Artificial Intelligence and Competitive Advantage in Algerian Companies: The Need to Understand the Relationship

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Abstract:

This paper aims to study the extent to which Algerian companies understand artificial intelligence in order to achieve a competitive advantage. As artificial intelligence is the direction of Algerian politics. Competitive requirements are understand customer mentality, speed of service delivery and quality. Through this, we test our hypotheses based on a questionnaire answered by companies. We found that there is an accepted understanding by companies of artificial intelligence as a new revolution in achieving competitive advantage.

Key words: Artificial Intelligence, Competitive Advantage, Customer Mentality, Speed Service, Quality.
JEL Classification Codes: L11 ،M31 ، M41.

Introduction:

In recent years, life is about to change dramatically as a result of the advancement of information technology in networks, artificial intelligence and big data processing, all of this requires companies to evaluate and retain competitive strengths due to the great changes and changes brought about by developments in the field of information technology and the competitive pressures imposed by companies And the rapid developments of e-commerce, which made the task very difficult for companies, as data analysis and artificial intelligence are critical to successful strategies. The adoption of AI leads to a smarter and more creative world (Chu et al., 2019). Therefore, it is necessary to search for people with experience, high mental capabilities, and those with a sense of creativity in order to implement and use artificial intelligence correctly in order to succeed in the business world.

We are now living at an accelerated pace in terms of development and the processing of big data has become inevitable. It can be said that accurate and timely processing allows taking the best decisions in a world dominated by competition, which does not wait for the enterprise, as it is necessary to speed up implementation and keep pace with the amazing speed of artificial intelligence. which enters each sector. Hence, it is driving entrepreneurs, strategists, and investors to use artificial intelligence to produce new sources of value for business and design contemporary strategies.

The huge explosion in technology, intellectual development, management, and economic, social, and political changes in various industrial fields, which contributed to the complexity of the challenges faced by leaders and managers alike, and therefore it is necessary to possess sharp intelligence, quick wit, and the great ability to analyze and act with situations that may face the company to transform and adapt quickly Many changes in the world. To survive in a highly competitive market, they must be more agile, mobilizing and motivating their teams around common goals that will add value to their customers and drive the best results across the board. This changing business landscape requires the adoption, adaptation and deep understanding of artificial intelligence (AI) by all members within the company. It is essential for companies to be creative, agile, and innovative, and to be mindful of AI practices and trends that influence competitive advantage across multiple domains and industries. Which leads to improving and developing organizational competencies and achieving results and goals with great accuracy. Competitive advantage is a crucial thing that must be

possessed, otherwise the company will go bankrupt. This feature the company can gain over its opponents through selling prices, quality, speed of providing the product to customers, owning technology and adaptation, and providing high-quality services that add value to customers.

Companies need a driving force for their activities, so it is noticeable that the recent trends towards artificial intelligence require companies to fully understand its practices, mechanisms, tools, and mechanisms, because the implementation of artificial intelligence has gains in terms of added commercial value, such as increased revenues, reduced costs, and improved efficiency. business and also represents a strategic opportunity and a means to enhance marketing, achieve competitive advantage, and realize value from AI (Ajjolli Nagaraja, Fontaine et al. 2019).

➤ **General problematic: What is the extent of understanding intelligence in order to achieve competitive advantage?**

We divided this problem into partial problematic as follows:

What is the extent of understanding artificial intelligence in order to enhance the understanding customer mentality?

What is the extent of understanding artificial intelligence in order to compete in speed of service delivery ?

What is the extent of understanding artificial intelligence in order to enhance quality?

➤ **General hypothesis: There is an accepted understanding of artificial intelligence in order to achieve a competitive advantage**

In order to understand the hypothesis of the study we divide it into three partial hypotheses as following :

H1-There is an accepted understanding of artificial intelligence in order to enhance the Understanding Customer Mentality

H2-There is an accepted understanding of artificial intelligence in order to compete for in speed of service delivery

H3-There is an accepted understanding of AI in order to enhance quality

➤ **The importance of the study:**

The topic of the times and one of the most recent topics is that the subject of this study - artificial intelligence, as it is very important in companies, many studies and researches have focused on it and many articles have been published and forums, conferences, seminars and even documentaries have been programmed due to their

necessity in our daily lives. Artificial intelligence has swept all fields, as all thinking has become how to deal with old and current habits through programming and technology and develop them through artificial intelligence, and therefore it has become important in all sectors, its practices must be studied as a basic process in parallel with the competitive advantage as a decisive element for all companies in the world As its variables are very important and therefore it is necessary to focus on them by studying price competition, speed of service, quality, understand the mentality of the customer, technology dependency and adaptability. Moreover, when companies adopt artificial intelligence, they must have a deep study of the issue of competitive advantage, and therefore the best experts, managers, and leaders must be provided to support the new directions of artificial intelligence, not only to obtain profits, but to ensure a competitive position and give importance to the variables of competitive advantage.

➢ **Objectives of the study:**

In this study, the researcher tries to achieve a set of goals:

- Showing the reality of adopting artificial intelligence in our companies in Algeria.

- Clarifying the relationship between artificial intelligence and competitive advantage.

- Highlight the critical importance of understanding artificial intelligence.

- Clarify the importance of understanding artificial intelligence to meet price competition and speed of service

- helping corporate to the best understanding of artificial intelligence in order to compete in the understanding customer mentality

- Focusing on the understanding of artificial intelligence in order to enhance quality

➢ **Methodology applied:**

Considering that the topic of artificial intelligence is one of the important topics in the business world and in all companies and sectors, and therefore in order to understand it, clarify its concept and enhance its use to achieve competitive advantages, a set of methodological steps must be taken that can be adopted in this study, which was through a presentation in which we clarified the importance of the topic And its objectives and we put forward a problem and sub-questions and we formulated the hypothesis of the study and sub-hypotheses of our study and thus by answering the problem of the study and the questions posed and proving or denying the hypotheses,. We rely on the analytical descriptive approach by studying a sample of Algerian companies. We formulated the questionnaire based on previous studies. We distributed

it to the companies. The amount of data obtained through the use of the SPSS program was analyzed in order to obtain the results.

➢ **Previous studies:**

(Hossain, Agnihotri et al. 2022) Presented research on how manufacturers of industrial goods sustain their competitive advantage in export markets and persuade buyers in a competitive, data-rich business environment. These findings showcase the latest explorations within the marketing analytics and academic research paradigm of artificial intelligence. Moreover, in practice, managers will be familiar with the facts that create flexibility in this specific industry context.

(Sun, Xu et al. 2022) Shown that the AI innovation ecosystem can bring economic value and relationship value to enterprises; The effects of economic value and relationship value on competitive advantage and innovation visibility are not significant; Co-creation of value does not have a significant impact on competitive advantage and innovation clarity, and dynamic capabilities and innovation capabilities play a mediating role. Theoretical contribution, practical implication, limitations, and future research are presented.

By presenting the previous studies it is clear to us that our study is characterized by the following:

- This study shows the importance to understand artificial intelligence for business.

- This study aims to clarify the importance of artificial intelligence and the various approaches that can benefit from it.

- This study aims to clarify the understanding of artificial intelligence in oerder to gain speed of service.

- This study shows the understanding of artificial intelligence in order to understand the mentality of the customer.

Artificial Intelligence:

The concept of artificial intelligence is formed from the two terms "artificial" and "intelligence". Intelligence can be described as involving mental activities, such as learning, reasoning, and understanding. The word "artificial" refers to something made by man, rather than natural. By combining these two together, AI can be understood as making machines capable of simulating intelligence (Mikalef and Gupta 2021). Artificial intelligence refers to multiple tools and technologies that can display, recognize, and perform a variety of emotions with the ability to adapt over time and learn from

experience (Jakšič and Marinč 2019). However, there is still a lack of scientific literature examining the application of AI strategies.

Strong AI refers to hypothetical or superhuman systems that mimic complex human reasoning skills and implement multitasking, moral judgments, symbolic reasoning, situational management, and social insights. Weak AI refers to systems that are capable of performing tasks that require a single human ability, for example, handling complexity, understanding context, visual perception, and probabilistic reasoning (Whitelaw, Mamas et al. 2020).

1-2-Benefits and challenges of activating artificial intelligence:

There are many success stories proving the value of artificial intelligence. Companies that add machine learning and cognitive interaction to traditional business processes and applications can dramatically improve user experience and boost productivity. However, there are some obstacles. Few companies have deployed AI at scale, for several reasons. For example, if you don't use cloud computing, machine learning projects can often be very expensive. They are also complex to construct, require expertise, are in high demand, and supplies are in short supply. Knowing when and where to merge these projects, as well as when to turn to third parties, will help reduce these difficulties (Czaja and Ceruso 2022).

One possible model for mitigating obstacles and obstacles would be to engage in such strategic alliances. Doing so enables organizations to access resources that they would not otherwise be able to obtain on their own, while at the same time, both companies are able to increase the value of their businesses and leverage each other's capabilities. However, research on governance schemes for effective collaboration within such AI partnerships is still at an early stage. Building on this path helps to understand the dynamics and conflicts of interest in such cooperative arrangements, as well as the optimal ways to organize. Furthermore, one prominent area of study is how organizations develop the necessary IT infrastructure to facilitate such collaboration between organizations around AI (Fuller, Fan et al. 2020).

1-3-How to get started with artificial intelligence:

Communicate with customers through chatbots. Chatbots use natural language processing to understand customers and allow them to ask questions and obtain information. These bots can also learn over time so they can add more value to customer interactions.

Data center monitoring. IT operations can simplify monitoring with a cloud platform that consolidates all data and automatically tracks limits and anomalies. Conduct business analysis without the need for experts. Analytical tools with a visual user interface allow non-technical people to easily search within the system and get understandable answers (Meskó 2019).

Competitive Advantage:

In the 21st century, there were many approaches that give organizations a competitive advantage until they reached a sustainable competitive advantage. It was noted that the issue of competitive advantage was not confined to quality, speed, and price, but rather went beyond it to the use of technology, dealing with big data, and even the use of artificial intelligence.

2-1- The concept of Competitive Advantage

In business, a competitive advantage is the attribute that allows an organization to outperform its competitors. Competitive advantage can include access to natural resources, such as high-quality raw materials, low-cost energy sources, skilled labor, geographic location, high barriers to entry, and access to new technology (Namada 2018; Abdulwase, Ahmed et al. 2020).

Competitive advantage is the company's power over its competitors. This can be achieved by offering customers better and greater value. Advertising of products or services of better quality or lower prices arouses customer interest. Target markets recognize these unique products or services, which is the reason for brand loyalty, or why customers prefer one product or service over another (Porter 1980). It is possible to focus when giving the concept of competitiveness on the set of skills, technologies, resources and advantages that management can coordinate and invest in order to achieve producing greater values and benefits for the customer and difference from competitors (Zhang, Gu et al. 2019).

When talking about the reasons that make organizations think about competitiveness, they are the enormity of the market and the multiplicity of opportunities in the global market, which must be kept up and exploited, and reduce weaknesses, confront threats and support strengths. Also, the abundance of information about the market and its variables allows the company to take appropriate decisions, and the ease of communication and exchange of information has greatly allowed the intensification of competition because the one who interacts with information quickly

and accurately is the guarantor of selling his products and obtaining the first place in all levels(Ortiz 2020; Gani, Al Rahbi et al. 2021). The multiplicity of alternatives in front of decision makers puts the administration in a difficult position due to the fact that the market does not wait for your product only, so the decision must be made in choosing the best alternative and acquiring great skill in that (Sakas, Vlachos et al. 2014; Wang and Cao 2022), and the ability to deal with the flow of research results and technological developments gives speed in decisions to produce the product and distribute it in The right time and the desired form. It is the strong competition based on risk that makes companies excel and top the lists or incur the biggest loss (Sakas, Vlachos et al. 2014).

The value proposition is important when understanding competitive advantage. If the value proposition is effective, that is, if the value proposition provides customers with better and greater value, this can result in a competitive advantage for the product or service. A value proposition can increase customer expectations and choices (Rau, Zbiek et al. 2017). In order to achieve a competitive advantage, it is necessary to pay attention to the quality of the product or service provided, to develop the service and product provided to the customer, to rationalize costs and reduce the price of the service and product in a way that does not affect the quality of the product, and to use technology and communication systems to create innovation and an advantage for the customer over competitors (Skordoulis, Ntanos et al. 2020).

Michael Porter identifies two ways in which a company can achieve competitive advantage over its opponents: price advantage and product differentiation. A price advantage is achieved when a business offers the same products and services as its competitors, but at a lower price. Product differentiation is achieved when a company offers products and services that are better than those of competitors. In Porter's view, strategic management should be concerned with building and maintaining competitive advantage.

2-2- Persuading organizations to own many competitive advantages :

There are many competitive advantages for organizations that can be considered strengths and difficult for competitors to imitate, and make the organization more sustainable, the most important of which are the following:

2-2- 1- Price competition

This comparative advantage is the best advantage of all, if you can provide services that are equal to the competitors in terms of quality. But once your competitors

notice you're offering a lower price, it's very easy to lower their prices to get them competitive again (Dagnino, Picone et al. 2021).

2-2- 2- Competition for the speed of service provision

One of the easiest ways to attract your customer's loyalty is to provide the service they want at the right time and at the required speed, specifically in financial technology companies, insurance companies, or home services. This requires quick and direct communication with clients, and a high ability to adapt and work under pressure (Parida and Wincent 2019).

2-2- 3- Competition for quality

Quality is the best that the customer seeks, and a startup company can prove itself quickly through the competitive quality advantage of the project (Chen, Lee et al. 2020). The product has the ability to perform the functions required of it, and it can be usable for the maximum period and ease of repairing the product and returning it to its normal state, by the way some functions can be added to update and develop the product and the specifications required by the factory can be adhered to to meet the consumer's requirements (Kumar, Hossain et al. 2021).

2-2- 4- Reliance on technology

The introduction of modern technologies and technology in your project ensures that it will continue to compete and not leave the market, in addition to attracting customers and facilitating dealing with them. The use of smart applications helps increase customer loyalty to you, make them more connected to your project, and increase sales (Nayak, Bhattacharyya et al. 2021).

2-2- 5- Understanding customer mentality

You must understand the characteristics of the target segment that deals with your business. In order to be sure of this, you must answer the following questions (Pei, Guo et al. 2020):

What kind of companies will you want to do business with and buy from?

If you provide services to individuals. What are the characteristics of the target audience? men or women? Young or old? Married or not married?

Do they live a small or large distance from your location?

What is their average income and savings?

Can you target a different audience than your competitor's customers?

Answering these questions will be the cornerstone of all your marketing and promotional goals.

2-2- 6- Adaptability :

If you can adapt to your competitors and continue despite market changes, this is a significant competitive advantage that helps you ensure the continuity of your project and distinguish it from others (Gligor, Feizabadi et al. 2020).

2-3- The need for artificial intelligence and competitive advantage in companies:

AI technology is an imperative strategic technology that drives greater efficiency, new revenue opportunities and enhanced customer loyalty. It is also quickly becoming a competitive advantage for many organizations. With AI, companies can get more done in less time, create personalized and engaging customer experiences, and predict business outcomes to increase profitability, but AI is still a new and complex technology. To get the most out of it, you need expertise in how to build and manage AI solutions at scale. An AI project requires more than just hiring a data scientist. Companies must implement the tools, processes, and management strategies to ensure the success of AI technology.

Empirical study:

The study was in companies in Algeria to show the understanding of AI and its relationship with competitive advantage. throughout the theoretical aspect we suggest a questionnaire to answer the questions. 35 questionnaires were distributed, then we got 33 questionnaires, 30 questionnaires were accepted. Accordingly, we can say that these numbers represent the approximate percentage of 85.71 % of the total questionnaires. After collecting and reviewing the data and ensuring that appropriate information is available. Study tables and different industries: mean and standard deviation and correlation.

Discuss the results of the acceptence and the understanding of artificial intelligence in companies:

Title 1: Results of Mean, Standard Deviation and Correlation

Artificial Intelligence	Mean	Standard deviation	AI 1	AI 2	AI 3	AI 4	AI 5
AI 1	4,2267	,57472	1	,787**	,711**	,518**	,376*
AI 2	4,2133	,69069	,787**	1	,835**	,453*	,328
AI 3	4,1667	,69497	,711**	,835**	1	,481**	,367*
AI 4	4,1733	,65122	,518**	,453*	,481**	1	,704**
AI 5	4,2167	,57472	,376*	,328	,367*	,704**	1
** $P<0.05$							

Source: Prepared by researcher based on the SPSS 22 outputs

All of these means results are showing and confirming the acceptance of and the understanding of artificial intelligence in companies. As well as, we found the values of correlation all statistically significant at α (0.05). This confirms there is an accepted understanding of artificial intelligence. Moreover, it can be said that the organizations that could to adopt artificial intelligence.

Discuss the results of the competitive advantage:

Title 2: Results of Mean, Standard Deviation

Paragraphs of Understanding Customer Mentality (UCM)	Mean	Standard deviation	Paragraphs of Speed of Service Delivery (SSD)	Mean	Standard deviation	Paragraphs of the Quality (Q)	Mean	Standard deviation
CTS1	4,2333	,77385	SSD1	4,2333	,89763	Q1	4,2667	,73968
CTS2	4,4333	,85836	SSD2	4,0667	,94443	Q2	3,9667	,80872
CTS3	4,2000	,88668	SSD3	4,0000	,83045	Q3	4,2333	,81720
CTS4	4,0333	,99943	SSD4	4,2667	,82768	Q4	4,1333	,81931
CTS5	4,1667	,98553	SSD5	4,2667	,78492	Q5	4,2367	,86834

Source: Prepared by researcher based on the SPSS 22 outputs

All of these means and standard deviation results are showing and confirming the need to take in account the understand customer mentality and speed of service delivery and quality as a variable of competitive advantage in companies.

Hypothesis discussion:

According to the table 3, we can conclude the all the hypotheses are confirmed but in different degrees as follows:

Title 3: Results of Correlation

	Understanding of AI	Competitive Advantage (CA)	Understanding Customer Mentality (UCM)	Speed of Service Delivery (SSD)	Quailty (Q)
Understanding of AI	1	,633**	,614**	,631**	,522**
Competitive Advantage (CA)	,633**	1	,928**	,954**	,915**
Understanding Customer Mentality (UCM)	,614**	,928**	1	,843**	,746**
Speed of Service Delivery (SSD)	,631**	,954**	,843**	1	,821**
Quality (Q)	,522**	,915**	,746**	,821**	1
** P<0.05					

Source: Prepared by researcher based on the SPSS 22 outputs

H1-There is an accepted understanding of artificial intelligence in order to enhance the understanding customer mentality

As we see in the table 3 that the value of correlation between AI and understanding customer mentality were statistically significant at α (0.05). So we can say that there is an acceptable understanding of AI in order to enhance the understanding customer mentality. Therefore, we can confirm the importance of this, and companies must focus on studying the understanding customer mentality very seriously and carefully consider it, while providing all means in order to delve into it more and more.

H2-There is an accepted understanding of artificial intelligence in order to compete for in speed of service delivery

As we see in the table 3 that the value of correlation between AI and speed of service delivery were statistically significant at α (0.05). Therefore, we can confirm the importance of this, and companies must focus on studying the speed of service delivery very seriously and carefully consider it, while providing all means in order to delve into it more and more.

H3-There is an accepted understanding of AI in order to enhance quality

As we see in the table 3 that the value of correlation between AI and quality were statistically significant at α (0.05). Therefore, we can confirm the importance of this, and companies must focus on studying the quality very seriously and carefully consider it, while providing all means in order to delve into it more and more.

We conclude throughout the table 3 that all hypotheses have been achieved and they are valid. Especialiy, the value of correlation between AI and competitive advantage were statistically significant at α (0.05). Accordingly, we could say that there is an acceptable understanding of AI in order to achieve a competitive advantage, and we show that there is an acceptable understanding of AI rightly and effectively in order to enhance the understanding customer mentality, speed of service delivery and quality.

Conclusion:

Artificial intelligence is the embodiment of human intelligence in many fields, organizations and sectors. This human intelligence translates into activities that listen to the machine by learning, understanding, keeping up and simulating. Artificial intelligence investigates the tasks that increase the chances of success of organizations and the great power of computers and technology allows to increase the efficiency of artificial intelligence.

Indeed, there are many international companies that have adopted the concept of artificial intelligence to the extent required to keep pace with modern and rapid developments, especially in the fields of technology, engineering, medicine and business administration. In addition, we can say that the applications of artificial intelligence models help organizations in all sectors to provide solutions to traditional problems and replace humans in many routine work, and the possibility of providing solutions effectively and without errors and without reference to them due to the reduction of errors in them, if not non-existent in the event that the machine is not damaged.

Artificial intelligence requires the availability of very high skills in order to embody it and follow the best steps and stages to be highly efficient and effective outputs, and therefore it is necessary to provide adequate and accumulated training for all workers and hand over responsibility to the best leaders and administrators, for good control of workers and business, this would make the organization reach the best results It can achieve competitive advantages over other enterprises and to create commercial value. Artificial intelligence initiatives require investing time, effort and resources in a good and effective way, otherwise the results will be bad. Organizations struggle to gain a consistent understanding of how artificial intelligence technologies can achieve competitive advantage.

Artificial intelligence can be described as learning and reasoning activities, mand achines that can simulate human intelligence can be built. Artificial intelligence refers to multiple tools and technologies that can learn from experience, the term AI stands for computers with human level intelligence that can perform any intellectual task that a person can do. by the way, strong AI refers to virtual or superpowered systems that simulate thinking skills such as situational management. So, understanding Customer Mentality help to care about the type of companies you want to do business with and buy from, the characteristics of the target audience are understood, men or women, young or old, married or single.

Make sure to know the distance in which they live, whether large or small, from the location of the company. The possibility of targeting a different audience than your competitors' customers and their average income and savings can be known in general. further more, speed of service delivery provide the service customers requirements in a timely manner and the service customers requirements with the required speed by the way, one of the service requirements is direct communication with customers. The

service allows to know the high adaptability and it is necessary while providing the service is to work under pressure. The product has the ability to perform the functions required of it and it can be usable for the maximum period and ease of repairing the product and returning it to its normal state and some functions can be added to update and develop the product. By the way, The specifications required by the factory can be adhered to to meet the consumer's requirements.

We conclude throughout there is a relationship between AI and competitive advantage. Accordingly, we could say that there is an acceptable understanding of AI in order to achieve a competitive advantage, and we show that there is an acceptable understanding of AI rightly and effectively in order to enhance the understanding customer mentality, speed of service delivery and quality.

Appendices:

The questionnaire

Prases	Strongly agree	agree	neutral	do not agree	Strongly Disagree
Understanding of Artificial Intelligence					
Artificial intelligence can be described as learning and reasoning activities					
Machines that can simulate human intelligence can be built					
Artificial intelligence refers to multiple tools and technologies that can learn from experience					
The term AI stands for computers with human level intelligence that can perform any intellectual task that a person can do.					
Strong AI refers to virtual or superpowered systems that simulate thinking skills such as situational management					
Understanding Customer Mentality (UCM)					
You care about the type of companies you want to do business with and buy from					
The characteristics of the target audience are understood, men or women, young or old, married or single.					
Make sure to know the distance in which they live, whether large or small, from the location of the company					
The possibility of targeting a different audience than your competitors' customers					
Their average income and savings can be known in general					

Speed of service delivery					
Provide the service customers requirements in a timely manner					
Provide the service customers requirements with the required speed					
One of the service requirements is direct communication with customers.					
The service allows to know the high adaptability					
It is necessary while providing the service is to work under pressure					
Quality					
The product has the ability to perform the functions required of it					
The product can be usable for the maximum period					
Ease of repairing the product and returning it to its normal state					
Some functions can be added to update and develop the product					
The specifications required by the factory can be adhered to to meet the consumer's requirements					

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