,
- the fourth factor is loaded with two variable V9 and V10.

The factor analysis supplies some important information on the interrelations among the observable variables with regard to the impact of AI in Image Management. The factor loads, normalized by means of Varimax, help to identify which variables are significantly related to the particular factors and to what degree. As suggested by the literature, the factor names are derived from the variables of maximum factor loads.

Thus, the first factor is named “Automation/Optimization”, factor 2 – “Strategic Analysis”, factor 3 – “Content Management” and factor 4 – “CSR”.

Factor 1: Automation/Optimization (loaded with a total of nine variables numbered: V1-V3 and V16-V20)

The results indicate that factor 1 may be interpreted as ‘Automation/Optimization’. High loads of selected variables suggest that activities such as content optimization, marketing automation, logistics optimization, market analysis, website optimization, loyalty program automation, pricing strategy optimization, HR process automation, and social media advertising automation are strongly linked to this factor. Factor 1 highlights the crucial role that AI-driven automation and optimization play in fostering sustainable growth and enhancing organizational image.

By leveraging AI technologies to streamline and improve various operational and marketing processes, organizations can achieve greater efficiency, reduce costs, and enhance their market presence. This not only supports sustainable growth but also strengthens the organization's image by demonstrating a commitment to innovation and technological advancement. AI's ability to optimize content, automate marketing and HR processes, and refine pricing strategies ensures that organizations remain competitive and responsive to market demands, thereby fostering long-term sustainability and a positive public image.

Factor 2: Strategic Analysis (loaded with six variables numbered V5,V6, V11 and V13-V15)

The results indicate that factor 2 may be interpreted as ‘Strategic Analysis’. High loads of selected variables suggest that activities such as detecting social trends, analyzing user recommendations, evaluating PR campaign performance, sales analysis, and crisis prediction are strongly linked to this factor. It underscores the importance of AI-driven strategic analysis in supporting sustainable growth and managing organizational image.

By employing AI technologies to identify social trends, analyze user feedback, assess PR campaign effectiveness, and predict potential crises, organizations can make informed strategic decisions that drive growth and safeguard their reputation.

This strategic use of AI enables organizations to stay ahead of market changes, respond proactively to customer needs, and mitigate risks, thereby ensuring long-term sustainability and a resilient, positive image. Through comprehensive analysis and predictive capabilities, AI empowers organizations to navigate complex market dynamics and maintain a competitive edge.

Factor 3: Content Management (loaded with two variables numbered V7 and V8) Relatively high loads in factor 3 are exhibited by variables V9 (content creation) and V10 (Forecasting). High loads of these variables indicates that factor 3 may be interpreted as “Content Management”. By leveraging AI technologies for content creation and forecasting, organizations can produce high-quality, relevant content that engages their audience and supports strategic goals.

AI-driven content creation ensures consistency, personalization, and efficiency, while forecasting helps organizations anticipate market trends and customer preferences, allowing for timely and informed content strategies. This not only aids in maintaining a strong brand presence and reputation but also drives customer engagement and loyalty, contributing to sustainable organizational growth.

Factor 4: CSR (loaded with two variable V9 and V10)

The results indicate factor 4 may be interpreted as ‘CSR’ (Corporate Social Responsibility). High loads of chosen variables suggest that activities such as monitoring CSR initiatives and studying the perception of sustainable development are strongly linked to this fact. Factor 4 emphasizes the critical role of AI in enhancing

CSR efforts for promoting sustainable growth and managing organizational image. By utilizing AI technologies to monitor CSR activities and analyze perceptions of sustainability, organizations can ensure their initiatives are effective, transparent, and aligned with stakeholder expectations.

In general, the obtain model of the impact of AI in Image Management demonstrates how the broad application of AI supports organizational growth and image management. Automation and optimization of processes, strategic analysis, content management, and social responsibility are key areas where AI plays a significant role, contributing to the long-term success of organizations.

5. Discussion

Contemporary technologies, including artificial intelligence, the Internet of Things, and big data analytics, offer new digital business solutions that enable the creation of

customer bases and their utilization to achieve market success (Bolton *et al.*, 2018). A global approach, customer orientation, and a focus on customer needs play a crucial role in the development of organizations.

Research conducted by Verna *et al.* (2021) identified the possibilities of using artificial intelligence in marketing. The authors highlighted five areas of application, in strategy and planning (assisting in segmentation, targeting, and positioning, as well as determining the strategic development of the company), in product management (evaluating product suitability relative to customer needs), in pricing management (dynamically adjusting prices in real-time), in place management (offering cobots for packaging, drones for delivery, IoT for order tracking and order refilling), and in promotion management (personalization and adaptation to customer profiles and preferences).

Meanwhile, Mikalef and Gupta (2021) defined artificial intelligence as the ability of a system to identify, interpret, make inferences, and learn from data to achieve predetermined organizational and societal goals. In their research, they identified resources that organizations need to foster in order to derive business value from their AI investment.

These include material resources (data, technologies, fundamental resources – financial and time), human resources (business and technical skills), and intangible resources (inter-departmental coordination, organizational change capacity, risk proclivity). They also demonstrated that the application of artificial intelligence has a positive impact on organizational creativity, which in turn will have a positive effect on organizational performance.

Research conducted by Jarek and Mazurek (2019) highlighted the significant role of artificial intelligence in every area of the marketing mix—product, price, promotion (brand), and place (sales and distribution). For each of these areas, AI applications were identified, including voice and text processing technologies, image recognition and processing technology, decision-making, autonomous robots, and vehicles (although the last two areas were not as popular as the others).

The analysis shows that AI activities have a two-way impact on marketing. On the one hand, the beneficiary of changes is the consumer, but on the other, new solutions affect the entirety of the pursued marketing activities. Among the benefits for customers resulting from the application of AI are more convenient and quicker shopping, new consumer experiences, and a new dimension of the consumer-brand relationship.

The significant impact of AI on marketing management practices was demonstrated through the elimination of laborious and time-consuming activities, increased importance of creative and strategic activities, design innovations, the development

of new competences in the marketing team, and the creation of a new marketing ecosystem.

6. Conclusion

Conducted empirical research, along with a literature review and survey data analysis, provided detailed information on how AI impacts various aspects of a company's image. Statistical analysis enabled the determination of the significance of individual variables and confirmed the research hypothesis.

The research results indicate that the application of artificial intelligence has a significant impact on the perception of a company's image. Companies that effectively implement AI technologies are perceived as more innovative, responsive, and socially responsible.

The implementation of AI in various aspects of a company's operations not only enhances its operational efficiency but also strengthens its market position and image in the eyes of customers, investors, and other stakeholders.

In conclusion, the literature review and the conducted research confirm that artificial intelligence is a significant factor influencing the perception of a company's image in the contemporary economic reality, which is in line with the adopted research hypothesis.

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