

## The Impact Of Human Resource Information Systems And Artificial Intelligence On Defense Industry Performance

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### ABSTRACT

The purpose of this research is to investigate how HRIS and AI have influenced the productivity of the military sector in this era of disruption. This inquiry will use a quantitative approach to its methods. The sample pool consisted of one hundred fifty persons who were employed in the military industry. As the main form of data collecting, we will be sending out questionnaires to all of the participants. A Likert scale is provided in the questionnaire, and it is used to assign ratings to the various pieces of information. In order to do an analysis on the data, structured equation modeling in SmartPLS 3.0 was used. In this research, the variable known as "employee performance" acts as the dependent variable, while the variables known as "HRIS" and "work satisfaction" serve as the independent variables. The significance level that was discovered in the data analysis for this research provides evidence in support of the hypothesis that HRIS has a beneficial effect on productivity in the workplace. The HRIS program will be more precise, exact, and comprehensive to the extent that the employee's performance on work assignments is higher. Improving the defense industry's ability to make intelligent decisions about its human resource allocations by implementing methodical HRIS procedures, such as the collection, storage, maintenance, retrieval, and validation of data. Plans for the strategic use of information technology may have an impact on the future direction of the military industry by modifying both the extent to which human resources are used and the depth to which individuals comprehend the context in which they operate. There is a correlation between the use of artificial intelligence (AI) in the workplace and increased levels of productivity

**Key Words:** Human Resources Information System, Artificial Intelligence, and Performance Industry Defense

### INTRODUCTION

The rate of technical advancement and expansion of the internet has increased exponentially in the period in which we now find ourselves. Everything is happening very quickly and effectively. This era is referred to as "Industrial Revolution 4.0." Some have argued that the Fourth Industrial Revolution is already old information. However, the phrase "industrial revolution 4.0" refers to an era where cognitive computing, cloud computing, and physical systems are all included. It is challenging to dispute the assertion that the ongoing industrial revolution has had far-reaching effects in numerous fields. These effects have been brought about by technological advancements. One example of the opportunities and obstacles presented by this age is the provision of opportunities for individuals currently living in this era, as well as the education of young people at the appropriate age.

It is becoming increasingly evident that the Fourth Industrial Revolution is contributing to the continued expansion of our lives. The idea that we are completely

dependent on the various forms that contemporary technology may take is one that we cannot seem to escape. In addition to the development of technology that is more advanced than ever, this period of time has also witnessed the birth of new insights. Some view the advancements brought about by the Industrial Revolution 4.0 as a whole new form of dictatorship. Those who are adept at navigating the present will undoubtedly capitalize on the opportunities and resources at their disposal.

In the contemporary era, novel combinations of human expertise and technological innovations are continuously emerging. This phenomenon can be explained using terms such as artificial intelligence (AI) or logical building. The field of artificial intelligence is a relatively new topic that has led to significant advancements in both the field of knowledge and the world of technology. As defined by Encyclopaedia Britannica, artificial intelligence is a subfield of computer science that attempts to simulate human intelligence by processing data not through the use of traditional numerical algorithms but rather through the application of heuristics or a set of predefined rules. As previously discussed, one of the most significant effects of our era is the advancement of education. In the field of education, expertise can assist in establishing learner choice, instructional strategies, and pedagogical preferences in the context of e-learning (Supangat et al., 2021).

Artificial intelligence (AI) has the potential to significantly enhance human labor productivity, in addition to the educational applications it can now fulfill. The implementation of such measures does not indicate that artificial intelligence will eventually supersede human capabilities. Instead, AI will facilitate the realization of our intrinsic potential in ways that rigid structures cannot. If they are afforded an opportunity, all individuals possess abilities and potential that can enhance their capabilities. The availability of high-quality human resources will facilitate the effective utilization of existing technological resources. The subject under discussion is a particularly intriguing one. This is attributable to the dependability of the construction, which permits a distinct visualization of the elements situated on the opposite side.

As stated by Koay et al. (2021) and Malik et al. (2022), the advent of artificial intelligence (AI) and its associated innovations has had a profound impact on various aspects of human life. While AI has the potential to address current needs, it also poses a threat to humans. This is due to the fact that AI is capable of performing tasks that were previously done by humans, thereby reducing the need for human labor. However, recent advances in the field of construction quality assurance are gradually making human labor obsolete. As posited by Chowdhury et al. (2022) and Esangbedo et al. (2021), marketers employ AI to identify and predict consumer behavior. This data allows marketers to utilize more specific keywords and customize customer interactions, thereby creating unique experiences for consumers. The advent of recent developments in information and communication technology has provided more effective and more efficient solutions for business administration.

In the Internet age, the adoption of information technology by an organization is a crucial aspect of competitiveness. This is equally applicable to those working in the military or in higher education.

As defined by Malik et al. (2022), the concept of artificial intelligence (AI) encompasses the creation of entities exhibiting human-like qualities. In terms of achieving specific outcomes, a dependable machine can perform as well as a reliable individual. In fact, a dependable machine can even substitute for a human in executing certain tasks. The

advancement of ingenious products in accordance with contemporary trends was made possible by improvements in manufacturing quality. One of the most reliable products currently in use is the Google search engine. This encompasses virtual assistants capable of conducting two-way conversations, as well as DeepFace, which can be utilized on smartphones and Facebook to identify faces concealed within photographs. The vehicle is free from any dirt or contamination. As Malik et al. (2022) observe, food safety is employed in a number of other disciplines, including business, economics, and medicine, in order to meet the demands of the contemporary world. Food safety is employed to identify viruses such as the Corona virus, to measure body temperature, and to detect risks such as the use of masks and bats. Furthermore, food safety is employed to monitor body temperature.

The findings of research conducted by Neelam Klausal (2021) titled "Artificial intelligence and HRM: Identifying Future Research Agenda using Systematic Literature Review and Bibliometric Analysis" indicate a significant concentration of research in this area, particularly regarding the application of AI to various HRM functions such as recruitment, selection, onboarding, training, and education, as well as bibliometric analysis. The findings of the research indicate a concentration of research in this area, particularly regarding the application of AI to various HRM functions, including recruitment, selection, onboarding, training, and education, as well as bibliometric analysis. The review was published under the title "Artificial Intelligence and HRM: Identifying Future Research." The review offers a synopsis of the work process that has emerged at AIHRMI as a consequence of a multitude of studies that are currently under consideration in ongoing research. The model has the potential to assist businesses that have already made significant strides in human capital management (HRM) and those that are still in the early stages of developing their HRM capabilities. The investigation, scheduled for publication in 2023, is entitled "The Role and Impact of Human Resource Information Systems (HRIS) on Organizational Activities." As work organization plays an important role in the overall policy formulation process, the information technology industry is one example of a growing sector that has effectively built a parallel infrastructure. The ever-expanding galaxy has demonstrated the capacity to persuade other sub-galaxies to rely on it by leveraging its own strengths to enhance its capacity in strategic planning, administration, and maintenance. The groundbreaking concept of integrating technology into human resource management paved the way for the emergence of a novel academic discipline, known as human resource information systems (HRIS). The efficacy of this methodology has been substantiated by empirical evidence, demonstrating its capacity to facilitate expedient access. Moreover, the advantages it offers to HR operations have been leveraged to their fullest potential. The primary objective of this study is to forecast the trajectory of HRIS and to delineate the role of the guarantor in organizational operations. The objective of this experiment was twofold: firstly, to establish a more direct link between HRIS and the work that employees perform on a daily basis; and secondly, to evaluate the effect the system has on the company as a whole. Data was collected from a variety of businesses by HR personnel using Google Forms, and analysis was conducted using statistical analysis software for PSPP. The chi-square test was employed to evaluate the hypotheses derived from the data. Conclusions are summarized at the end of the findings report by noting that there is a significant relationship between the selected identities. As a result, the tested hypothesis is proven to be true and genuine.

The purpose of this study was to determine the effect of Human Resources Information System (HRIS) and Artificial Intelligence on Industry Defense Performance Using the SMART-PLS Method.

## **LITERATURE RIVIEW**

### **A. Human Resources Information System (HRIS)**

The effective implementation of decisions pertaining to daily operations and long-term planning is contingent upon the utilisation of an HR management information system (HRIS). A human resource information system (HRIS) is designed to identify and assess the risks and controls that are essential for the efficient management of human resources. The system is designed for use by human resources professionals and system administrators. The measures taken to protect individual information and privacy are subjected to investigation. The process of addressing difficulties that affect employees, supervisors, and other workers as part of an organization's efforts to successfully contribute to the achievement of set goals is referred to as human resource (HR) management. In other words, the convergence of information technology and human resource management has resulted in the emergence of management information systems and human resource information systems. The information system utilized for the management of human resources is comprised of interrelated components that collect, analyze, store, and distribute data in order to facilitate decision-making, coordination, resource allocation, analysis, and visualization.

### **B. Artificial Intelligence**

Artificial intelligence (AI) is the result of computers' attempts to emulate human intelligence. It is becoming an increasingly important component of products and services and a driver of innovation. There are numerous business processes that may benefit from the use of artificial intelligence, and these processes encompass a multitude of functional and operational areas. One such area is marketing, which many believe to be the most crucial aspect of any company's operations. Artificial intelligence is already having an effect on the marketing landscape, and it is likely to continue to do so for the foreseeable future. The most prevalent application of AI in the global marketplace is in the domain of marketing, where its objective is to create value. Artificial intelligence (AI) enables businesses to deliver value to customers across multiple digital and marketing channels while continuing to make accurate and timely decisions, as stated by Halid (2020), Hamid (2022), Hmud and co-authors (2020), Koay (2021), and Malik (2022). As the importance of big data and computing power continues to grow, the role of artificial intelligence (AI) in business practices, particularly in digital marketing, is becoming increasingly significant. It enables businesses to gain a deeper insight into their customers and to more effectively engage with them through tailored digital communications. The deployment of cutting-edge technology is having a discernible impact on marketing tactics, and there is every reason to anticipate that this pattern will continue to intensify in the coming years. The objective of this study is to examine the influence of Human Resource Information Systems (HRIS) and manufacturing quality on the overall performance of the manufacturing sector during the recent economic downturn.

### **C. Performance Industry Defense**

The evidence for this assertion can be found in the works of Votto et al. (2021) and Wamba et al. (2020). The willingness of individuals or groups to carry out work and see it

through to completion according to their level of responsibility and the desired consequences is what we mean when we talk about having a work ethic. If we consider "performance" as a noun whose main component is "work done," then we can define "performance" as the work results that can be achieved by individuals or teams in a certain organizational context, according to the abilities and responsibilities of each individual group member. The pursuit of organizational goals by all members of the organization must comply with the highest standards of law, morality, and ethics.

## **METHODS**

### **A. The Impact of Human Resources Information Systems (HRIS) on Defense Industry Performance**

The adoption of HRIS is a critical factor in enhancing employee productivity in the military industry. Performance has been demonstrated to exert a positive and substantial influence on the success of HRIS. It is estimated that the implementation of an HRIS can lead to an increase in manufacturing productivity. This is achieved by facilitating the creation of resumes, the monitoring of student academic progress, the organization of staff support activities, the processing of payroll, and the distribution of paid leave for vacation and sickness. The deployment of an HRIS has been found to result in a notable increase in productivity. The evaluation models of electronic system success, service quality, usage, usage satisfaction, and perceived net benefits, as proposed by Vardarlier et al. (2020), Votto et al. (2021), and Wamba et al. (2020), are presented herewith. The concept of HRIS success can be decomposed into its constituent elements in order to construct an independent HRIS success model. This can be achieved because the phenomenon of HRIS success is complex. These findings align with those of previous research.

**H1:** The implementation of a Human Resources Information System (HRIS) has a significant positive effect on the performance of the Defense Industry.

### **B. The Impact of Artificial Intelligence on the Performance of the Defense Industry**

Research conducted by Magableh et al. (2021), Muhammad, B.I. (2021), Purwanto et al. (2020), and Spaaki et al. (2020), (2021) indicates that in the digital and marketing realm, artificial intelligence assists companies in delivering value to customers across multiple customer engagement channels while continuously making appropriate and timely judgments. As the importance of big data and computing power continues to grow, the role of artificial intelligence (AI) in business practices, particularly in digital marketing, is becoming increasingly significant. It enables businesses to gain a deeper insight into their customers and to more effectively engage with them through tailored digital communications. Furthermore, the advent of new technological developments has had a profound impact on the field of marketing, and it is anticipated that this influence will intensify in the years to come.

**H2:** Artificial intelligence (AI) has a significant positive effect on the performance of the defense industry.

The study employed a significant degree of quantitative research methodology. A total of 150 employees from the construction and maintenance industry were laid off as a consequence of the culling. A useful method for collecting data was to make the

questionnaire available to any individual who could answer the survey. The Likert scale was employed by the questionnaire to calculate the responses. The data was analyzed using the SmartPLS 3.0 application, which employs a method known as structural equation modeling. In contrast to the HR information system and job satisfaction, which are uncontrolled variables, worker productivity is a controlled variable. The indicators of employee quality, quantity, timeliness, efficiency, independence, and dedication are among those used in the factor of employee performance. The human resource information system (HRIS) database and the output of the HRIS were taken with the input dimensions of the HRIS variables. The effectiveness of an HRIS implementation can be evaluated by examining metrics such as the accuracy, timeliness, and completeness of information submitted by each department; the thoroughness and organization of records relating to human resources; the availability of accurate and complete data from external sources regarding human resources; and the existence of an integrated database containing information from human resources, finance, and markets. The following hypotheses are presented in this study:

**Hypothesis 1 (H1):** The implementation of a Human Resources Information System (HRIS) has a significant positive effect on Performance Industry Defense.

**Hypothesis 2 (H2):** The integration of Artificial Intelligence (AI) has a significant positive effect on Performance Industry Defense.



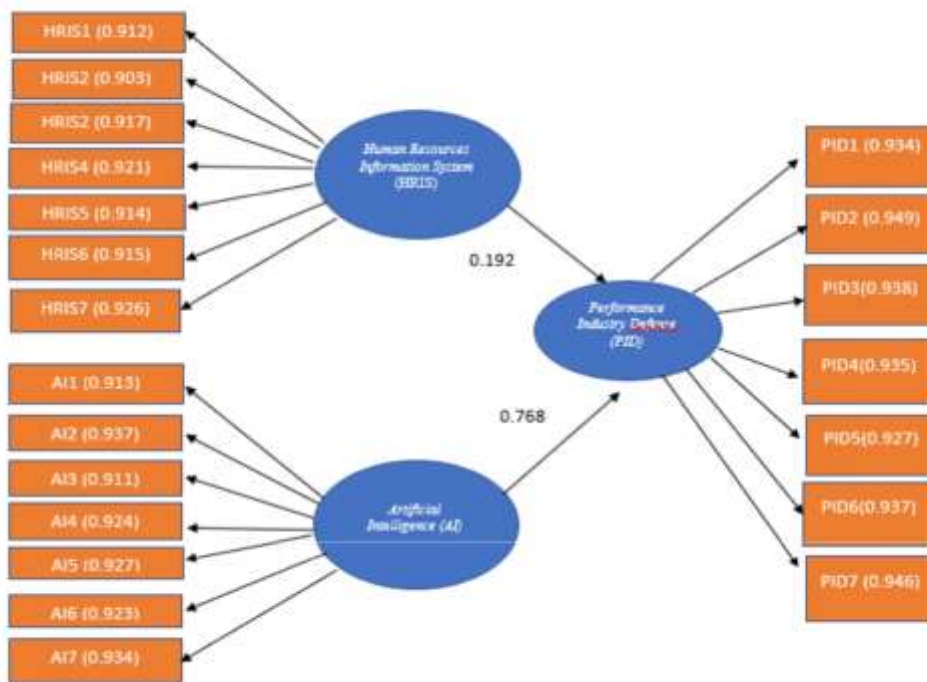
**Image 1:** Research Method

## RESULTS AND DISCUSSION

### A. Results

#### 1. Model Validity Test

In accordance with the findings of Purwanto et al. (2021), indicators are deemed valid if they exhibit a loading factor of at least 0.70 or greater. The following presents the results of the validity test.



**Image 2.** Validity Test After Selection

Source: Researcher Research Data Using Smart-PLS

Based on Figure 2, all indicators are declared valid because they have a loading factor greater than 0.70.

#### 2. Reliability Test

**Table 1.** Reliability Test

Variabel	Alpha Cronbach	Rho_A	Composite Reliability	Average Extracted Variance (AVE)
<i>Human Resources Information System (HRIS)</i>	0.735	0.769	0.913	0.874
<i>Artificial Intelligence (AI)</i>	0.818	0.978	0.906	0.769
<i>Performance Industry Defense</i>	0.769	0.787	0.807	0.875

Source: Researcher Research Data Using Smart-PLS

In accordance with the standards established by Purwanto et al. (2020) in Table 1, it can be ascertained that the AVE value exceeds 0.5 and the Composite Reliability value surpasses 0.7, thereby ensuring that all variables satisfy the requisite reliability criteria.

### 3. Structural Model Evaluation (Inner Model)

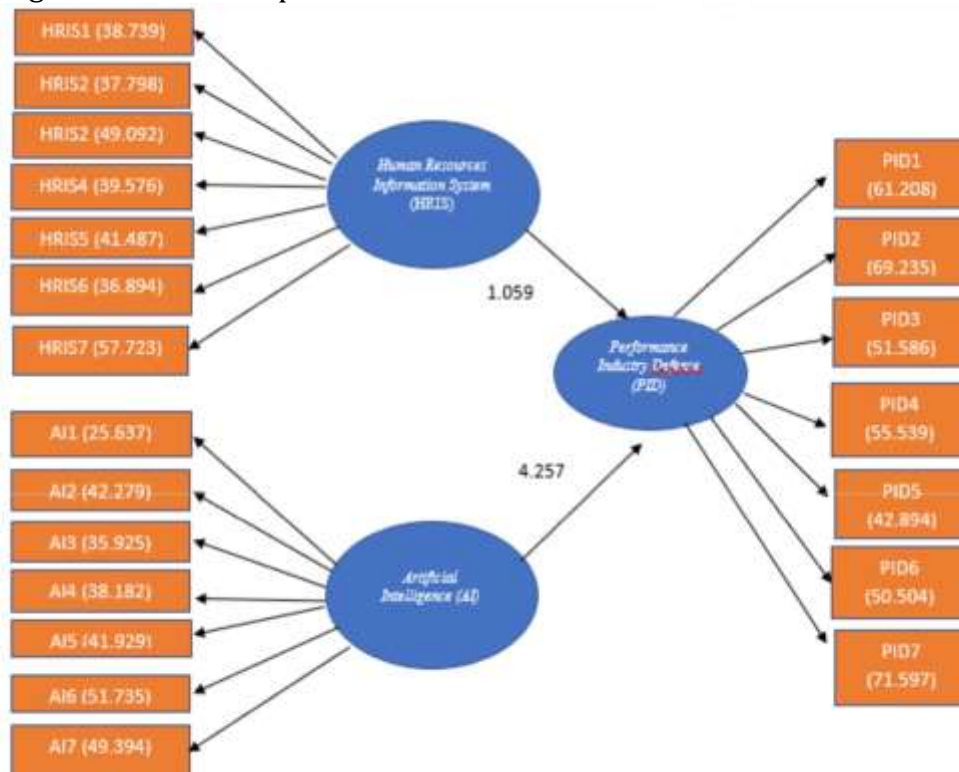
The R-Square statistic is employed to assess the structural model for independent variables, or the inner model. The following section presents the results of testing the inner model.

**Table 2.** Structural Model Evaluation (Inner Model)

Variabel	R-Square	R-Square Customized
<i>Performance Industry Defense</i>	0.807	0.807

Source: Researcher Research Data Using Smart-PLS

Table 2 indicates that the Performance Industry Defense variable can be explained by 80.7% in this model. The following presents the results of data processing for hypothesis testing using the PLS Bootstrap method.



**Image 3.** Structural Model (Inner Model)

Source: Researcher Research Data Using Smart-PLS

The following table is presented to clarify the hypothesis test description



**Table 3.** Hypothesis Test

<i>Hipotesis</i>	<i>Original Sample (O)</i>	<i>Sample Average (M)</i>	<i>Standard Deviation (STDEV)</i>	<i>T Statistiv</i>	<i>P value</i>
<i>Human Resources Information System (HRIS) Terhadap Performance Industry Defense</i>	0.435	0.548	0.432	3.214	0.001
<i>Artificial Intelligence (AI) Terhadap Performance Industry Defense</i>	0.347	0.563	0.342	2.016	0.001

Source: Researcher Research Data Using Smart-PLS

**B. Discussion**

**1. The implementation of a Human Resources Information System (HRIS) has a significant positive effect on the performance of the Defense Industry.**

The results of the data analysis in this study indicate that the null hypothesis (H0) is correct. A Human Resource Information System (HRIS) is defined as having a demonstrably positive impact on PID. When human resource software is accurate, current, and comprehensive, employees are able to perform their duties more effectively. The use of human resource management software (HRIS) has been demonstrated to reduce employee absenteeism, sick leave abuse, and overtime pay errors. Furthermore, HRIS has been shown to increase worker productivity (Hartini, 2020). The implementation of standard HRIS processes, including data collection, storage, management, retrieval, and validation, has been shown to facilitate improved human resource decision-making in the defense sector (Rivai, 2018). The growth of the industry is influenced by the strategic plans of IT in their quantitative use of human resources and their ability to predict the future of the defense industry based on an understanding of environmental conditions. (Sunarsi, 2018).

**2. The application of artificial intelligence (AI) has a substantial positive impact on the performance of the defense industry.**

The alternative hypothesis is supported by the significance level achieved in the data analysis of the current investigation (H2). In other words, research has demonstrated a significant correlation between the use of artificial intelligence (AI) and the performance of the defense sector within the context of business operations. It is anticipated that the performance of the military sector will improve as a consequence of the enhanced accuracy and scope of AI applications. Artificial intelligence (AI) is defined as the process by which computers are programmed to perform tasks that would normally require human intelligence (Huang & Rust,

2018). A collection of technical components that can collect, analyze, and act on data in a manner analogous to how humans think is what is meant when the term "artificial intelligence" is used. Artificial intelligence, like humans, has the capacity to learn and adapt to its environment over time through the constant absorption of new data and knowledge and the application of what it has discovered. There are numerous business processes that may benefit from the use of artificial intelligence, and these processes encompass a multitude of functional and operational areas. One such area is marketing, which many believe to be the most crucial aspect of any company's operations. Artificial intelligence is already having an impact on the marketing landscape, and this impact is likely to continue in the future. The most prevalent application of AI in the global marketplace is in the domain of marketing, which is designed to generate value. Artificial intelligence (AI) enables businesses to deliver value to customers across multiple channels while continuing to make informed and relevant decisions, according to a number of sources, including Vardarlier et al. (2020), Votto et al. (2021), and Wamba et al. (2020). These sources are among numerous others who concur that AI is assisting businesses in the digital and marketing world. As the significance of big data and computing power continues to grow, the role of artificial intelligence (AI) in business practices is becoming increasingly prominent, particularly in the field of digital marketing. This enables businesses to gain a deeper insight into their customers and to more effectively engage with them through tailored digital communications. The deployment of cutting-edge technology is having a discernible impact on marketing tactics. It is reasonable to anticipate that this pattern will continue to intensify in the years to come. The implementation of manufacturing assurance in e-commerce through chatbots, recommendation engines, and supply chain management facilitates the identification of products that align with consumer needs. Furthermore, this implementation enables the e-commerce maintenance industry to provide superior services, which in turn enhances customer satisfaction.

## **CONCLUSION**

The findings of the research data analysis indicate that significant p-values were achieved, which provides evidence that human resource information systems (HRIS) have a substantial relationship with defense sector performance. In the context of the military sector, it can be demonstrated that the implementation of HRIS software with increasing levels of accuracy, precision, and completeness results in higher levels of performance. The implementation of standard human resources information systems (HRIS) procedures, which involve data collection, storage, management, retrieval, and validation, has led to improved decision-making in the military industry with regard to human resources. The expansion of the defense sector can be influenced by strategic IT planning, which allows the industry to make better use of its human resources and to better understand the circumstances in which it operates. This in turn allows for a more accurate assessment of future needs and the development of more effective strategies. The use of AI in the military sector is also a key area of interest. The potential for AI to enhance performance-based security is a particularly promising avenue for future research. The enhanced precision and scope of coverage afforded by AI applications enables workers to perform their duties more effectively. The development of artificial intelligence (AI) in machines to simulate human intelligence is becoming increasingly prevalent in the service sector and other sources of innovation. The term "artificial intelligence" (AI) is used to describe a collection of technical components that can collect, analyze, and act on data in a manner analogous to the way humans think. Artificial intelligence (AI) is similarly capable of learning and adapting to its

environment over time, through the constant absorption of new data and knowledge and the application of previously acquired insights. There are numerous business processes that may benefit from the implementation of artificial intelligence, which is applicable to a multitude of functional and operational domains. One such area is marketing, which is widely regarded as the most crucial aspect of any company's operations. Artificial intelligence is already exerting an influence on the marketing landscape, and this influence will persist into the future. The most prevalent application of AI in the global marketplace is in the domain of marketing, which is designed to create value. The implementation of AI in organizational settings offers a multitude of advantages. Primarily, it enables the provision of value across a spectrum of consumer engagement channels, while simultaneously facilitating continuous, well-informed assessments. As the importance of big data and computing power continues to grow, artificial intelligence (AI) is becoming an increasingly integral part of business practices, particularly in the field of digital marketing. This enables businesses to gain a deeper insight into their customers and to more effectively engage with them through tailored digital communications. Moreover, the advent of new technological developments has a profound impact on the field of marketing, and it is anticipated that this influence will become increasingly pronounced in the years to come.

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