



Adoption of Strategies of Electronic Digital Innovation and Transformation and New Information Technologies Via Application of AI based on Organizational Culture Within Commercial Companies

Mohammad Shokrollahi¹, Elham Eftekhari², Mina Mostahfezian³, Hamid Zahedi⁴

1-phd candidate IAUN

(E: shu.iaun.ir), (Responsible author) ORCID: 0009-0006-8239-0242

2-Assistant professor of exercise physiology, sport medicine research center, najafabad branch,

(E: phu.iaun.ac.ir) ORCID:0000-0001- 6277-2231

3-Assistant professor of sport management, sport medicine research center, najafabad branch, islamic

(E: phu.iaun.ac.ir) , ORCID:0000-0002-0226-6246

4-Assistant professor of sport management, sport medicine research center bad, branch, islamic azad university

(E: phu.iaun.ac.ir)

Abstract:

Over the past decade, vast amounts of data have been collected in various formats faster than ever. This called for the emergence of new technologies, leading to the acceleration of technological advances that include computing in processing capabilities as well as the development of new artificial intelligence techniques. With these developments, companies are allowed to process large amounts of data with artificial intelligence, using the results to expand their targeting of new markets, products and services. Nevertheless, while AI technology offers great potential to solve problems, challenges remain in practical implementation and a lack of expertise in the strategic use of AI to create business value. On the other hand, the globalization of business highlights the need to understand the effectiveness of information systems that are focused on different cultures. Transcultural and multinational organizations are using information technology and artificial intelligence strategies to achieve economies of scale, coordinate operations, and facilitate collaborative work across locations and cultures. The purpose of this paper is to implement a literature review to analyze the convergence of adoption of electronic digital transformation and new information technologies based on organizational culture and company strategy and to develop a theoretical model that combines issues based on existing research in this field.



Keywords: digital transformation of organizational culture, information technology and artificial intelligence strategies, integrated model of technology acceptance and use

1. Introduction

Today's world is associated with a fixed and unavoidable phenomenon more than in the past, the intensity, speed and uncertainty of which is surprising with the phenomenon of globalization, which has been called "change" and in all economic, political, and social fields. and culture is flowing in a way, and as a result of studying, recognizing, predicting and adapting to these environmental changes, it requires having appropriate plans and strategies with a view to the future and vision combined with creativity and innovation. It is necessary and vital for every organization [1]. Man is the owner of culture, just as he is the owner of the soul. All cultures are constantly changing and these changes are both faster and deeper today than in the past. The new communication technology in today's world has caused great and complex changes in human relations and relations and created a new form of communication patterns and has given a new meaning to the category of identity. A large amount of information and new knowledge can easily be available to individuals and organizations in all countries of the world through information and communication networks, and information networks will be available to everyone [22].

Organizations in the new era cannot avoid the use of computer systems, information technology and advanced media, and the future belongs to those who carefully consider the merits and demerits of these systems and Learn from the experience of others without having to bear the costs of that experience again. [3]. The rapid expansion of computers in recent decades has brought about the most important change in the knowledge system since the invention of printing in the 15th century or even since the invention of handwriting. Parallel to this extraordinary change is the expansion of networks and new media, which is equally amazing and whose job is to transfer knowledge and its constituent elements, data and information. In the past decade, the literature and current business have drawn attention to artificial intelligence (AI) tools and, in particular, to advances in machine learning techniques. In the digital age, businesses need to reduce the waiting period and thus be more aware of the market environment, which can change faster than in previous decades. Through this perspective, several organizations use emerging technologies designed to achieve high performance and competitive advantage [4]. Among these developments, artificial intelligence (AI) has had a central position [2] and has attracted the attention of researchers and the industrial sector. Artificial intelligence is defined as the ability of a machine to learn from experience, adapt to new inputs, and perform human-like tasks [3]. According to [3], artificial intelligence can now be the entity of innovation with the greatest potential for disruption. Similarly, in the case of [4], artificial intelligence is a fundamental multifunctional



technology in the field, especially in relation to machine learning tools. Considering the competitive environment of businesses and with vast amounts of data, scarce assets, hence the requirements for speed in decision-making, several companies have been inspired to implement artificial intelligence tools, primarily due to their expected consequences, which are being promoted by leading digital companies. has been exhibited.] 8,9,10,11,12]. Realizing that the transformation process requires a review of corporate strategy, various leading companies are reexamining strategic plans to integrate AI tools [13]. However, the researchers argued that more research is needed to assess the extent of AI in organizational planning and business strategy implementation [14], because so far, there are limited theoretical and empirical findings on the creation of value propositions through AI technologies. [3,8,14,15,16,17,18]. Companies aim to create sustainable performance and sustainable competitive advantage by integrating technology into the decision-making process with the company's cultural strategy. Businesses are supposed to be more flexible and responsive to strategic decision-making in the current dynamic environment. Companies that maintain their competitive advantage can outperform residuals in the long run [14,19].

A few researchers study the literature related to artificial intelligence from the perspective of management and organizational culture and deal with information management [6,11,20,21,22]. decision making [3,23,24]; knowledge management [25]; and skills [5,26,27,28,29]. Therefore, this paper, to the best of our knowledge, differs from previous ones by combining a systematic review of the literature with an examination of the state of correlation between artificial intelligence and organizational strategy, a topic not included in the above-mentioned papers.

The globalization of business highlights the need to understand the effectiveness of information systems focused on different cultures. Multinational and transcultural organizations are using information technology and artificial intelligence strategies to achieve economies of scale, coordinated operations, and facilitating collaborative work across locations and cultures [19].

Researchers are increasingly addressing the importance of cultural assumptions embedded in information technology and artificial intelligence strategies and clearly assessing whether these assumptions are relevant to potential adopters in other parts of the world [21].



2- The main concepts of research

2-1-Organizational culture

Studying culture is very difficult, because defining the concept of culture is not an easy task [16]. The word culture from the root of the verb "cultivate" in anthropology sometimes refers to the ways of life in which people live [17].

The term culture is used in more limited aspects such as values and beliefs and planned attitude. Therefore, culture is a way of attitude that is common among many people[23].

Many experts agree that organizational culture is a system of common inferences that members have towards an organization, and this feature separates two organizations from each other. An expansion system whose members have a common derivation of it consists of a set that the organization respects or values [24].

Organizational culture is the internal foundation and non-specific structure of the organization, which is manifested based on the goals, technology, structure, policies, performance and products of the organization, and its most obvious manifestation can be seen in the behavior of employees. In general, organizational culture is a perception that people have about an organization. Organizational culture is something that exists in the organization, not in individuals. It is a special attribute that is specific to the organization and represents the usual and constant characteristics that distinguish an organization from other organizations. [18].

Although there are many definitions of culture, organizational culture is holistically observed, historically defined, and socially constructed. Culture includes beliefs and behaviors that exist at different levels, and manifests itself in a wide range of characteristics of organizational life [20].

The culture of the organization and its role in the growth of the organization is one of the important elements in any organizational system. Scientists have provided various definitions of organizational culture. Some of the most important ones are mentioned here [17, 18, 20]:

- Organizational culture is a way of attitude that is common among many people.
- Organizational culture is the perception that people have of the organization, organizational culture is something that exists in the organization, not in individuals. It is a special attribute that is assigned to the organization and expresses the usual and constant characteristics that distinguish an organization from other organizations.



- Organizational culture refers to certain values, main assumptions, expectations, common memories and definitions presented in the organization. This word refers to the common ideology that is in people's minds. A sense of employee identity provides unwritten rules, mental guidance on how to achieve this, and increases the stability of the social system that is evident.

- Organizational culture is a tool that facilitates our dealings with organizational issues and shapes how we change and interpret events around us.

Organizational culture is a social sticker that binds members of an organization through shared values, symbolic measures and social ideals.

Organizational culture is a system of common inferences that members have about an organization, and this characteristic distinguishes two organizations from each other.

- Edgar Shine: Organizational culture is not a tangible phenomenon that can be easily identified, it is an iceberg that only the top is visible and the bulk of it is invisible and hidden, but it actually represents the real lifestyle of the members of the organization. Culture is considered the soul of the organization and the social energy that can drive the organization forward or stop it from moving, and this potential power is due to the influence that culture has on employee behavior.

- Edgar Schein: Organizational culture refers to a deeper level of basic assumptions and beliefs that are shared by, and unconsciously acted upon by, members of the organization. In this definition the main perspective is the organization itself and its environment[13].

- Half-stead: The culture of the organization was collective planning.

- William Ochi: Organizational culture is defined as a series of symbols, rituals and myths that convey its basic beliefs to its employees.

Peters and Waterman define organizational culture as follows: a series of dominant and coherent common values transmitted through symbolic concepts such as stories, myths, idioms and proverbs [21].

French: Organizational culture is the hidden aspects of the organization, while others, such as Argeris, introduce both formal and informal aspects of the organization as organizational culture. Stanley Davis: Organizational culture is a pattern of shared ideas and beliefs that give meaning to members of an organization and provide guidelines for their behavior in the organization.



Looking at all the definitions of organizational culture that have been proposed by scientists and experts in management science in the past two decades, the common features of all the definitions are:

1. Dominant Behavioral Pattern
 2. Its systemic or systematic nature
 3. A set of values and beliefs and beliefs
 4. These norms and values are shared and supported by the members of the organization.
 5. Differentiate organizations from each other
- The importance of organizational culture

Culture can be seen as a phenomenon that encompasses all aspects and times of our lives and is constantly being created through the interaction of people with each other.

Culture is one of the terms that is difficult to express clearly, but everyone knows it well when they feel it. The culture of an organization is observed, arranged, what members talk about and how they are dressed. And... diagnosable.

Culture should not be seen in a vacuum, as it is pluralistic and actively contested and contested between social relations.

Organizational culture influences the behavior of organizational members, and encourages behaviors that support organizational strategy. Organizational culture will influence the relationship between individual behavior and performance. . [23].

Effective organizations have strong cultures along with a set of shared values. But whether stronger cultures lead to greater effectiveness depends on the compatibility of the actual content of the culture with the environmental conditions of the organization. A strong, innovative culture adapts well to a dynamic environment. In a research project, Professor Dan Dennison concluded that four types of culture can be formed according to the relationship between the demands of the environment and culture, as well as the strategies of the organization: adaptive, participatory, stable and missionary.

Organizations, like individuals, have personalities, and therefore the personality of an organization is called organizational culture. In other words, the relationship of culture to the organization is like personality to the individual. In general, organizational culture is a perception that people have of the organization. Organizational culture is something that



exists in the organization, not in the individuals. They are the characteristics that are unique to the organization and represent the common and consistent characteristics that distinguish one organization from other organizations.

Although culture has received less attention in classical management theory independently, attention to the values that govern individuals and organizations is a reality that has remained hidden from the view of thinkers. Specifically, the theory of the human relations movement, Hawthorne's studies and behaviorist thinkers have highlighted the category of culture and values governing labor relations in the organization and gradually the category of organizational culture has become one of the most important and significant topics in management science, especially Organizational culture is a distinct characteristic of any organization and there is evidence that organizational cultures are distinct and organizations can be distinguished from each other in terms of culture. On the other hand, several factors affect organizational culture, resulting in several cultures in today's organizations. Factors such as external influences with broad bases, social values and organizational-specific factors are among the factors that affect organizational culture and have caused the plurality of organizational cultures today. Therefore, in order to understand them better, management experts have proposed several classifications, some of which are given below.

2-2- Information technology and artificial intelligence technologies and artificial intelligence systems

Information technology and artificial intelligence strategies are strategies, thoughts and tools associated with innovation in the field of humans, and it is necessary to note that the definition of information technology and artificial intelligence strategies should be accompanied by a dynamic rather than a static approach due to its changeable nature [29].

Information technology and artificial intelligence strategies include a set of methods and tools to optimize and support the active work system based on information and knowledge. In fact, information technology and artificial intelligence strategies can be summarized as the intersection of electronics and data processing. Also, information technology and artificial intelligence strategies describe the technologies that enable computer users to store, process, retrieve and transfer information from the computer. [31].

Information technology and artificial intelligence strategies are all forms of technology that are used to process, store and transmit information in an electronic format. The physical equipment used for this purpose are: computers, network and communication equipment, fax and electronic software. Information technology and artificial intelligence strategies generally refer to a wide range of equipment and computers, tools, data storage, communication and



networking tools, applications and services used by organizations to create data, information and knowledge. , Called. [29].

Information technology and artificial intelligence and communication technologies refer to both information technology and artificial intelligence strategies and computer systems. Information technology and artificial intelligence strategies include any equipment and internal connection systems of this equipment, which includes any form of technology used in creating, storing, organizing, managing, moving, displaying, exchanging, exchanging, transmitting or receiving information, in any form. It becomes possible [24].

It may be said that information technology and artificial intelligence technologies are the study, design, development, implementation and management of computer-based information systems, especially computer software and hardware applications, by which application data is collected in any way. Information technology and artificial intelligence technologies emphasize the knowledge of the skills of using computers and remote communication systems, storing, using and transmitting information. Information technology and artificial intelligence technologies is a field that uses electronic resources to access information and includes issues that are related to the expansion of computer science and technology design, development, implementation and implementation of information systems and applications [27]. In short, information technology can be summarized as a computer-based information system from the central server to microcomputers or the collection, processing, storage and distribution of information with the help of computers. It is not necessary to use advanced systems for information technology. In general, information technology and artificial intelligence strategies can be defined as a technology that is in charge of providing, collecting, processing, storing, performing or making accessible information when needed. Information technology actually covers the entire system and is not only related to specific software or hardware but enables an efficient connection between all these components [19].

Currently, information technology and artificial intelligence strategies are one of the important factors in improving the productivity and performance of the organization. The use of technology and information technology in particular is necessary for the successful operation of today's organizations [31].

- Basic concepts of information technology and artificial intelligence and communication technologies

Familiarity with these concepts is a prerequisite. And it is mentioned in order to create a theoretical background. Employees should be able to understand the major functions of software environments and use various aspects of the application. Employees should be able to:



- Determine and identify the main components of the used hardware.
- To have a correct understanding of the main function of the hardware in practice.
- Identify types of peripheral equipment such as modem, fax, scanner, digital camera, etc.
- Have a clear and practical understanding of the connection between local networks, external networks (such as the Internet) and the use of e-mail.
- Show proper understanding of the main work of the system software environment.
- Show a correct understanding of the practical aspects of each software in the system.
- In general, understand how the computer and its operating system work, learn how to control the computer so that they don't get confused while working with it.

Therefore, they should be able to distinguish between the main components of a computer system and its peripheral components, as well as know what system software is and be aware of how to connect a computer to a network, or be aware of the function corresponding to such networks [32].

- The role of information technology and artificial intelligence and communication technologies

In the classical sense, technology is the sum of knowledge crystallized in production tools and methods. The impact of technology on growth has long been discussed, which can be divided into three categories. In the first case, the impact of technology has been visualized and analyzed in the form of capital goods, the result of which has been an increase in capital productivity. In the second case, technology increases labor productivity. In the third case, technology increases total productivity and not necessarily labor or capital productivity. [27].

The use of information technology and its application in the organization has caused great changes in today's world, which many experts have called the second industrial revolution [28].

Information technology is of vital importance to the strategic success of organizations and is an important factor differentiating between high and low quality performance [29].

Research shows that one of the most important reasons for distinguishing organizations from each other is the degree of use of information technology and artificial intelligence technologies by them in organizational activities. In other words, organizations that have widely and optimally used information technology and artificial intelligence technologies



have a sustainable competitive advantage and are more differentiated from other organizations from the point of view of the stakeholders. Lack of use and lack of adaptation of information technology and artificial intelligence technologies with the needs of users is often stated as the most important reason for failure in many projects [32]. The electronic age has provided powerful tools and techniques to mankind, and the expansion of mass communication devices, telephone networks, satellites, and information highways has made all aspects of human life more dependent on information and communication technologies and services. Information technology and artificial intelligence and Internet technologies have challenged the economy and the social and cultural situation. In many service activities, especially in the field of culture, the most important development under the influence of new communication technology is that the common elements of different cultures are being mixed. [34]. - The value of information technology and artificial intelligence and communication technologies

Information technology and artificial intelligence and communication technologies are actually the dominant technology in the new millennium [37].

Today, information technology and artificial intelligence strategies and communication have spread and changed the world. The most important changes caused by this technology in the world have been summarized by Marshall McLuhan in the phrase "global village". A platform where people from different parts of the world, like residents of a village, can communicate with each other and learn about news and global events [26].

Information and communication and its technologies are responsible for two important tasks: creation, preparation, distribution and the like of providing and delivering information within the organization as well as collecting and transferring information between and outside the organization from the activities of other side organizations or intermediaries and even competitors. in different dimensions and in international and global activities, if information technology and artificial intelligence and communication technologies are designed in a precise and appropriate way and are compatible with the goals and missions of the organization's programs; It is used as a very powerful lever for the growth and promotion of the organization's employees. But whenever this planning is not done correctly, it will undoubtedly involve a heavy and useless cost that has no economic justification [32].

Information technology and artificial intelligence technologies have effectively helped to establish communication, as now communication between person to person and transfer of information is easily possible. Such as e-mails, transmission of sounds electronically and intra-organizational networks.



- Information technology and artificial intelligence technologies, today's need for tomorrow's managers

Information technology and artificial intelligence strategies, computer and internet revolution in the last few years have created a vast and rapid change in various aspects of the lives of societies including cultural, social and economic. On the one hand, this technology is considered not only the most important tool, method and capital for empowering societies in the new century and making fundamental changes in life, education, employment, governance and management of societies, enterprises and industries, but also an exceptional opportunity to compensate The backwardness of developing countries is to enter the post-industrial era and the information age [38].

The diversity and complexity of various scientific, economic, educational activities, etc., in the form of different organizations and the spread of intra-organizational and extra-organizational communications in today's management systems, as well as many indicators and factors that are effective in the growth and development of organizations more than any other At another time, they need information and communication weapons and tools in the field of management, which with the emergence of the phenomenon of information technology and artificial intelligence technologies and communication has taken on a different color and appearance. It is the most important and perhaps the most effective achievement of mankind during the last few centuries who have introduced information as the most important commercial commodity of this century. The direct and indirect effect of ICT in all the structures and levels of people's normal lives and the influence and development of the tools of this new age phenomenon in the most complex activities has been the most effective factor in the way of technological development and consequently human information. The potential capacities of ICT compels leading managers to bring the actual capabilities of their organization to the fore with a deep view on the tools of this universal phenomenon. In fact, the phenomenon of ICT brings two systems of information management and information engineering for managers. Leading managers are always looking for technologies that speed up and facilitate the work flow. In fact, managers are indispensable for creating effective communication between the longitudinal and transverse levels of the organization, as well as simplifying the flow of affairs to collect and strategize information related to the field of activity of their organization. They are from recognizing the existing capacities of their organization and assessing the need for complementary capacities. Undoubtedly, ICT strengthens the abilities and creativity of leading managers. With this attitude, when a manager and his employees inject information and communication tools into their organization, instead of working traditionally, they can work faster and more accurately than before, while the manager can experience decentralized supervision and management [32].



The use of information technology in the organization requires various managerial, cultural, technical, etc. considerations. Also, in this regard, one should pay attention to the characteristics of the job and the worker in the use of information technology. The characteristics of the job, such as the importance of the job, as well as the characteristics of the employee, such as the age or gender of the employee, can be effective in the amount of use and application of information technology [37].

- Management of information technology and artificial intelligence technologies

Generally, technology critics are divided into three different categories:

- 1- People who consider technology in any form as an increase in human control over nature.
- 2- People who complain about new technologies and consider it a special form of human humiliation and identitylessness.
- 3- Finally, people who think that technology is neutral and its meaning depends on the use and application of human kind [40].

The writer's point of view tends to the third category. In other words, the values of information technology and artificial intelligence and communication technologies depend on how humans use it. Naturally, technology affects the political and social values of the society that uses that technology, which in turn can affect The organizations of that society should also be effective. In addition, with the technology of expert systems, managers have the ability to do various tasks that were done by others in the past. For example, expert diagnosis systems can increase the efficiency of repair and maintenance. Every new technology needs training. Expert systems, as a new technology, are not exempt from this rule. Education is the key to knowledge-based industrialization. Although the technology of expert systems can also contribute to the issue of education itself. This technology can introduce new methods of teaching and learning. Information technology and strategies of artificial intelligence and communication (ICT) are among the new technologies that have greatly affected our organizational, industrial and surrounding environment. Until a few decades ago, the idea that this technology would affect the business environment and our surrounding life to such an extent seemed a bit far-fetched, but now, with the increasing spread of this technology, even in a society like Iran, which There is still a long way to reach the necessary standards of using information technology and artificial intelligence strategies, we see that this technology has entered the field of our daily life and our sensitivity to this technology is increasing day by day [42].

In the last twenty years, information technology and artificial intelligence and communication technologies have played a significant role in improving professional and career affairs.



Today, people are experiencing a society based on information technology and artificial intelligence and communication technologies, which have their own characteristics. Life in the new world requires full knowledge and acquiring the skills to use these technologies, and without having such a tool, competition and Life will be very difficult and it will lead to the loss of many opportunities in the daily life of individuals and societies. Organizations should also have the necessary and optimal background for the optimal use of information technology, artificial intelligence and communication technologies, so that they can take important and correct steps in the field of progress and development and provide reasons for the continuation of organizational life. represent [35].

In the current world, information technology and artificial intelligence strategies are the leaven of human development in the organization and society, and they determine the basic axes of human resource development and its nature according to the needs of society and humans. In the process of information technology and artificial intelligence strategies, information is constantly generated, processed, distributed and managed. Therefore, information technology and artificial intelligence strategies will solve problems when they serve the development and cultivation of humans and human capabilities are integrated and lead to development and productivity [42].

The use of information technology in organizations requires various considerations, among which cultural, technical, managerial and occupational considerations can be mentioned. In many of the leading companies in the field of using information technology, within their organization and in their extra-organizational relations system, before providing technical infrastructure, they have started to provide human and organizational infrastructure. Human and organizational infrastructures include a suitable culture for the use of information technology in the organization, appropriate management and leadership of information technology, efficient organizational structure and appropriateness of the job and professional characteristics of employees using information technology [43].

3- Application of information technology and artificial intelligence technologies in the organization

Information technology and artificial intelligence technologies have different applications in organizations, most of the experts consider these applications to

They have classified two categories: operational and informational.

A- Operational applications:

The use of information technology and artificial intelligence technologies in a specialty is called its operational application. Preparation of salary list, issuance of employment orders,



inventory forecasting, production and distribution planning and labor allocation, industrial costing and other specialized tasks including the fields of operational application of information technology and artificial intelligence technologies, at this level, the computer expands automation. The tasks and affairs have become administrative, and as a result, it leads to doing things more economically and speeding them up [43].

B- Information applications:

The use of information technology and artificial intelligence technologies facilitate the collection, storage and dissemination of information. In other words, computers and information technologies act in the role of operational use as a mechanical device and tool to convert data into data. While in the role of information, they are considered as a main element and factor in the collection, transfer and dissemination of information factors. The role of information helps to control and disseminate information based on the goals, regulations and standards of the organization. Planning, training, marketing research, sales forecasting, etc. are among the application fields of information technology and artificial intelligence technologies. [24].

The impact of information technology and artificial intelligence strategies can be studied both in terms of creating new golden opportunities and in terms of organizational challenges. The use of information technology and artificial intelligence strategies in scientific centers to disseminate information and as an educational tool is expanding every day [44].

- Technology acceptance models

Understanding the factors that lead to the acceptance of a technology and creating the conditions under which the desired information technologies are accepted is one of the important researches in the field of information technology and artificial intelligence strategies. In other words, the issue of why people accept and use an information technology and artificial intelligence strategies, or on the contrary, do not accept it and do not use it, is one of the most important topics of information systems [46].

1- Technology Acceptance Model (TAM) by Fred Davis (1989): The main purpose of the technology acceptance model is to provide a basis for tracking the effect of external factors on internal beliefs, attitudes and intention to use. In addition to the predictive aspect, this model also has a descriptive approach, therefore, managers can identify why a particular system may not be accepted and follow appropriate corrective steps based on the knowledge obtained. The following figure shows the technology acceptance model:

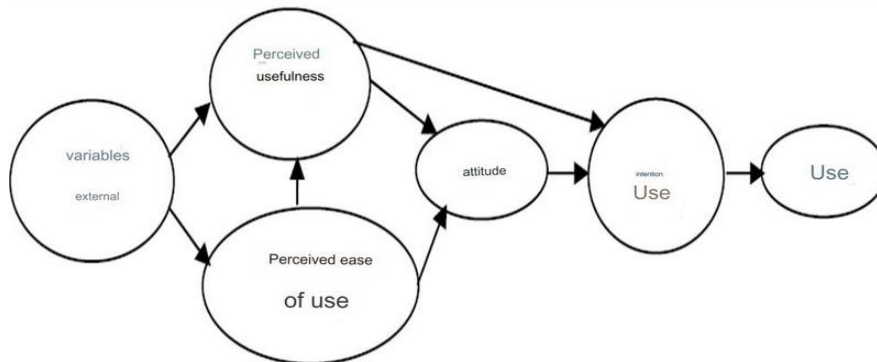


Figure 1: Technology Acceptance Model (TAM)

2- Rogers (1983) Innovation Diffusion Model (IDT): In that innovation is transmitted to members of a social system through specific communication channels and over a period of time. This theory has been widely used in fields such as anthropology, sociology, education, communication, marketing, etc. Here, innovation is the successful introduction of a new technology or the integration of existing technologies in order to create an effective change in the value/price relationship offered to the customer or user. In other words, innovation is the adoption of an idea or behavior about a system, policy, program, process, product or service that is new for the organization. Diffusion of innovation theory provides a method for understanding the motivations and barriers to using an innovation. This theory also provides factors that affect the acceptance of innovations [48].

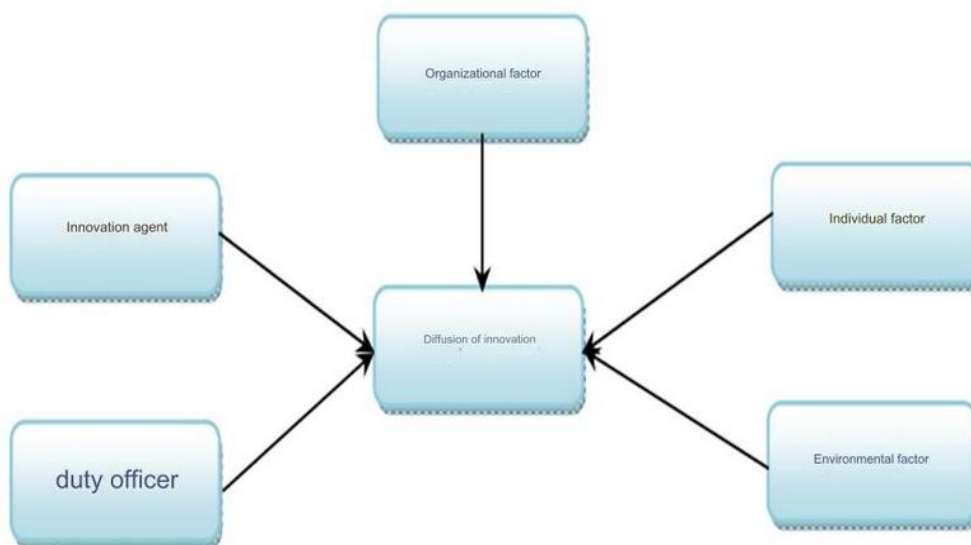


Figure 2: Rogers (1983) innovation diffusion model (IDT)



3- Theory of Reasoned Action (TRA) by Ajzen and Fishbein (1975): This theory is based on the assumption that people act rationally. They collect and regularly evaluate all available information about the target's behavior, consider the effects and consequences of actions, then decide based on their reasoning whether to perform an action or not.

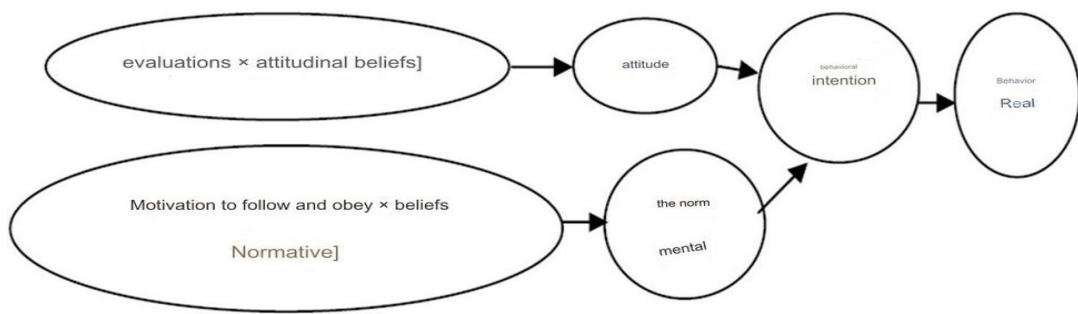


Figure 3: Ajzen and Fishbein (1975) model

4- Ajzen's Theory of Planned Behavior (TPB) (1991): Ajzen has developed the theory of reasoned action by introducing the construct of perceived behavioral control as a determinant of behavioral intention and behavior. Despite the perceived behavioral control construct, the theory of planned behavior tries to predict involuntary behaviors as well. The figure below shows the theory of planned behavior:

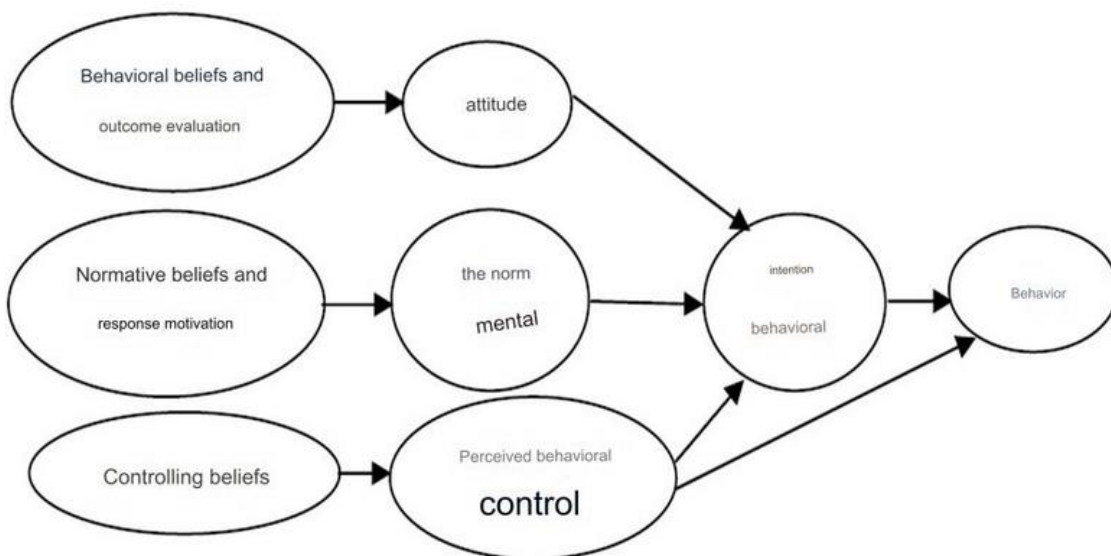


Figure 4: TPB model



5- The Unifying Model of Acceptance and Application of Technology (UTAUT) by Venkatesh and Davis (2003): An extensive project was carried out by Venkatesh and his colleagues, as a result of which a model titled "Unified Theory of Acceptance and Application of Technology (UTAUT)" was created. UTAUT factors Determinants of behavioral intention and then summarize behavior as performance expectancy, effort expectancy, social influence, and facilitation.

4- Artificial intelligence and machine learning in organizations

Artificial intelligence has concepts, insights and techniques in several fields. It is a field that seeks to build software and hardware that is able to perform actions that can only be done through the use of intelligence [17]. The field of artificial intelligence includes any technique that allows machines to work by replicating human actions to produce the best result or, in unpredictable scenarios, the best predicted result [18,28,[19].

In the early period of artificial intelligence, the most important problem was the implementation of activities that are easily modified by a human, but difficult to explain formally according to mathematical principles [46]. The challenge of describing this form of activity by specifying rules showed that AI tools need the capacity to extract rules from data and acquire their own knowledge [24,25,50]. This skill is called machine learning, which allows computer-based tools to directly identify trends in and out of data. Act directly without planning [18,12,29]. As a result, the field of artificial intelligence has developed not only within the framework of process rules previously created by humans to mimic human actions for decision-making (such as traditional AI algorithms), but also to mimic, to mimic human learning. .

The advancement of artificial intelligence with the creation of machine learning algorithms required tools to map the information obtained from the learning process to the final composition. This need has led to the development of interventions classified as representational learning, which have properties that alter an intermediate representation and compromise valuable data [18,28,29]. When the representation is presented in relation to other concepts, just like in the case of complex concepts, it is necessary to implement deep learning techniques. Deep learning is a type of representational learning that has the ability and flexibility to depict the world in a hierarchy of principles where each definition can be described in comparison to the naive dimensions. This suggests that deep learning helps computational frameworks specify representations of varying degrees of complexity, and that these models include multiple layers of processing. A key distinction between AI disciplines is the reliance on humans to create rules or distinguishing features that describe a challenge. Human reliance on the learning process is reduced from the artificial intelligence layer to the



internal layers. Traditional machine learning algorithms are a form of artificial intelligence where a person must design features by hand that the algorithm can use to provide feature mapping by extracting patterns and acquiring relevant knowledge [18,19].

Representation learning algorithms are a form of machine learning, but they take the learning process one step further than traditional machine learning algorithms. Representation learning methods have the ability to obtain the features of a human and can provide feature mapping [18,19]. Deep learning algorithms are a type of representation learning and require the individual to identify simple features. From these simple features, they can identify more dynamic features in additional layers of learning and then provide a feature mapping [11].

Organizationally, papers published in the early stages of artificial intelligence began to support the decision-making process during the 1960s [34,17]. Artificial intelligence has been used in organizations since the 1980s, and for this reason it is the target of many organizations' speculations and efforts to plan and actualize computer vision systems, robots, expert systems, other than software. and it was hardware [32]. Moreover, at the same time, artificial intelligence was recently recognized as a strategic tool to increase business differentiation in a competitive situation. Until the beginning of the millennium, computer science articles in the field of artificial intelligence focused on algorithms, developing new methods or improving existing methods [35,53]. However, since 2001, academics have suggested that for some AI problems, due to the existence of huge databases, the problem is the amount of data [3,20]. As a result, new artificial intelligence techniques were developed that were enabled by hardware development. This technological progress is attributed to the wonder of big data, which is described by the exchange of technology, methodology, and analytical capacity to search and cross-reference huge data sets to detect patterns and gain knowledge [17.]

The recent evolution of artificial intelligence and its advancement in multiple fields is due to three main factors: massive amounts of data, better algorithms, and significantly improved computing hardware [2,33]. This development has made huge tech-oriented businesses pay attention to artificial intelligence technologies. In today's organizations, artificial intelligence can be considered as a tool used as a method to replicate human performance with the ability to absorb its own assumptions through learning, which can assist human intelligence or even replace humans in activities that need to be recognized, replace it [26]. In general, AI advances can achieve performance improvements as a result of speed, flexibility, customization, scale, innovation, and decision-making [11,26]. In addition, organizations have many benefits from using AI to create value in various organizational components: process automation; Gaining knowledge from data to make decisions; including consumers and employees; Development and launch of new products and services [7,12.]



- Aligning artificial intelligence tools and information technology and artificial intelligence strategies with business strategy

Despite the rise of the digital age, the role and impact of information technology and artificial intelligence strategies in the corporate sense is not current. In the late 1970s, researchers began to explore the ability of information technology and artificial intelligence strategies to influence business competition [31,12]. In this context, there are several researchers who have begun to use the term "strategic use" to refer to the ability of information technology and artificial intelligence strategies to formulate future corporate strategies or contribute to current strategies and provide meaning to business [13, 14]. However, there is a historical debate about the inability of companies to generate value from spending on IT programs and AI strategies, which many researchers attribute to limited levels of alignment between corporate and IT strategies and AI strategies [30, 33. [

According to [67], alignment between company strategies and information technology and artificial intelligence strategies is a long-term development and change process that includes not only organizational strategy and information technology strategy and artificial intelligence strategies, but also business infrastructure and processes and infrastructure and It includes information technology processes and artificial intelligence strategies. In this case, the strategic use of information technology and artificial intelligence strategies allows the business to maintain advances in competitive conditions [12]. Many frameworks, theories and methodologies have been proposed in research on the use of information technology and artificial intelligence strategies in accordance with company strategy and operations [30,33,14]. Gradually, digital technologies play an important role in the organization's strategy [4.]

But in the digital age, Ref. [67] disagree that it is important to review the role of IT strategy and AI strategies. Instead of being considered as a functional level and driven in multiple situations by a corporate strategy, IT strategy and AI strategies should be integrated into the organizational strategy in a systematic way called digital business strategy (or digital strategy). which includes a developed corporate strategy. and is applied to leverage digital assets to achieve differential value [8,54].

This field of integrating information technology strategy and artificial intelligence strategies with organizational strategy is often supported by other researchers, who claim that a complex alignment between information technology and artificial intelligence strategies and the organization must take place to gain a competitive advantage [1316]. Reference. [22] emphasized the value of applications focused on information technology and artificial intelligence strategies and the analytical potential provided by information technology



resources and artificial intelligence strategies to create innovation and increase competitive advantage in the organization's strategy.

According to the theoretical and practical developments of articles that examine the strategic application of emerging technologies, it is much more complex when it comes to artificial intelligence because AI developments are able to perform activities that involve cognition [67]. This skill will help businesses dramatically change their size, mission, and learning paradigms, demonstrating AI's significant capacity to generate business value. Therefore, the strategic use of artificial intelligence is identified by using this capacity [8,10].

Despite technological advances in the last decade, researchers and practitioners have thought that technology is not the main problem in AI adoption, but cultural, process and people barriers [3,36,9]. To address them, it is important that the strategy appropriately incorporates knowledge, technology characteristics, people, change management and aspirations to change the effort and organization. Researchers refer to this strategy as cognitive strategy by naming the new era of artificial intelligence technologies as cognitive advances.

- Artificial intelligence, knowledge management and decision making process

Despite the fact that the use of artificial intelligence advances in the decision-making process is a practice that began in the 1960s, one of the problems that businesses face is identifying with decisions related to the planning of information technology systems and artificial intelligence strategies, taking into account the objectives of the organizational strategy. . AI-based analytics tools are essential for an important topic in decision support, as they provide information and knowledge based on available data [3,24]. In line with this view, [30] proposed a theoretical model that supports the planning and application of decision support systems in the cloud and adds to IT strategy and artificial intelligence strategies. The use of artificial intelligence as part of advanced analytics solutions to create business value was explored by researchers. Reference. [22,24,22] developed theoretical frameworks that combine advances in artificial intelligence, representation learning, and machine learning tools to perform classification and prediction tasks while ensuring alignment of analysis requirements with organizational strategy. Reference. [36] presented a theoretical framework on business benefits in terms of competitive advantage gained from advanced analytics, due to the consolidation of human knowledge and artificial intelligence.

Marketing was another dimension examined by the researchers, who considered the use of artificial intelligence in the responses to aid decision-making. Reference. [21] proposed an approach using traditional artificial intelligence to help executives make decisions about product pricing, investment in advertising and other marketing strategies, as well as production and distribution planning. [8] investigated the important role of intelligent



analytical techniques in the formulation and implementation of marketing strategies, but the results of the paper concluded the low degree of adoption of machine learning-based analytical tools for marketing management.

The decision support performance of artificial intelligence-based arrangements was further analyzed in terms of social responsibility and sustainability. Reference. [19] presented a hybrid model that used traditional artificial intelligence tools to support decisions about the priority option of an organization's social responsibility program that should be implemented to incorporate it into the company's strategy. Reference. [24] paid attention to sustainability and used artificial intelligence algorithms to identify priorities and policies to adjust operational strategies from the definition of organizational strategies.

- Artificial intelligence, service innovation and value

The use of artificial intelligence in line with company strategy to develop new products or services was covered by several articles. Reference. [58] considered the use of artificial intelligence to enable machine-to-machine communication in new organizational opportunities. However, they did not approve of their ideas. In contrast, a few researchers concluded that organizations gained benefits from new product development and new service delivery [57]. For [12], AI technologies can drive innovation directly into industry, and this is the most important impact of intelligent technologies. Reference. [60] suggested that artificial intelligence is rapidly reshaping service, implementing various functions, becoming an important source of innovation and creating opportunities for innovative human-machine interaction.

The findings of this study indicate that the strategic implementation of AI tools for consumer and employee engagement has not been successfully implemented, as few articles address the enhancement of the consumer experience. While [7,19] have shown that the use of AI in relation to customers creates value for businesses and [28] have addressed the use of AI to improve the consumer experience, the findings are not generalizable. Because the use of artificial intelligence interaction with humans is complex [12]. Among the explanations for this ambiguity, humans may not notice that they are being served or interpreted by a machine. As a result, this form of reaction may also negatively affect the organization.

Artificial intelligence tools may provide a competitive advantage by enhancing consumer experience and engagement with programs developed based on a digital strategy. Deeper innovation in organizations through new product development provides new services based on the cognitive potential of the new era of artificial intelligence. Consequently, competitive and cognitive strategies must be aligned in order to effectively use the new era of artificial intelligence to develop innovative products and solutions. Using the next generation of AI



technology in line with a defined digital business strategy, taking into account the company's requirements, regulations and automation, will create a competitive advantage for the business. Therefore, it is also necessary to learn how managers can formulate competitive and cognitive strategies for innovation using the capabilities of the new era of artificial intelligence. Therefore, it is necessary to investigate human emotions, attitudes and requirements that motivate the interaction with products and services focused on cognitive technologies.

Established research has established a solid foundation, and a theoretical model can now be constructed based on a review of the literature. Using an open coding technique to analyze the content of 81 articles with the aim of disentangling the concepts included in the classification of the articles, it supports readers with a clear indication of the topics of interest (Figure 5).

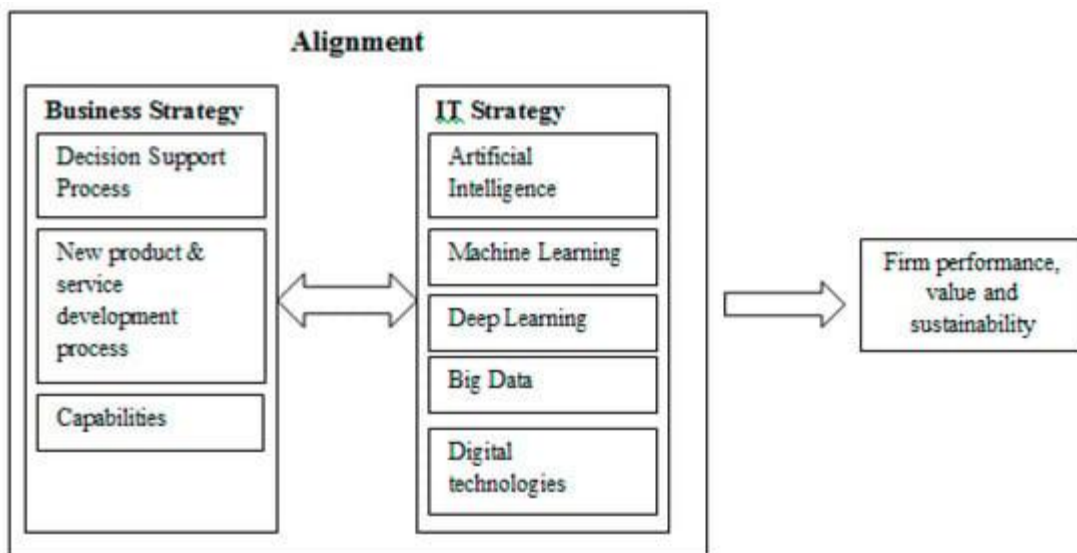


Figure 4- The conceptual framework of the research

5- The relationship between organizational culture and information technology and artificial intelligence strategies

In the recent decades, information technology and artificial intelligence technologies have become intertwined with almost all aspects of our lives, especially work and professional life. The use of information technology and artificial intelligence technologies in various fields and the rapid growth of computer use in organizations has given special importance to the study of the amount and factors of acceptance and non-acceptance of information technology and artificial intelligence technologies in organizations.



When it is said that technology has its own culture, it means that some kind of preparation is necessary to accept and enjoy technology[48].

When the organizational culture agrees with the information system, it will bring many results, such as:

- 1- The implementation of tasks will be done easily and with higher efficiency by the information system and will lead to the organization's satisfaction with the system;
- 2- It provides patterns for using information that help us find out which issues are of higher importance and priority in the organization;
- 3- Facilitates internal and external communication and with the effectiveness of information systems and information technology and artificial intelligence strategies, remote communication becomes easier, and reduces the communication gap;
- 4- Unity among the members of the organization increases;
- 5- It creates a social control in the organization and the members use rules to use the information systems, which reduces the need to check individual people and official rules and evaluations to do the work, and the people are required to comply with the standards. are the system;
- 6- It increases the cooperation between different departments of an organization in accordance with the external environment and reduces the worries caused by it [50].

Information technology and artificial intelligence strategies, before being a hardware system and a set of patterns, is an intellectual and cultural system and can be called the culture of information production. It is clear that without creating a culture of information production, the information technology system and artificial intelligence strategies cannot last [51].

In order to improve the actions and successful implementation of information technology and artificial intelligence technologies in the health and health system, to know as much as possible different and effective factors such as social, human factors, organizational culture, to facilitate working relationships and increase communication and also to reduce bureaucracy, designing The strategic program of information technology and artificial intelligence technologies in the organization is of special importance for the correct use of information technology and artificial intelligence technologies [52].

When we consider the two categories of culture and technology to be related to each other, theories are proposed that consider culture in the global dimension:



- Culture as the servant of technology: In this theory that combines the themes of traditional and modern development, technology is obviously placed in a higher hierarchy than culture. The theorists of this theory believe that technology dictates special needs and culture should try to fulfill them. In this view, the effectiveness of cultures depends on the degree of success in meeting these technological needs.

- Technology as a rule of culture: In this theory, technology takes the place of culture, and contrary to the previous theory, where technology was in the role of predicate, it plays the role of carrier. Technology is the primary platform for the emergence of works and actions, and the culture of their place. Culture can affect the success of technology in achieving its goals and vice versa; But in any case, it is technology that determines the rules of the game. In this approach, attention to culture is limited to how and the extent of cultural factors' activity in providing suitable or inappropriate conditions for technological advances[53].

Organizational culture and information systems are two phenomena that influence each other, so that if there is a proper and good interactive relationship between them, they help the organization to achieve its goals. If there is a culture of using and accepting information technology and strategies of artificial intelligence and information system in the organization under the name of information culture, it will be much easier to accept and use information systems and as a result the implemented information system will have higher efficiency. On the other hand, another effective factor in the success of the information system is the people of the organization, who are the users, who are influenced by the organizational culture, and therefore the culture that governs the organization affects the way users use and accept information systems. (Qochani and Badrizadeh, 1390, p. 84)

6- The relationship between organizational culture and information technology and artificial intelligence and communication technologies

According to the investigations, no research has been done regarding the effect of organizational culture on the use of information technology, artificial intelligence and communication technologies, so in this part, research that is similar to the variables of the research has been used.

Certainly, the use of information technology and artificial intelligence technologies in organizations increases organizational effectiveness, and investigating the effect of organizational culture as an accelerator or obstacle to the use of information technology and artificial intelligence technologies can play a significant role in providing appropriate solutions to the organization.



Today, information technology is the yeast of human development in the organization and society. Information technology, as a collection of thoughts produced by hardware mechanisms, plays a major role in the development of human resources. The use of computer and information technology and artificial intelligence technologies have brought some changes in organizations. These changes can be seen in areas such as structure, authority, power, job content, supervision and manager's job. What has given our age a different appearance from other ages is technology. If we do not have a correct understanding and full knowledge of it, we will face problems in different areas of life. Rapid changes and the growth of new technologies have caused a major concern about the readiness of humans in all societies and especially the future generations to face these conditions. The use of information technology and artificial intelligence and communication technologies and its proper application depends on skilled human resources

Is. Information technology and artificial intelligence strategies have played a big role in the development of fields such as business and electronic education, etc. Information technology has contributed to the development of cultures, especially the development of organizational culture around the world, and it also helps us a lot in terms of obtaining information in the minimum time and solving problems [44].

Information technology and artificial intelligence and communication strategies, in addition to cultural impact on societies, also have the ability to create cultural changes, but often due to stability in culture and gradual change, new technologies, while adapting to culture, sometimes act as a support for behavioral patterns. New technologies never have a neutral burden, but are a part of culture and are created in a cultural context. In general, new technologies have various messages, the most important of which seem to be manifested in the field of culture. Culture determines the common language for mutual understanding in all kinds of information exchanges. Decision-making in the field of information technology and artificial intelligence strategies and the use of its hardware and software requires the identification of cultural contexts, the definition of some new relationships and processes, and the inclusion of new tools in a collection that, with sufficient knowledge, requires transformation from within. has felt [544]. One of the reasons for many failures in the implementation of the organization's resource planning system is the lack of attention to the culture of the organizations in which we are working. Today, many companies are affected by not paying attention to the organizational culture during the implementation of their organization's resource planning system. The existence of a culture of participation, cooperation and support and a culture of tolerance of risk and conflict causes success in the implementation of resource planning systems of the organization [55].



The developments that have taken place in the light of information and communication technologies have also brought about profound changes in the cultural values, customs and traditions of nations and tribes, and at the same time, identifying their identity faces new difficulties. Different societies respond to the advances of information and communication technologies in different ways, and we have actually witnessed the emergence of different electronic cultures in different parts of the world. [56].

Barzekar and his colleagues in a descriptive-analytical study investigated the effective organizational factors in the use of information technology and artificial intelligence technologies by the middle managers of Tehran University of Medical Sciences hospitals. The research findings showed that there is a significant relationship between organizational resources, organizational knowledge, processes, management structure, values and goals with the use of information technology and artificial intelligence technologies. Also, they found a significant relationship between managers' gender and the average amount of computer use per month by them.

In 2013, Akbari and Esmailzadeh investigated the relationship between job and employee characteristics and the amount of information technology use in a research-education-consultation center. The results of the research show that job and employee characteristics have a significant relationship with the use of information technology. Among the factors of job characteristics, job importance had the strongest relationship and job variety had the weakest relationship. Also, the results show that there is a negative relationship between people's age as one of the employee's characteristics and the use of information technology.

In 2008, in a case study, Melang and his colleagues investigated the effect of organizational culture on the success of implementing business planning systems. They investigated the organizational culture based on the Willing K and Vuk KV model into five variable categories of group decision-making, learning and development, power sharing, participation, cooperation and support, risk tolerance and broken conflict, and the state of the organization in this field. According to the results of the research, the existence of a culture of participation, cooperation and support, tolerance of risk and conflict causes success in the implementation of resource planning systems of the organization. It was also found that the culture of participation, cooperation and support has a higher priority than the culture of risk tolerance and conflict in the successful implementation of the organization's resource planning systems.

A study in 2010 that identified the dimensions of organizational culture in the context of technological innovation adoption, i.e. the cause of vision, composition of organizational structure, support mechanisms, and innovative behavior of employees of medical commercial



companies, showed that the dimensions of organizational culture cause action or enabling or inhibiting technological innovations.

Researchers often refer to national culture as an effective factor on technology adoption, but still few researches have directly investigated how or the degree of influence of national culture on information technology adoption. Of all the factors that must be considered in the adoption of information technology and artificial intelligence strategies, culture is probably the hardest to isolate, define and measure. Scholars of information technology and artificial intelligence strategies have repeatedly referred to the cultural dimensions developed by Hofstede, the most influential researcher in the field of cross-cultural work values.

In 2019, Guo and his colleagues presented the results of their exploratory study that examined the impact of national and organizational culture on technology use in multinational contexts. They conducted their study in Asian multinational organizations with headquarters in Australia and branches in Korea, Malaysia and Thailand. Their interviews, which were conducted face-to-face and via e-mail, showed that the global organizational culture of these multinational organizations may explain the consistency of media use between headquarters and branches.

Also, in a study in Saudi Arabia, Al-Ghatani and his colleagues investigated the effect of culture and acceptance of the use of information technology and artificial intelligence strategies. The model they presented could not be used in Western societies (societies with Western culture). They put forward the integrated theory of acceptance and use of technology, which is a model of user acceptance of information technology. Different approaches have been used to study and investigate the effects of organizational culture. One of them is applying quantitative methods to identify and measure national cultural dimensions. They investigated the acceptance of technology use in 722 employees who used desktop computer applications. Using their theory, they measured the cultural differences that affect the acceptance of the use of information technology in the two societies of North America and Saudi Arabia. They found a positive effect between performance expectancy and intention, but no interaction effect between performance expectancy and age and gender. The negative interaction between hope for effort and experience in the intention to do the work showed that with increasing years of experience with computer work, the ease of using it in predicting the behavior and intentions of Saudi people becomes less important. It is in culture that the dimension of power is determined from a distance. They argued that people are more inclined to show respect for authority and conform to the expectations of others in important or superior roles.



In 2010, Shaukat and Zafar investigated the influence of sociological and organizational factors on the adoption of information technology by commercial companies. They examined cultural, human, social, political and economic factors in 48 companies, 24 banks (12 local banks and 12 foreign banks) and 24 factories (12 local factories and 12 foreign factories) in Pakistan. They defined their hypothesis based on the principle that cultural variables are the most important factor in the implementation of any change in technology. The obtained results showed that, in general, organizational culture lies in the implementation and implementation of information technology in all organizations. Today, management in the multinational global business community often faces cultural differences that can hinder the successful installation of any new technology.

By conducting a study in 2020 in Kenya, Indij and his colleagues, without rejecting problems of a technological nature, showed that many problems in the implementation of an organization's financial management information system may be attributed to organizational factors, which are related to organizational culture. exists within the government and organizational culture has a strong influence on the implementation and development of financial information systems. Organizational culture can support the relationship between technology adoption and organizational growth, and as a result, it can become a critical success factor in the development and implementation of information systems. Identifying and understanding the meanings, norms and power in organizations when developing and implementing an information system is very important and important.

Also, a study in 2001 examined the performance of information systems through organizational culture. The researchers decided to investigate the interrelationships between information technology, information systems and organizational culture. Then, they focused on how the organizational culture affects the specific process of differentiating informatics culture and information culture - the latter allows the implementation and development of information systems. Finally, they emphasized the cultural coherence that the implementation of information systems requires. In order to do this, they planned in such a way that measuring the technical and financial feasibility of information systems regarding quantitative and measurable efforts of the organization should provide its implementation along with the compatibility of this system with the existing culture. . Considering the need for cultural change, they argued that the best choice is to implement a bubble culture. In this paper they have tried to prove that cash investment in information technology and artificial intelligence/information system strategies is not enough to produce positive results in a company. A specific component within any information system, a human (considered in itself as interacting with others) must be present for such an information system to succeed. This does not only require the technical use of these equipments, but specifically in terms of quality, understood as organizational behavior. Analyzes of the informatics culture and



information culture in the organization showed that it is the information culture that allows the company to get the best benefit with the efficiency of information technology and artificial intelligence/information system strategies. Unfortunately, not all companies are in the same situation, and information technology and AI/IS strategies do not have the same cost/benefit ratio for all of them. Both individuals and groups showed resistance to the implementation of information systems, which cannot be considered due to the acceptance of cultural changes. Without auditing and trying to anticipate the cultural consequences of organizational behavior related to the suspected implementation of information systems, the implementation of such a system is very likely to fail, no matter how much money is invested in the system.

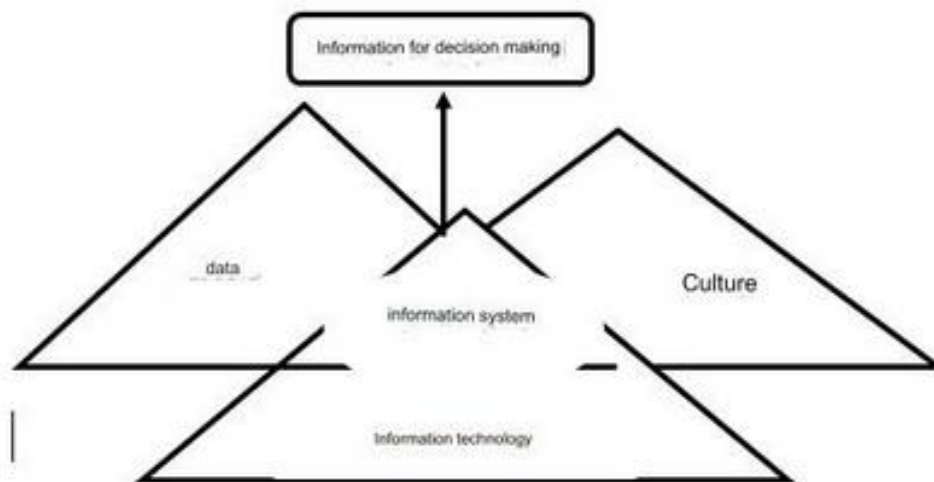


Figure 5: Information systems performance through organizational culture

In the short term, the success of information systems within a company will be achieved by the intersection of data, information technology and people (not only from a technical point of view, but also as people in the organizational culture). The information obtained from information systems for any type of decision-making process depends on three components and the appropriate relationship between them.

Key user behavior has an important effect on information technology performance. However, little is known about the moderating effect of organizational culture on the relationship between key user knowledge, IT department attitudes and performance, and AI strategies. In 2022, Manhui Huang reviewed this work. In this study, researchers conducted hierarchical linear modeling (HLM) to test the moderating effect. The results showed that in an organization with an applied culture of information technology and strong artificial



intelligence strategies, key user knowledge has a greater effect on the performance of the information technology department and artificial intelligence strategies, and attitude has a lesser effect.

In 2020, David Nichols and his colleagues investigated the relationship between the degree of congruence of the prevailing organizational culture and the maturity levels of strategic alignment in organizations. The results of this study showed that there is a significant relationship between the managers' level of agreement on the dominant organizational culture and the maturity level of strategic alignment in the sample companies. The greater the congruence of the company's culture, the higher the maturity level of strategic alignment in them. The results of the study considered two implications for the field of management information systems. First, the potential that supports the third dimension of achieving the alignment of information technology and business artificial intelligence strategies and the homogeneity of organizational culture. Second, the results suggest that further research into the potential of this relationship to improve the alignment of an organization's IT and business AI strategies is needed for continued research.

In 2007, an eastern researcher, relying on a cultural perspective, investigated the development of information and communication technologies, including planning and management of information technology and artificial intelligence and communication strategies, hardware infrastructure, software resources and services, professional development, and the educational methods of information and communication-support technologies in eastern schools. Although the use of information and communication technologies in education is a major concern for educators worldwide, culture has a strong influence on the design, use, and management of information, communication, and learning systems. Considering that the cultural tradition of the East, along with other social factors, is based on the teacher-dominated group and the centrally organized educational culture, this study examines the impact of educational culture on the use of technology, as well as the role of technology in changing education. highlighted and showed a number of important challenges that Eastern educators need to deal with. These challenges are: 1) dissemination of information technology and artificial intelligence and communication strategies to all teachers in all schools in both developing and underdeveloped regions; 2) to develop partnerships between schools, research institutions, government agencies, and business sectors to create information technology infrastructure and cost-effective communication and artificial intelligence strategies and to create sound educational technology software resources; 3) reshaping professional communities willing to test new ideas and technologies in continuous and reflective service improvement; 4) Contribute to the evolution of the Eastern learning culture in the age of knowledge by organizing information technology and artificial intelligence and communication strategies into a systemic effort to change the school.



In 2018, Beres and his colleagues investigated the strategic effects of information and communication technologies, knowledge management, and the principles and organizational learning culture of e-government in public administrative organizations. For the first time, they developed a conceptual model of the relationship of information technology and strategies of artificial intelligence and communication, knowledge management and organizational learning, and then tested it operationally and empirically on Slovenian public administrative organizations. Their model can be used in other developing countries as well. But they did not use user information in this model due to the effectiveness and efficiency of e-government. They did not get any data from citizens and user satisfaction. This study showed a relatively weak relationship between organizational learning factors. (Brace et al., 2008)

Pliskin et al. (1993), focused on the concepts of organizational culture that are not properly understood and cause resistance to the implementation of information technology and artificial intelligence strategies. The authors believe that organizational culture should be added to the framework that Marcus and Ruby presented in 1993, which includes user, structure, power politics and environment. This will create five levels of analysis from resistance to information systems implementation. Piliskin and his colleagues argue that if culture is ignored, the rest of the analysis may come to naught.

Pliskin et al. (1993), focused on the concepts of organizational culture that are not properly understood and cause resistance to the implementation of information technology and artificial intelligence strategies. The authors believe that organizational culture should be added to the framework that Marcus and Ruby presented in 1993, which includes user, structure, power politics and environment. This will create five levels of analysis from resistance to information systems implementation. Piliskin and his colleagues argue that if culture is ignored, the rest of the analysis may come to naught.

Organizational culture by Cooper (1994), as an internal resource in the implementation of information technology and artificial intelligence strategies. He argues that the organization has two main dimensions of competition: order versus flexibility, and the demands of the internal system versus the demands of the external environment. It creates organizations that have one of four basic organizational cultures: human relations, survival, stability, and productivity. In order for a new information system to be implemented effectively, the information system must support the current culture. If the current culture is not supported, there will be internal resistance to its adoption.

In 2021, Jackson in England investigated how and why the cultural values formed by organizational members affect the adoption of information systems over time. He conducted



this study at a college of higher education with a stellar track record. This study showed that combining theoretical approaches can be a useful way to address and understand the multiple nature of culture. Our understanding of information systems culture can be enhanced by combining theoretical approaches where the weakness of one approach can be supplemented by the strength of another. Managers should be aware that organizational and group culture can strongly influence the adoption of information systems. And not all aspects of culture can be fully controlled and instead culture is always being constructed, formed and modified through social relations.

Research on the impact of culture on the implementation of information technology and artificial intelligence strategies is quite limited. Clearly, there are many avenues of research yet to be explored.

It seems that most of the research related to information technology and artificial intelligence strategies and culture has been done at a conceptual level or using a case study.

7-Conclusion

Before being a hardware system and a set of patterns, information technology is an intellectual and cultural system and can be called the culture of information production. Without creating a culture of information production, the information technology system and artificial intelligence strategies cannot last. Culture and technology as open systems have components that have systematic relationships with each other. The change and transformation in the implementation of each of these systems brings its internal structure to a new arrangement and affects the system or other systems that are in trade with it.

Research has shown that the effective use of information technology and artificial intelligence strategies in any organization is influenced by the culture of the organization. Information technology and artificial intelligence strategies have long been one of the most fundamental factors of transformation in human life. The function of any technology in societies depends completely on its culture, and therefore they can use these technologies to spread their ideology and culture.

Changes in information technology and artificial intelligence and communication strategies in contemporary organizations require continuous changes in the relevant work processes. The integration of new technologies is strongly related to the emerging principles of knowledge management and the organizational culture of learning. In successful organizational learning, individual learning is continuous, knowledge is shared, and organizational culture supports learning.



Every technology shows the culture of the country that produced it. Understanding new technologies in developing countries is not done easily and at the speed of developed countries.

Organizational culture can support the relationship between technology adoption and organizational growth, and as a result, it can become a critical success factor in the development and implementation of information systems. Identifying and understanding the meanings, norms and power in organizations when developing and implementing an information system is very important and important.

Many studies have investigated the effect of culture on the adoption of information technology in public and private organizations and institutions. There is no definite opinion about the mutual relationship between the two and this relationship is different according to the accepted culture in different countries of the world.

On the other hand, the strategic use of artificial intelligence was considered by the literature in related ways: improving the company's strategy by predictive analysis by visualizing key performance indicators and by image recognition to recognize consumer behavior, choosing the best option for IT infrastructure design plans based on the future. Organizational conditions and its effects on the need to change information technology developments, successful development of decision support systems for strategic support of the decision-making process, growth of new organizational opportunities and capacity for innovation, solving specific challenges with regard to product and machine characteristics capabilities, to improve product quality and increase business performance.

These results are applicable to both theoretical and practical perspectives, with broad possibilities for generating new theory and new types of management practices. Regarding the theoretical implications, the findings showed that despite the digital and cognitive strategies to take advantage of the strategic benefits of artificial intelligence working with people, the strategic use of artificial intelligence advances has not yet been explored by researchers. In this regard, due to the rise of artificial intelligence in the digital age, there are still gaps to investigate the formulation and implementation of the new era of artificial intelligence in different settings of different scales and industrial facilities.

According to managerial concepts, the results of this article can be a guide for management practices and organizational culture, which calls for new types of strategic decision-making and the transformation of organizational culture. In addition, the AI and Corporate Strategy Association exhibition can help managers to receive these new developments by paying more attention to the opportunities, problems and benefits that AI offers to their business.



References

1. Zimmermann, A.; Schmidt, R.; Sandkuhl, K. Strategic Challenges for Platform-based Intelligent Assistants. *Proc. Comput. Sci.* 2020, 176, 966–975, doi:10.1016/j.procs.2020.09.092.
2. Iyer, R.K.; Schkade, L.L. Management support systems for multinational business. *Inf. Manag.* 1987, 12, 59–64, doi:10.1016/0378-7206(87)90060-7.
3. 53. Coakes, E.; Merchant, K.; Lehane, B. The use of expert systems in business transformation. *Manag. Decis.* 1997, 35, 53–57, doi:10.1108/00251749710160197.
4. 54. Warner, K.S.; Wäger, M. Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Plan.* 2019, 52, 326–349, doi:10.1016/j.lrp.2018.12.001.
5. 55. George, A.; Schmitz, K.; Storey, V.C. A Framework for Building Mature Business Intelligence and Analytics in Organizations. *J. Database Manag.* 2020, 31, 14–39, doi:10.4018/JDM.2020070102.
6. 56. Lenart-Gansiniec, R. Organizational Learning in Industry 4.0. *Probl. Zarz.* 2019, 17, 96–108, doi:10.1016/j.ijpe.2019.06.023.
7. Chae, B.K. A complexity theory approach to IT-enabled services (IESs) and service innovation: Business analytics as an illustration of IES. *Decis. Support Syst.* 2014, 57, 1–10, doi:10.1016/j.dss.2013.07.005.
8. Feldmann, N.; Kohler, M.; Kimbrough, S.O.; Fromm, H. Service innovation analytics: Towards an approach for validating frameworks for service innovation capabilities via text mining. In *Exploring Services Science. IESS 2013. Lecture Notes in Business Information Processing*; Falcão e Cunha, J., Snene, M., Nóvoa, H., Eds.; Springer: Berlin/Heidelberg, Germany, 2013; Volume 143, pp. 73–85.
9. Holmlund, M.; Van Vaerenbergh, Y.; Ciuchita, R.; Ravald, A.; Sarantopoulos, P.; Ordenes, F.V.; Zaki, M. Customer experience management in the age of big data analytics: A strategic framework. *J. Bus. Res.* 2020, 116, 356–365, doi:10.1016/j.jbusres.2020.01.022.
10. Kohler, M.; Feldmann, N.; Kimbrough, S.O.; Fromm, H. Service innovation analytics: Leveraging existing unstructured data to assess service innovation capability. *Int. J. Inf. Syst. Model. Des.* 2014, 5, 1–21, doi:10.4018/ijismd.2014040101.
11. 62. Sabherwal, R.; Chan, Y.E. Alignment between business and IS strategies: A study of prospectors, analyzers, and defenders. *Inf. Syst. Res.* 2001, 12, 11–33, doi:10.1287/isre.12.1.11.9714.



21. 63. Aversa, P.; Cabantous, L.; Haefliger, S. When decision support systems fail: Insights for strategic information systems from Formula 1. *J. Strateg. Inf. Syst.* 2018, 27, 221–236, doi:10.1016/j.jsis.2018.03.002.
22. 64. Charoensuk, S.; Wongsurawat, W.; Khang, D.B. Business-IT Alignment: A practical research approach. *J. High. Technol. Manag. Res.* 2014, 25, 132–147, doi:10.1016/j.hitech.2014.07.002.
23. Isal, Y.K.; Pikarti, G.P.; Hidayanto, A.N.; Putra, E.Y. Analysis of IT infrastructure flexibility impacts on IT-Business strategic alignment. *J. Ind. Eng. Manag.* 2016, 9, 657–683, doi:10.3926/jiem.1916.
24. Liang, H.; Wang, N.; Xue, Y.; Ge, S. Unraveling the alignment paradox: How does business—IT alignment shape organizational agility. *Inf. Syst. Res.* 2017, 28, 863–879, doi:10.1287/isre.2017.0711.
25. Becker, W.; Schmid, O. The right digital strategy for your business: An empirical analysis of the design and implementation of digital strategies in SMEs and LSEs. *Bus. Res.* 2020, in press, doi:10.1007/s40685-020-00124-y.
26. Hsieh, K.L. Applying an expert system into constructing customer's value expansion and prediction model based on AI techniques in leisure industry. *Exp. Syst. Appl.* 2009, 36, 2864–2872, doi:10.1016/j.eswa.2008.01.058.
27. 69. Schrettenbrunner, M.B. Artificial Intelligence Driven Management. *IEEE Eng. Manag. Rev.* 2020, 48, 15–19, doi:10.1109/EMR.2020.2990933.
28. 70. Demirkan, H.; Delen, D. Leveraging the capabilities of service-oriented decision support systems: Putting analytics and big data in cloud. *Decis. Support. Syst.* 2013, 55, 412–421, doi:10.1016/j.dss.2012.05.048.
29. 71. Huang, M.H.; Rust, R.T. A strategic framework for artificial intelligence in marketing. *J. Acad. Mark. Sci.* 2020, in press, doi:10.1007/s11747-020-00749-9.
30. 72. Caputo, F.; Cillo, V.; Candelo, E.; Liu, Y. Innovating through digital revolution. The role of Soft Skills and Big Data in increasing firm performance. *Manag. Decis.* 2019, 57, 2032–2051, doi:10.1108/MD-07-2018-0833.
31. 73. Chersan, I.C.; Dumitru, V.F.; Gorgan Cand Gorgan, V. Green Public Procurement in the Academic Literature. *Econ. Amphitheater* 2020, 22, 82–101.
32. 74. De Carlo, M.; Ferilli, G.; d'Angella, F.; Buscema, M. Artificial intelligence to design collaborative strategy: An application to



44. urban destinations. *J. Bus. Res.* 2020, in press, doi:10.1016/j.jbusres.2020.09.013.
45. 75. de Medeiros, M.M.; Maçada, A.C.G.; Junior, J.C.D.S.F. The effect of data strategy on competitive advantage. *Bottom Line* 2020,
46. 33, 201–216, doi:10.1108/BL-12-2019-0131.
47. 76. Tabesh, P.; Mousavidin, E.; Hasani, S. Implementing big data strategies: A managerial perspective. *Bus. Horiz.* 2019, 62, 347–
48. 358, doi:10.1016/j.bushor.2019.02.001.
49. 77. Angelopoulos, S.P.; Kitsios, F.C.; Babulak, E. From e to u: Towards an innovative digital era. In *Ubiquitous and Pervasive Computing: Concepts, Methodologies, Tools, and Applications*; Kotsopoulos, S., Ioannou, K., Eds.; IGI global: Hershey, Pennsylvania, USA.
50. 2008; pp. 1669–1687.
51. 78. Angelopoulos, S.; Kitsios, F.; Moustakis, V. Transformation of management in the Public Sector: Exploring the Strategic Frame-
52. works of e-Government. In *Public sector reform using information technologies*: Tran
53. Alipour, M., & Alipour, M. (2022). Analysis of the consequences of flipped learning from the perspective of pre-service teachers of Farhangian University. *The Scientific Quarterly Journal of Research in Social Studies Education*, 4(2), 92–110. https://alborzmag.cfu.ac.ir/article_2345.html?lang=en. [In Persian]
54. Fernández-Martín, F-D., Romero-Rodríguez, J-M., Gómez-García, G., & Navas-Parejo, M. R. (2020). Impact of the flipped classroom method in the mathematical area: A systematic review. *Mathematics*, 8(12), 2162. <https://doi.org/10.3390/math8122162>
55. Ghanaat, H., & Habibzadeh, A. (2020). Analyzing the Impact of Flipped Classroom on Students' Mathematical Academic Achievement and Attitude towards Mathematics. *Research in Curriculum Planning*, 17(40), 183–196. <https://www.noormags.ir/view/fa/articlepage/1826727>. [In Persian]
56. Ghartali, A., Rezaei Zadeh, M., & Alamolhoda, G. (2020). Identifying barriers to using flipped class in Iranian higher education. *Research in Teaching*, 8(4), 212–230. https://trj.uok.ac.ir/article_61819.html?lang=en. [In Persian]
57. Glasser, W. (1999). *Choice Theory: A New Psychology of Personal Freedom*. HarperCollins.
58. Gopalan, Ch., Daughrity, Sh., & Hackmann, E. (2022). The past, the present, and the future of flipped teaching. *Advances in Physiology Education*, 46(2), 331–334. <https://doi.org/https://doi.org/10.1152/advan.00016.2022>
59. Hastuti, R. I. (2020). Flipped classroom learning model with group investigation strategy to increase the enjoyment of mathematics in elementary school students. 5th



- Seminar Nasional Matematika Dan Pendidikan Matematika (SENATIK), Semarang, Indonesia, 1663. <https://doi.org/10.1088/1742-6596/1663/1/012054>
61. Jakobsen, K., & Knetemann, M. (2017). Putting Structure to Flipped Classrooms Using Team-Based Learning. *International Journal of Teaching and Learning in Higher Education*, 29(1), 177–185. <https://api.semanticscholar.org/CorpusID:149259904>
62. Johnson, A. E. (2020). Shaping Student Views on Mathematics: Influences on Year 5 and 6 Students' Mathematical Dispositions and Mindsets towards Learning [Master's Thesis, Massey University, Albany, New Zealand]. <http://hdl.handle.net/10179/16208>
63. Karimi, S. (2021). Investigating the effective components in the dynamic education system. 2nd International Conference on Jurisprudence, Law, Psychology and Education Science in Iran and Islamic World, Tehran, Iran, 15. <https://civilica.com/doc/1264783>. [In Persian]
64. Lo, C. K., Hew, K. F., & Chen, G. (2017). Toward a set of design principles for mathematics flipped classrooms: A synthesis of research in mathematics education. *Educational Research Review*, 22, 50–73. <https://doi.org/10.1016/j.edurev.2017.08.002>
65. Mousapour, N. (2014). University Teaching: which method? Which pattern? *Teaching and Learning Research*, 10(2), 49–78. https://tlr.shahed.ac.ir/article_2345.html. [In Persian]
66. Oh, H. (2020). How Different Grouping Methods Can Improve Students' Mathematical Achievement in an Appropriate Setting [Hamline University]. https://digitalcommons.hamline.edu/hse_all/4474/
67. Pardimin, Rochmiyati, S., Wijayanto, Z., & Susanto, M. (2022). Application of The Flipped Classroom Method and Effectiveness in Learning Mathematics. *Journal of Positive School Psychology*, 6(4), 2441–2452. <https://www.journalppw.com/index.php/jpsp/article/view/3640>
68. Rizos, I., Kolokotronis, G., & Papanikolaou, A. M. (2023). Investigating the effectiveness of flipped classroom model in a mathematics education course in Greece. *Journal of Mathematics and Science Teacher*, 3(1), em021. <https://doi.org/https://doi.org/10.29333/mathsciteacher/12608>
69. Salazar, D. A. (2016). Methods of grouping in a flipped classroom model : Effects on students' achievement in differential calculus. *International Journal of Advanced Research and Development*, 1(5), 44–50.
70. Sarker, B. K. (2023). Enhanced Student Class Attendance by Using Concept of Flipped Classroom Approach. *Journal of Social, Humanity, and Education (JSHE)*, 3(2), 105–117. <https://doi.org/10.35912/jshe.v3i2.1240>



71. Schultz, D. P., & Schultz, S. E. (2020). Theories of Personality (Eleventh). Cengage Learning.
72. Shiranibidabadi, N., Nasrisfahani, A., Rouhollahi, A., & Khalili, R. (2016). Effective Teaching Methods in Higher Education: Requirements and Barriers. *Journal of Advances in Medical Education & Professionalism*, 4(4), 170–178. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5065908>
73. Sopamena, P., Sangadji, K., Riaddin, D., Kaliky, S. & Assagaf, G. (2023). Effectiveness of Flipped Classroom Model on Mathematics Achievement at the University Level: A Meta-Analysis Study. *International Journal of Instruction*, 16(1), 767–780. <https://doi.org/https://doi.org/10.29333/iji.2023.16143a>
74. Thi Mai Huong, N. (2022). Innovating Teaching Methods at the University Level: Necessity and Problems Issues for Higher Education. *Global Academic Journal of Humanities and Social Sciences*, 4(6), 207–212. <https://doi.org/10.36348/gajhss.2022.v04i06.002>
75. Huang M. (2012). Key User Knowledge, Attitude and IT Performance: The Moderating Effect of Organizational Culture. *Procedia Engineering*, Vol.29, pp. 1824-1829.
76. Indeje W.G., Zheng Q. (2010). Organizational Culture and Information Systems Implementation: A Structuration Theory Perspective. *Sprouts: Working Papers on Information Systems*, Vol.10, No. 27. <http://sprouts.aisnet.org/10-27>.
77. Jackson, S. (2011). Organizational Culture and Information Systems adaption: A three-perspective approach. *Information and Organization*, Vol. 21, pp. 57-83.
78. Kalkan, A., Erdil, O., Çetinkaya, Ö. (2021). The relationships between firm size, prospector strategy, architecture of information technology and firm performance. *Procedia Social and Behavioral Sciences*, Vol. 24, pP.854-869.
79. Li-Hua, R., Wilson, J., Aouad, G. & Li, X. (2021). Strategic aspects of innovation and internationalization in higher education The Salford PMI2 experience”, *Journal of Chinese Entrepreneurship*, Vol. 3, No. 1, pp. 8-23.
80. Luu TT., and Venkatesh S. (2020). Organizational culture and technological innovation adoption in private Hospitals. *International Business Research*, Vol. 3, No. 3, pp. 144-153.
81. Nickels DW., Janz B.D. (2020). Organizational Culture: Another Piece of the IT-Business Alignment Puzzle. *Journal of Information Technology Management* Vol. XXI, No. 3, pp. 1-14.