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Integration of Artificial Intelligence in Investment Decision-Making in Startups: The Case of SESAMm Company

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Abstract
This study analyzes AI's contribution to improving investment decisions in nascent companies, using SESAMm as a case study. AI is crucial for analyzing vast data and simulating human cognition, supporting complex strategic decisions. Integrating AI enhances operational efficiency, decision quality, and competitiveness, while reducing biases and increasing investor attractiveness. Despite challenges like data scarcity and integration difficulties, the study confirms these can be overcome through strategic investment in data, supportive frameworks, and human resource training.

Keywords: Artificial Intelligence, Investment Decisions, Nascent Companies, Data Analysis, Deep Learning, Natural Language Processing, SESAMm, Risk Management, Investment Opportunities, Cognitive Biases.

Introduction
In light of the rapid technological transformations imposed by the Fourth Industrial Revolution, artificial intelligence has become one of the most important tools that are reshaping the foundations of work in various economic sectors, as it has become capable of simulating human mental capabilities and analyzing massive amounts of data with high efficiency. This development has made it possible to benefit from artificial intelligence not only in technical fields, but also in supporting complex strategic decisions, including investment decisions, which are among the most difficult and influential decisions on the continuity and growth of institutions. Emerging companies represent an ideal environment for experimenting and adopting artificial intelligence techniques in making investment decisions, given their dynamic nature and reliance on innovation, in addition to their need for precise analytical tools that help them compete and attract investors in an environment of high risks and uncertainty. The integration of artificial intelligence allows these institutions to access deep insights about markets, opportunities and risks, which enhances the quality of decisions made and limits human biases.

In this context, the experience of the French company SESAMm stands out as a pioneering practical model in this field, where since its establishment in 2014, it has been able to develop the TextReveal® platform that relies on natural language processing and deep learning techniques to analyze billions of documents and articles from diverse sources, with the aim of generating investment signals and early detection of risks and opportunities. This approach has enabled the company to provide innovative solutions to investors, strengthening its competitive position and attractiveness to funders.

This study seeks to analyze how artificial intelligence is integrated into the investment decision-making process within emerging companies through the case study of SESAMm company, in order to answer the following problem:

The Problem:
How does the integration of artificial intelligence contribute to making investment decisions in emerging companies?
Sub-questions:
Based on the problem, the following research questions can be formulated: -

- What is the role that artificial intelligence plays in supporting the investment decision-making process in emerging companies?
- How can big data analysis techniques detect investment risks and opportunities?
- What are the advantages that emerging companies achieve from integrating artificial intelligence compared to traditional methods?
- What is the impact of using artificial intelligence on the attractiveness of emerging companies to investors?

Study Hypotheses
The study seeks to test the following hypotheses:

- The integration of artificial intelligence contributes to improving the accuracy of investment decisions within emerging companies.
- The use of artificial intelligence reduces emotional and cognitive biases among investment decision makers.
- The integration of artificial intelligence raises the attractiveness of emerging companies to investors and increases their chances of obtaining financing.

Study Importance:
The importance of this study stems from the increasing need for advanced analytical tools that support investment decision makers in the environment of emerging companies characterized by rapid change, high levels of risk and uncertainty. The topic of integrating artificial intelligence in investment decision-making acquires special importance through:

- Its contribution to developing more accurate and objective investment strategies based on the analysis of massive and diverse data.
- Enabling emerging companies to improve their competitive capabilities and attract investors in a highly competitive work environment.
- Providing a practical model through the case study of SESAMm company that can be benefited from in local and international contexts.
- Enhancing academic and practical knowledge about the possibilities and challenges of using artificial intelligence in financial decisions.

Study Objectives:
This study aims to:

- Analyze the role of artificial intelligence in improving the quality of investment decisions within emerging companies.
- Study the experience of SESAMm company as a practical model for integrating artificial intelligence in investment decision-making.

- Identify the advantages that artificial intelligence provides to emerging companies in the field of risk management and investment opportunity analysis.
- Evaluate the impact of big data analysis techniques on financial performance and institutional growth.

First: Generalities about Artificial Intelligence

Artificial intelligence represents one of the most important outputs of the Fourth Industrial Revolution, given the multiplicity of its uses in various fields, as it is based on manufacturing intelligent machines that behave as humans behave and uses a comparative method to the human method in problem solving and dealing with hypotheses simultaneously and with high accuracy and speed.

1- The Concept of Artificial Intelligence:

Definitions have multiplied and differed in explaining the essence of artificial intelligence, and this is because it is somewhat ambiguous until now. To determine a precise concept, several concepts have been addressed by researchers for the purpose of identifying the basic features of artificial intelligence, which are:

Artificial intelligence is defined as the study that makes computers do things that people do better at the present time. (Mohamed Fathallah Mohamed, 2017, p. 237)

As for Mark Fox, he defined artificial intelligence as "the theory related to how the mind works. (Mahdi Al-Khafaf, Ghassan Ahmed Al-Otaibi, 2012, p. 166)

Artificial intelligence is also defined as a science that aims to understand the nature of human intelligence through creating a program for the automatic computer and the ability to simulate human behavior characterized by intelligence, meaning the ability of the automatic computer program to solve a problem or make a decision in a certain situation. (Jamal bin Hamala Al-Sharari, 2021, p. 19)

It can also be defined as one of the modern technologies that were developed in the late last century and which includes a set of software that helps managers and employees in decision-making for all company operations and is characterized by progress and advancement, and equipping computer devices with a set of activities that help practice behavior characterized by intelligence. (Sabah Anwar Yaqoub Al-Younis, 2012, p. 07)

John McCarthy (1927) defined it as the science of engineering and manufacturing intelligent machines that simulate the basic mental processes of intelligent human behaviors, and building artificial systems that enable the computer to perform tasks that cannot be achieved except through human intelligence methods. This was proposed at the Dartmouth conference, and the term artificial intelligence was launched on these researches, which is why he became known as the father of artificial intelligence. (Malika Zakour, 2021, p. 138)

As for Marvin Minsky, he defined it as building a computer program that engages in tasks that are performed satisfactorily by humans because they require high-level mental processes such as: perceptual learning, memory organization. (Abdellah Moussa, Ahmed Habib Bellal, 2019, p. 2)

Yolvi (2019) believes that artificial intelligence refers to a method of simulating the capabilities of human intelligence for the brain, and it is part of computer science that deals with designing intelligent systems, i.e., systems that show characteristics that can be linked to intelligence in human behaviors. (Madeeha Fakhri Mahmoud, 2023, p. 24)

Artificial intelligence is also considered one of the modern technological sciences that appeared in the twentieth century, carrying with it many excellent achievements and performance. It is expected that machines will become capable of performing the tasks that humans do. With science, it is used in various fields, where it works in logistics operations, in data extraction and search processes, and has also become used in medical diagnosis. The functions performed by artificial intelligence increase as the technical explosion increases, and for these reasons, it becomes a specialization that people will compete for in the future. (Marzouka Hamoud Rashid Al-Balawi, 2021, p. 20)

As for Marvin Lee Minsky, he defined it as building computer programs that engage in tasks that are performed satisfactorily by humans because they require high-level mental processes such as: perceptual learning, memory organization, and critical thinking. (Madeeha Fakhri Mahmoud, 2023, p. 24)

According to Russell and Norvig (2016), Artificial Intelligence is computerized systems that capture data to perform tasks of intelligent beings in order to maximize their chances of success. (REIS, 2020, p. 159)

The early AI researchers tend to define AI as a technological advancement to solve math and logical reasoning problems. As the introducer of the term AI, McCarthy defined it as "the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable." From this perspective, data process intelligence relates to the human ability to effectively perceive and transform it into knowledge, which is later used for goal-driven behavior. (Quach, 2023, p. 4)

From the previous definitions, we can conclude that artificial intelligence is an attempt to make machines think like humans. It can be said that it is a science built on mathematical rules, programs, and devices that are all assembled in automatic computers that in turn perform many tasks and processes that humans can perform, but they differ from humans in terms of accuracy and speed in finding solutions to complex problems.

2- Historical Background of Artificial Intelligence:

Artificial intelligence is a modern cognitive science that officially began in the fifties of the last century. However, we find that a number of other sciences were concerned with artificial intelligence in one way or another, indirectly, before this period. Despite the fact that artificial intelligence is a relatively modern science, as it originated in the mid-twentieth century, the roots of this science and its idea extend back thousands of years, since 400 BC, where philosophers made it possible for artificial intelligence by defining the mind as a machine that works on knowledge and that the idea can be used to reach the correct decision. In 1956, a conference was held at Dartmouth Summer School, where the term artificial intelligence appeared for the first time at the hands of John McCarthy. Herbert Gelernter also presented a model called geometry theorem solver in the same year, which proved the possibility of proving the validity of some difficult theories and discoveries in the field of robotics and neural networks. (Adel Abdel Nour, 2010, p. 43)

In the fifties, the first attempt began to prepare automatic models capable of issuing simple behavior, such as teaching. However, these models failed to issue any complex behavior, and these models relied on simulating neural networks, such as McCulloch and Pitts, and Ashby and Uttley. These models work by performing a specific response based on inputs that are entered. In the sixties, a qualitative leap occurred in the development of programs with multiple uses, where McCarthy's works were characterized by the development of linguistic programs that use symbolic language from digital languages. This period also produced other achievements that touched on robotic aspects. (Boudah Abdel Jalil, 2007, pp. 16-17)

In the seventies, the first steps began in what is known as knowledge engineering through a working group led by Edward Feigenbaum, one of the most famous artificial intelligence scientists at Stanford University. Research in the field of artificial intelligence continued with all that distinguishes this leap, where specialized fields emerged. Due to the abundance of theories, this field was divided into specialized areas, each of which focuses on a specific type of solutions to the artificial intelligence problem. (Adel Abdel Nour, 2009, p. 24)

In the eighties, artificial intelligence research witnessed a revival through the commercial success of expert systems, and artificial intelligence research reached more than a billion dollars. Governments began to finance that research in 1985. In 1987, a collapse occurred in the market for one of the programming languages, Lisp Machine, and artificial intelligence research witnessed a setback. However, in 1987, artificial intelligence achieved greater successes in the field of logistics, data extraction, and medical diagnosis. (Saif Salam Mohsen Al-Musallami, 2022, p. 22)

As for the period that included the mid-nineties and until today, it has witnessed a remarkable development in the field of artificial intelligence after the researchers' efforts focused on developing what is called intelligent units that are characterized by independence from the system they work with, but are connected to it, and intervene in solving the problem presented in the same way that humans deal with it when they act as an assisting agent to solve the problems presented.(Boudah Abdel Jalil, 2007, p. 17)

3- The Importance of Artificial Intelligence:

We can refer to some aspects of the multiple importance of artificial intelligence in all fields and domains, including: (Ihsan bin Ali, , 2022, pp. 469-470)

- The contribution of artificial intelligence in preserving the accumulated human experiences by transferring them to intelligent machines.
- Enabling humans to use human language in dealing with machines instead of programming languages, which makes the use of machines accessible to all segments of society, after dealing with advanced machines was limited to specialists with experience.
- Artificial intelligence plays an important role in many sensitive fields, such as assisting in the diagnosis of diseases, prescribing medicines, legal and professional consultations, interactive education, and military and security fields, and others.

- These intelligent systems in the fields where decisions are made are characterized by objectivity, accuracy, and independence, and thus their decisions are far from bias, error, personal or external interventions, or even preconceived judgments and racism.
- Intelligent machines relieve humans of much of the psychological pressures and risks, and make them deal well with time and focus on more important things.
- The application of artificial intelligence will contribute to achieving sustainable development goals.

4- Types of Artificial Intelligence:

Artificial intelligence can be divided into three main types according to the capabilities it possesses, starting from simple reaction to self-interaction and perception, as follows:

- **Weak or Narrow Artificial Intelligence:** This is the simplest form of artificial intelligence, where it is programmed to perform specific functions within its environment, and its behavior is considered a reaction to a specific situation, and it can only work in the conditions of its specific environment. (Shams Nasib, 2024)
- **General Artificial Intelligence:** This means the ability to think similar to humans and solve problems that require intelligence and creative thinking. This type of artificial intelligence is still in the research and development stages, and scientists are still trying to understand human thinking methods and apply them in computer systems. (Sanaa Tabart, 2022, p. 1245)
- **Super Artificial Intelligence:** These are models that are still under experimentation and seek to simulate humans. Here, it is possible to distinguish between two basic patterns: the first tries to understand human thoughts and emotions that affect human behavior and possesses a limited ability to social interaction. As for the second, it is a model for the theory of mind, where these models can express their internal states and predict what others feel. (Abd El Wahab Shalali and others, 2018, p. 2)

Table 01: The difference between Artificial Intelligence and General Artificial Intelligence

Weak (Narrow) Artificial Intelligence	**General Artificial Intelligence**
Specific (limited) artificial intelligence	General artificial intelligence
Simulates one aspect of the human mind	Simulates real human behavior
Lacks consciousness	Has consciousness
Applies intelligence to a specific problem	Applies intelligence to any problem
Solves problems and makes decisions in a very limited area	Solves problems and makes decisions in a general area

Source: Abdullah Musa and Ahmed Habib Ballal, "Artificial Intelligence: A Revolution in Modern Technologies", 1st edition, Arab Group for Training and Publishing, Cairo, 2019, p. 155.

5- Fields of Artificial Intelligence Application:

There are many fields in which artificial intelligence can be applied, including: (Sarah bint Thunayyan bin Muhammad Al-Saud, 2020, p. 27)

- **Information Centers and Libraries:** Specialists have benefited from this technology and produced many systems in preservation, retrieval, indexing, discovery, and academic experience, and building knowledge treasures and interviews that meet the needs of beneficiaries.

- **Computer Games:** In these games, a problem is placed before the individual, and he attempts to solve it. Some of these games are extremely difficult, so that the average individual cannot reach their solutions, and with the use of artificial intelligence, the computer has sometimes become difficult to overcome in many games.
- **Expert Systems:** These are complex accounting systems that collect specialized information from experts and present it in a way that enables the computer to apply that information to similar problems.
- **Human Language Processing:** This specializes in developing programs and systems that have the ability to generate or understand human language.
- **Machine Learning:** This is about making the computer learn how to solve problems on its own. This is done either by learning from acquiring previous experiences, or by analyzing correct solutions and inferring the method of solution from them, or by learning through examples.
- **Natural Language Processing:** This is a branch of artificial intelligence sciences, and it is a branch of information that greatly intertwines with linguistic sciences that provide linguistic communication required for the computer. This science enables us to manufacture programs that can understand and simulate natural languages.

Second: Generalities about Investment Decisions

Among the most difficult decisions an investor makes is the investment decision, and this is due to its association with many factors that are difficult to predict and its great financial impact, as it affects the survival and continuity of the institution in the future. For this reason, it is given great importance. In order to make a sound investment decision, it is necessary to evaluate the project under study in order to identify its benefits. This evaluation provides the decision-maker with a comprehensive vision of the future of the project, which makes it easier for him to make a decision about whether or not to establish the project.

1- Definition of Investment Decision:

The concept of a rational investment decision is based on the principle of economic rationality, which is based on the science of economics. It is assumed that the investment decision-maker is characterized by the ability to act rationally, meaning the process of searching for the best use of available scarce resources, and investing and employing those resources in a way that gives the largest possible return on investment, taking into account the opportunity cost, which is the lost or alternative opportunities sacrificed[22]. (Maaraj Hawari, Abbas Hanas, Ahmed Majd, 2013, p. 64)

It can also be said that a rational investment decision is the decision that is based on choosing the alternative that gives the largest investment return from two or more alternatives, and it is based on a set of feasibility studies that precede the selection process and pass through several stages that end with choosing the alternative ready for implementation in a specific systematic framework according to the investment project's objectives. (Abd Al-Muttalib Abd Al-Hamid, 2011, p. 38)

The investment decision is also defined as that decision that requires a certain amount of money and risks that the institution takes if it accepts an investment proposal. (Khalid Jamal Al-Araj, 2012, p. 143)

In another definition, it is referred to as the decision that involves allocating a known amount of money by the institution at the present time over a long period of time with the aim of achieving profit in the future; and it is subject to different degrees of risk and uncertainty. Hanan Tartour, 2021, p. 62)

It is also defined as the decision that is based on choosing the appropriate alternative from the available alternatives, and it is considered one of the most important financial decisions due to its great financial risk. The goal of this decision is to achieve a return over successive years. (Mahmoud Jamaj, Amira Dabash, 2017, p. 04)

From the foregoing, the investment decision can be defined as choosing the appropriate investment alternative from a set of alternatives that gives the highest return, based on a set of studies and research.

2- Types of Investment Decisions:

We can distinguish three types of investment decisions, where the nature of the decision made depends on the nature of the relationship between the price of the investment instrument and its value from the investor's point of view. These decisions are represented in: (Samir Abd Al-Dayem Hassan Al-Owaissi, 2010, p. 58)

- **Purchase Decision:** The investor makes this decision when he feels that the value of the investment instrument, represented by the present value of the expected cash flows from it, calculated within the framework of risk and return, exceeds the market price of the instrument. In other words, when the market price is less than the value of the investment instrument, which encourages the investor to buy that instrument with the aim of achieving capital gains from its expected rise in price in the future. This results in buying pressure on that instrument in the market, leading to a rise in its market price in the direction that reduces the difference between price and value.
- **Non-Trading Decision:** This results from the previous situation, where the price continues to rise to a point where the market price equals the value. From here, the market becomes in a state of equilibrium, which imposes on anyone who has an incentive to buy or sell to stop doing so. The investment decision at this moment is not to trade, because the investor at this point is in a position where his hopes for achieving future capital gains are extinguished, and he also extinguishes risks of a temporary price decrease in the near future, unless the prevailing conditions change.
- **Selling Decision after the Market Passes through a State of Equilibrium:** Here, the market dynamics work to create additional desires to buy that instrument from a new investor, and within the scope of his decision model, he sees the market price at that moment as still less than the value of the investment instrument, which requires him to offer a new price for that instrument, and thus the price rises above the value, giving an incentive to sell to others. The investor's decision then becomes a selling decision, and this creates a new circumstance that reflects on the market mechanism, reaching a point where the supply of the instrument is more than demanded, and the market price tends to fall again, and so the cycle continues.

3- Characteristics of Investment Decisions:

The investment decision has a set of characteristics[28], including: (Hussein Mahmoud Al-Ajoz, Al-Jawadi Satouri, 2013, pp. 22-23)

- It is a non-recurring decision, as all practical areas for feasibility study are not carried out except over distant time periods.
- Investment decisions require obtaining financing, and expansion in the size of investments requires a large amount of expenses.
- It is a strategic decision that needs a tool to look into the future.

- It entails fixed costs, and it is not easy to modify or retract from them, as it is difficult to retract from investment decisions because it involves buying equipment with very high costs.
- It is surrounded by a set of problems that must be overcome, such as conditions of uncertainty, changes in the value of money, fluctuations in price levels, and problems of the inability of some variables to be quantitatively measured, all of which need scientific methods to deal with them.
- It is associated with a certain degree of risk and therefore has future implications.

4- Importance of Investment Decision:

The investment decision gains great importance because it determines the fate of the institution in the future, and this is due to several reasons[29], which are represented in the following: (Maaraj Hawari and others, 2013, p. 57)

- The investment decision is linked to the growth and survival of the institution in the long term.
- The investment decision is considered a decision that pledges the institution in the medium and long term, and it is difficult to reverse it.
- Optimal management of various resources: financial, material, and human.
- Attempting to control the impact of the economic and financial environment on the institution.

The investment decision also reflects on the image of the institution through its impact on the economic and financial environment. The more the investment project meets what the market needs of products or services of high quality and competitive prices, the better the image of the commercial institution, which increases its profitability and gives it more credibility with financial institutions that lend.

5- Stages of Investment Decision:

The views of scientists differ regarding the number of stages and the type of variables that the decision contains. However, in general, the decision-making process goes through successive and consistent stages[30], which can be summarized as follows: (Sulaiman Abd Al-Hakim, 2020, p. 97)

- **Defining Objectives:** The first step in the decision-making process is to formulate objectives. Without objectives, there are no problems, situations, or emergencies. Objectives are what planning is based on, and they are what drive the making of a set of decisions in an attempt to find the most successful way to achieve them. Therefore, these objectives must be clear, specific, measurable, and achievable according to the available capabilities.
- **Diagnosing and Defining the Problem:** After defining the objectives, the stage of diagnosing and defining the problem comes, meaning transforming the objectives into problems that must be solved to reach those objectives. In this stage, the real problem is identified, its dimensions are determined, and its causes, symptoms, and effects are known. The problem is an expression of the defect that exists as a result of the difference between the existing situation and the desired situation. There are many problems that the decision-maker faces, including traditional problems related to daily work procedures and their implementation, or vital problems related to planning and strategies, or urgent problems that occur due to a defect in performance, or changes and fluctuations in the environment surrounding the institution that are difficult to predict.
- **Analyzing the Problem:** After identifying the problem and defining it, the analysis stage comes, where this stage requires classifying the problem and determining the data and information required to solve it. Classifying the problem means determining its nature, size, and extent of its

complexity, and the optimal solution required to face it. Then, the required data and information, their sources, and their size, and the means that help in obtaining them, are identified. Also, the party that will make the decision and the parties that must be consulted and informed of this decision must be identified.

- **Identifying Possible Alternatives:** Alternatives are the solutions, means, or methods available to the decision-maker to solve an existing problem. The information collected for the purpose of analyzing the problem presented to the decision-maker does not only help in identifying the causes of the problem, but also presents a set of solutions, because it is rare to find only one solution to a problem, otherwise it would be considered a problem in itself. In this stage, the manager can rely on experts and consultants and use scientific methods in identifying those alternatives, in addition to relying on his personal capabilities and experience, and also relying heavily on previous records, experiences, and information of others in the same field, to the extent that he can be fully aware of all aspects and information related to the problem.
- **Evaluating Alternatives:** In this stage, the pros and cons of each alternative are clarified, and the extent of its ability to solve the problem and achieve the goal of decision-making is determined, and the factors affecting each alternative are identified. The plan for evaluating the presented alternatives depends on different criteria, such as…the financial cost of the required human cadres, the time required for implementation, and the required technology and equipment, and the degree of risk for each alternative.
- **Choosing the Best Alternative:** After evaluating the proposed alternatives and identifying the pros and cons of each alternative, and determining its efficiency in solving the problem and achieving the goal, the best alternative is chosen, and all other alternatives are abandoned.
- **Implementing and Following up the Decision:** Some people believe that the decision-making process ends with merely choosing the optimal alternative. However, in reality, this process does not end until the decision is put into implementation, and this requires knowledge and awareness of those involved in implementing the decision with the necessary steps for its implementation and following up on its implementation to ensure that the decision achieves the desired goals.

6- Foundations of Investment Decision:

The process of making investment decisions is based on a set of foundations that the investor must know and reconcile between them, which are represented in the expected return from the investment, the expected degree of risk, and the time factor: (Hayat Zaid, 2015, p. 60)

- **Expected Return:** The expected return from the investment constitutes the most important foundation that affects decision-making. This means that the investor undertakes to implement his investment if he finds from his study of the project that there are good profits that can be achieved. While he will not invest if he finds that the project will cause him a loss. Also, the choice between one project and another is also based on the expected return from each of them. If it is found that the return of one project is greater than the return of another project, then the choice will fall on the project that has the higher return.
- **Expected Degree of Risk:** It is difficult to say that there is a project for investment that is free of various risks. It is also well-known that the relationship between risk and return takes the form of a direct relationship in general, meaning that risk increases with an increase in return and vice versa. However, we sometimes find some investments with low risk and high return, or others with high risk and low return. What can be mentioned here is that the investor studies the risks associated with his investment to know what can be avoided and what can be prepared for.

- **Time Factor:** Time is an important factor for investment. When an investor buys financial securities, he usually determines the time he will keep those securities according to the investment objectives. The same applies to investment timings, as not all of them are of the same degree of attractiveness. There are times to start investing that are better than others. Therefore, the investor must make the investment decision to invest at the appropriate time. In this context, it can be noted that the investor prefers investments with quick returns that can be converted into cash easily and quickly. These are the investments that achieve safety for him, whether they are investments in shares or real estate. The period required to recover the initial capital is a very important criterion for judging investment alternatives.

Third: The Nature of Emerging Companies

Emerging companies are considered among the young projects with high growth potential compared to traditional companies, and this is due to their innovative nature and the spirit of strictness and risk-taking to delve deeper.

1- Definition of Emerging Companies:

The term "startup" is defined according to the English dictionary as: "a small project that has just started." The word "Start up" consists of two parts: "Start," which refers to the idea of starting, and "up," which refers to the idea of strong growth, and the use of the term began immediately after World War II. This coincided with the emergence of venture capital companies, which led to the widespread use of the term thereafter[32]. (Ashour Belcharif, 2021, p. 420)

In our current days, the term exists, and the French dictionary Larousse defines it as "young innovative companies in the modern technology sector. In the absence of a unified definition for "Start up, according to the Larousse dictionary, this concept refers to those young innovative companies in the field of information and communication technologies, whose mission is to create and market new technologies[33]. (Moumen Abd Al-Karim, Tawfiq Karima, Ashour Hadaidi, 2020, p. 16)

Patrick Fridenson defines emerging companies as those that must fulfill four questions related to rapid growth, modern technology, the need for massive financing, and a new market where risk assessment is difficult, and financing with venture capital. (Tayeb Boumediene Al-Amri Khadija, , 2020, p. 505)

Emerging companies are also defined as projects that carry pioneering and innovative ideas and represent solutions to existing problems, and they represent a starting point for research and development. These projects are characterized by high risks, and therefore their chances of obtaining financing are very low. Also, they are not limited to the technological field, but can be found in any sector or field[35]. (Salih Khalaf, Fatima Fouqa, Muhammad Tartour, 2021, p. 254)

In Algeria, an emerging company is considered a company that seeks to launch and market a new product or an innovative service that targets a large market, regardless of the company's size, sector, or field of activity. It is also characterized by a high degree of uncertainty and high risk in return for its ability to achieve rapid and strong growth, with the possibility of generating huge profits if it succeeds. (Samihah Bouanani, Asia Kroumi, 2020, p. 169)

In the absence of a unified definition for startups, according to the Larousse dictionary, this concept refers to those young innovative companies in the field of information and communication technology, whose mission is to create and market new technology. While researcher Eric Reis defines them as those companies that aim to develop and distribute a new product in a high degree of uncertainty. (Mustafa Bournane, Ali Souli, 2020, p. 130)

As for the definition of emerging companies in Algeria, the first attempt to define them appeared with the issuance of Executive Decree No. 20-254 dated September 15, 2020, which included the establishment of the National Committee for Granting the Label of an Emerging Company, an Innovative Project, and a Business Incubator. In Article 11 of this decree, a set of conditions that the company must meet to be granted the label of an emerging company were set. (Samihah Bouanani, Asia Kroumi, 2020, p. 171)

Through the aforementioned definitions, emerging companies can be defined as those pioneering projects in the field of knowledge economy that have the potential for rapid development and whose financing is based on the idea of risk. It is worth noting that the term "emerging company" is a temporary term that indicates a non-permanent situation, meaning that as soon as the company establishes its entity and presence in the market, it transforms into a company.

2- Importance of Emerging Companies:

The countries of the world that are on the path of growth face tremendous challenges in their development, many of which are:

Industrial equipment that is almost non-existent, widespread unemployment, poverty of the population, and levels of education and training that need upgrading. Experts in the field believe that emerging companies have an important role in facing these challenges and their contribution to boosting their economies, as they contribute to the gross domestic product, and thus to their growth. We can summarize the importance of emerging companies, especially in developing countries, as follows: (Hussein Youssef, Sadiq Ismail, 2020, p. 71)

- **Combating the unemployment problem and providing real productive job opportunities:** This type of company is characterized by a high ability to provide job opportunities, in addition to its ability to employ and absorb labor with little experience and without the need for previous experience, which absorbs job seekers, especially university graduates, and those with ideas and certificates. This is a direct response to the unemployment problem, as countries strive to create job opportunities despite their path to growth.
- **Innovation in research and development:** Especially in the technological field, which is a more urgent need than at any time in the past for the development of any country in the world, with the ability to innovate and develop products at a lower cost than large companies.
- **Increasing productivity and maintaining competitiveness:** Where they played a pivotal role in the past years and in the twenties, and this is by using modern productive tools and means that reduced costs and raised the level of product quality. This was helped by their adoption of a technological strategy that gave them a competitive advantage.
- **Spreading positive values in society:** Addressing many of the most important economic problems, and through the research carried out by emerging companies for development, and introducing new values to society, and contributing to developing the consumer culture and encouraging it to accept change.
- **Contribution to relative economic development:** Addressing economic issues through their research. Emerging companies contribute to spreading economic and organizational positive principles and values, such as initiative, creativity, innovation, efficiency, effectiveness, time management, and also contribute to the production of new and innovative goods and services, which leads to diversification in products, and contributing to the development of new economic sectors that support traditional sectors such as agriculture.
- **Investing savings and attracting and strengthening foreign capital and investors:** The ability to employ the savings of the project owners or the owner instead of keeping them idle or

invested in fields that do not create added value, which allows for capital accumulation and the transfer of individuals from a lower income to a higher income (redistribution of income), and attracting local investors.

- **Contribution to economic growth:** Due to what it provides in terms of creating new jobs in the long term, and the growth of its annual income, which contributes to creating wealth and contributing to the gross domestic product, in addition to the fact that most of its products penetrate global markets, thus attracting foreign currency.
- **Flexibility and its ability to adapt and respond quickly:** Through the flexibility of its operations and the smoothness of the solutions it brings, emerging companies come to solve the problems of production costs for large companies, and solutions to the heavy problems that countries often impose on their citizens.

3- Types of Emerging Companies:

Entrepreneurs need to know the different types of emerging companies to be able to find the best platform for implementing the idea. We can distinguish five types of emerging companies:

- **Small Business Companies:** This type is considered one of the most widespread types in the world of emerging companies, and there is no substitute for it in any aspect of life, and we deal with it in one way or another every day in our lives. Therefore, this type of companies does not primarily aim to create a huge economic entity, because it focuses only on serving its own environment, and relying on local labor close to the workplace. Also, most owners of these emerging companies do not aspire much for abundant profit, as they only want to provide a decent life for themselves and their families.
- **Lifestyle-Related Startups:** These emerging companies are the real product of success in linking people's passion and love for something specific in this life with their field of work. For example, let's assume there is a person who loves diving and marine life and fish. His choice will be to rent diving and fishing tools or one of the products in tourist villages, so that he can be near what he loves from the world of the sea and fish, and this is the best he can offer to satisfy his passion in life. (Samir Jadali, 2021, p. 74)
- **Salable Startups:** This type of emerging company is more widespread in societies that contain greater financing opportunities than others from other countries. It is a type of investment in ideas, not for the purpose of profit and expansion from the same activity later. Let's say, for example, the owner of an electronic site specialized in a certain field can work on this site for a period of time, not with the aim of achieving profits in the long term, but with the aim of obtaining the best offers to sell his site later. He only has to work hard on his idea to attract the attention of large companies and entities in your field, and at the appropriate time until he receives the offer that satisfies him. In recent years, this type has appeared strongly, especially in the world of technology, such as what happened when Facebook acquired WhatsApp and Instagram, which in turn worked in the recent period to raise its value in the market for the purpose of obtaining the best offers to sell them.
- **Startups with a Social Goal:** These do not aim to achieve profits in the first place, but what they mean first is to make the world appear better through what they offer of social services and various contributions that contribute to improving this world. It cannot be confirmed that these emerging companies are not interested in achieving profit at all, but achieving profit comes as a secondary goal, and the role of these profits will be to expand the work and serve the community and the world surrounding these companies to achieve what they aim for in terms of developing and improving this community for which they were established.

- **Scalable Startups:** This type of emerging company shares the same modest beginnings as small businesses, but the owners of this type of companies have a different idea. They are convinced that they are the owners of a specific idea, a goal, and a message that must be delivered to the whole world, and that they contribute to their work in making the world a better place to live.(Samir Jadali, 2021, p. 75)

4- Characteristics of Emerging Companies:

We can summarize the characteristics that distinguish emerging companies in the following elements:

- **Temporary and Young:** Most emerging companies are found in the experimental market, meaning that they start as assumed ideas by the project owner, which leads to the process of thinking about the exit (before they are legally registered for work) and they are young and exist for a certain period, then they move to scale-up to become a large company or are exposed to failure and move to another opportunity. (Hussein Youssef, Sadiq Ismail, 2021, p. 73)
- **Innovation:** Innovation is one of the advantages of emerging companies, which have the ability to innovate and continuously develop. They have the ability to create a new product or develop an old product with new specifications, with a new service, with a new delivery method, and so on.
- **High Ability to Grow and Develop:** This is the most common characteristic of emerging companies. They have the ability to grow and acquire markets and achieve very large and rapid revenues compared to the costs of establishment and work, which encourages the owners of money to finance them. They are companies that develop rapidly and have the ability to generate very large profits.
- **Risk:** It operates under conditions of extreme uncertainty because it relies on innovation in a market that is not saturated, and if it is, it is not. Therefore, it is difficult to conduct market research due to the lack of information, and the emerging companies find themselves working in the unknown.
- **Market Diversity:** Emerging companies have excelled only in the technological and technical fields. However, with their spread, they are now penetrating traditional markets such as agriculture and industry, and education and others.
- **Team:** The entrepreneur forms a team with the aim of allocating capabilities according to each person's skill in his field. Most owners of emerging companies are usually university graduates or young university students with little experience, as they work to achieve integration among team members to launch their company and succeed in their idea.
- **Focus on a Single Service/Product:** In this case, the entrepreneur focuses on the innovative idea and develops it so that their minds are not distracted, because dealing with sensitive innovation requires a lot of effort.
- **Investors and Capital:** The entrepreneur usually starts by relying on self-financing or from friends and family. However, every emerging company operating in the knowledge economy tends to attract two types of investors: venture capitalists and business angels, who provide them with capital that allows them to develop and grow.(Hussein Youssef, Sadiq Ismail, 2021, p. 74)

5- Steps to Establish an Emerging Company:

Establishing an emerging company is the dream of every entrepreneur who seeks to embody his idea on the ground, to be independent with his own project, or to get rid of the main job that restricts his creativity and skills and links him to daily tasks and times that he does not enjoy achieving. However, establishing a company is not as easy as most people think, as many

emerging companies fail within a few years of their establishment. The steps to establish an emerging company are as follows: (Samir Jadali, 2021, p. 77)

- **Finding the Company Idea:** The journey of a thousand miles begins with one step. The journey towards establishing an emerging company begins with finding a suitable idea, and the best way to do that is to find a problem that a segment of society or society as a whole suffers from, and try to find an idea to solve it. This path may seem difficult to some, or even the only way.
- **Market Study:** This is a systematic analysis, interpretation, and collection of information and data about the market, the targeted needs, competitors, and potential and actual consumers, their behaviors, and their geographical location. All of this is done using analytical methods and techniques.
- **Protecting Intellectual Property Rights:** This means protecting your work, your commercial brand, or any property resulting from creativity from people who may steal your project ideas and use your intellectual property without your permission.
- **Testing a Name for the Emerging Company:** Some entrepreneurs may consider this a trivial matter, but on the contrary, choosing the appropriate name is an influential factor in the success of the work. Choosing the wrong name may lead to commercial and legal consequences that are difficult to avoid. Therefore, the name must be easy.
- **Choosing a Founding Partner:** Most of the emerging companies in the world that have achieved great success were founded by at least two people. Some investors look at the founders and the working team before looking at the idea. Therefore, it is necessary to search for a person who has a record of experience or achievements in a specific field related to this company or one of its departments, such as sales and marketing, and you must know his personality well.
- **Writing a Business Plan:** This is one of the most important steps that any entrepreneur must follow to ensure the right path to establishing a successful company. In it, what is desired to be achieved with the new work must be defined, and the goals and challenges must be identified, as well as the methods that must be followed to overcome those challenges.
- **Raising the Necessary Capital for a Successful Company:** This is considered the biggest obstacle faced by entrepreneurs in establishing an emerging company. We find that financing is one of the biggest factors for success or failure, because the lack or scarcity of sufficient money to run a company, especially in its early years, means its failure at the beginning. There are several effective sources that entrepreneurs can obtain capital from to start establishing an emerging company, such as self-financing from personal savings, or from family and friends, or bank loans, or even business incubators.
- **Hiring a Work Team:** This is one of the things that must be learned early, which is how to employ, manage, and operate a work team effectively, given the importance of the work team in an emerging company. It is necessary to search for the best potential employees and conduct interviews with the largest number of applicants to study the skills and capabilities of each employee and report carefully on any person suitable for job performance, because forming a work team with experience and high efficiency is an important matter for every founder. (Samir Jadali, 2021, p. 78)
- **Building an Initial Model for the Emerging Company:** This means the simplest and lowest model that is suitable for experimentation. It includes the main functions of the service or product, and it is presented to the public with the aim of sensing the market pulse, and collecting the

necessary information to know the extent of acceptance of the target customers for the final product before officially launching it in the market.

- **Choosing the Company Location:** Reaching this stage is a distinctive matter for any entrepreneur, but it is necessary to think a lot before renting a company location, because it is one of the biggest expenses that any emerging company can incur, in addition to wages. The first question that must be asked is whether the company's business can be conducted online, or does it need a physical location for the company. (Samir Jadali, 2021, p. 79)

Fourth: Integrating Artificial Intelligence in Investment Decision Making in Emerging Companies

Investment decision-making is a complex process influenced by many economic, financial, social, and political factors. Traditionally, this decision relies on human analysis, experience, and intuition. However, with the increasing complexity of markets and the massive explosion of data, traditional methods have reached their limits. Artificial intelligence provides unprecedented capabilities for processing huge amounts of data, identifying hidden patterns, and predicting trends, which makes it a valuable tool for investors.(https://am.gs.com/fr-fr/advisors/insights/article/2024/harnessing-the-power-of-ai-to-enhance-investment-decision-making)

Moreover, machine learning algorithms can analyze financial data in real-time, detect anomalies, assess risks, and even predict market movements with increasing accuracy. For emerging companies, integrating artificial intelligence can mean a significant competitive advantage, enabling them to make smarter and more rational investment decisions. AMF (https://www.amf-france.org/fr/espace-epargnants/actualites-mises-en-garde/utiliser-lintelligence-artificielle-pour-investir-quoi-faut-il-faire-attention)

Fifth: Case Study: SESAMm, a Pioneer in AI-Powered Financing

Company Definition

SESAMm is a French company founded in 2014 specializing in big data analysis and artificial intelligence for investment professionals. It plays a key role in integrating artificial intelligence into investment decision-making, especially through its TextReveal platform. (https://www.sesamm.com/)

TextReveal® Presentation

TextReveal® is SESAMm's leading solution that analyzes millions of articles and documents to uncover ESG (Environmental, Social, and Governance) controversies and generate investment signals. This platform uses advanced techniques for natural language processing (NLP) and deep learning to extract relevant information from unstructured sources such as financial and non-financial news, social networks, blogs, forums, and specialized websites. The capabilities of TextReveal® include: (https://www.sesamm.com/)

- **Global ESG Coverage:** Analysis of data for more than 5 million companies, public and private, in all parts of the world.
- **Real-time Monitoring:** Continuous identification of environmental, social, and governance risks and opportunities through the analysis of millions of sources.
- **Diverse Data:** Utilization of more than 4 million unique and public sources, providing a comprehensive view of a company's sustainability.
- **Processed Data Volume:** Analysis of more than 25 million articles, with the addition of 10 million new documents daily, in more than 100 languages.

3- Impact on Investment Decision

SESAMm's approach allows investors to make faster and more rational decisions by providing insights based on alternative data. For example, early detection of environmental, social, and governance controversies can help mitigate investment risks, while identifying positive events can uncover new opportunities.

SESAMm's ability to process and analyze unconventional data, which is often ignored by traditional methods, provides a unique perspective on companies' performance and reputation. This is particularly relevant for emerging companies, as information is often fragmented and difficult to obtain. (https://www.sesamm.com/)

4- SESAMm Growth and Financial Data

SESAMm's growth reflects the perceived value of its AI-based solutions. The company has successfully raised several significant funding rounds, which indicates investors' confidence in its business model and technology.

5- Funding Rounds

The following table summarizes SESAMm's main funding rounds:

Table 02: SESAMm Funding Rounds

Date	Amount (Euro Million)
April 2019	4.4
February 2021	7.5
March 2024	35

Source: Usine Digitale. Sesamm raises 35 million euros for its smart decision-making tools. https://www.usine-digitale.fr/article/sesamm-leve-35-millions-d-euros-pour-ses-outils-d-aide-a-la-decision-intelligents.N2107336

These funding rounds, totaling approximately 47 million euros for SESAMm, have allowed it to accelerate its growth, strengthen its research and development teams, and expand its international presence.

Employees and Revenues

SESAMm's estimated revenues showed significant growth in 2017, reaching approximately one million euros, with an ambitious target of 20 million euros for 2021. Although the exact figures for 2021 are not publicly available, recent estimates indicate that SESAMm's annual revenues are approximately 18.8 million dollars. (Growjo. https://growjo.com/company/SESAMm)

As for employees, SESAMm has also witnessed significant expansion:

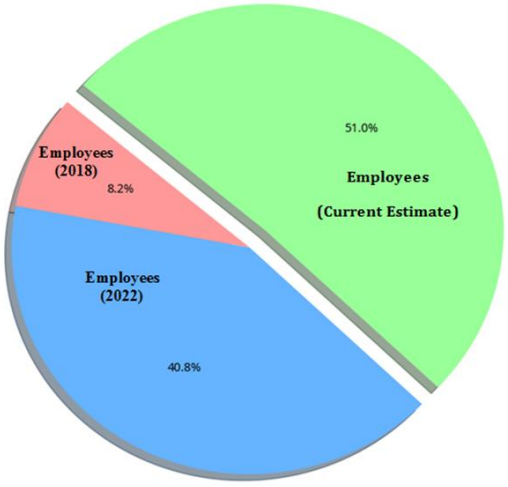
Table 03: Number of Employees

Date	Number of Employees
2018	20 employees
2022	More than 100 employees
January 2025	Estimated between 51 and 200 employees

Source: SESAMm - LinkedIn. (https://fr.linkedin.com/company/sesamm-sas)

This growth in the number of employees reflects the company's continuous investment in developing its technological and commercial capabilities. The estimated distribution of employees over time can be visualized in the pie chart below:

Figure 1: Estimated Distribution of SESAMm Employees over Time



Source: Prepared by the researcher based on the results of the employee table.

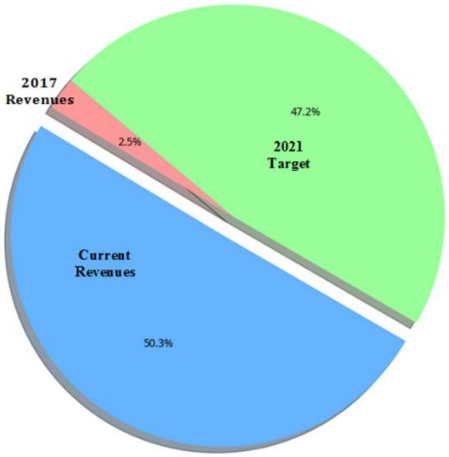
Analysis

Figure 1 illustrates the estimated distribution of SESAMm employees across three key time points: 2018, 2022, and the current estimate. This pie chart reflects the continuous and steady growth in the company's workforce, indicating an increase in its investments in human capital and the expansion of its operations.

- **Employees (2018):** This represents the smallest part of the circle, indicating that SESAMm was in its early stages as an emerging company, with a limited number of employees (20 employees). This is normal for emerging companies that start with small teams and focus on developing the core product.
- **Employees (2022):** This part indicates significant growth, as the number of employees exceeded 100. This expansion reflects the company's success in securing financing and expanding its operations, which requires more talent to meet the increasing demand for its AI-based solutions.
- **Employees (Current Estimate):** This represents the largest part of the circle, where the number of employees is estimated to be currently between 51 and 200 employees (using 125 as a midpoint for representation). Although this figure is an estimate, it confirms the upward trend in workforce growth, which is necessary for a company operating in the field of artificial intelligence, as research and development, expanding the customer base, and providing technical support require specialized and large teams.

In general, this pie chart shows a positive growth trajectory for SESAMm, reflecting its ability to attract talent and expand its operations in a highly competitive market.

Figure 2: Estimated Distribution of SESAMm Revenues over Time



Source: Prepared by the researcher based on the results of the employee table.

Analysis

Figure 2 provides an overview of the estimated distribution of SESAMm revenues across three time points: 2017 revenues, 2021 target, and current revenues. This pie chart highlights the company's financial ambition and its ability to achieve significant revenue growth.

- **2017 Revenues:** This represents the smallest part of the circle, where revenues were approximately one million euros. This reflects an early stage in the company's revenue generation, as it was focused on building its product and acquiring its first customers.
- **2021 Target:** This part indicates an ambitious leap in targeted revenues, as the target was 20 million euros. This target reflects confidence in the market potential of AI solutions and the company's business model in financing. Although the exact figures for achieving this target are not available, setting such a target indicates a strong growth strategy.
- **Current Revenues:** This represents the largest part of the circle, where current revenues are estimated at approximately 18.8 million dollars. Although this figure is an estimate, it indicates that SESAMm has achieved significant growth in its revenues and has approached achieving its ambitious goals for 2021. This growth in revenues confirms SESAMm's ability to meet the increasing demand for AI solutions in the investment sector.

This pie chart shows that SESAMm is not just an emerging company growing in terms of employee count, but it is also a company achieving significant financial growth, which strengthens its position as a key player in the field of financial artificial intelligence.

Advantages of Integrating Artificial Intelligence in Investment Decision Making in Emerging Companies

Artificial intelligence can analyze and process data with a speed and volume that humans cannot achieve, allowing for faster and perhaps more accurate decisions.

- **Discovering Complex Patterns:** Artificial intelligence algorithms can identify patterns and correlations in massive datasets that human analysis might miss, thereby uncovering unique investment opportunities.
- **Reducing Biases:** Although artificial intelligence can introduce its own biases if the training data is biased, it can help reduce cognitive and emotional biases often present in human decision-making.

- **Improving Risk Management:** Artificial intelligence can assess risks and predict them with accuracy, which helps emerging companies manage their investment portfolios better.
- **Customization:** Artificial intelligence solutions can be adapted to meet the specific needs of each emerging company, providing customized investment strategies. (https://open.icm.edu.pl/server/api/core/bitstreams/23528b3e-e22f-40b9-ad67 a6d1f258eb0e/content#page=149)

Conclusion

This study emphasizes the pivotal role that artificial intelligence can play in enhancing the investment decision-making process within emerging companies. The results have shown that integrating artificial intelligence technologies not only contributes to improving the speed and accuracy of data analysis but also extends its impact to include risk assessment and the identification of promising investment opportunities more effectively than traditional methods. Despite the existence of technical, organizational, and human challenges, investing in developing the appropriate infrastructure and human competencies can mitigate these obstacles and open new horizons for innovation and growth.

As the case study of SESAMm company showed, integrating artificial intelligence in the investment decision-making process within emerging companies achieves tangible added value. Through its TextReveal® platform, the company was able to analyze massive and diverse data in real-time, and detect potential risks and investment opportunities with a speed and accuracy that surpasses traditional human capabilities. The experiment proved that relying on unconventional alternative data contributes to building more rational decisions and enhances the competitiveness of emerging companies in a rapidly changing and complex business environment. By answering the hypotheses of the study:

- The first hypothesis confirms that artificial intelligence effectively contributes to improving the accuracy of investment decisions.
- The second hypothesis indicated that it contributes to reducing cognitive and emotional biases among decision-makers (the second hypothesis).
- As for the third hypothesis, it proved that its integration in the environment of emerging companies can increase their chances of obtaining financing and the attractiveness of these companies to investors.

Study Results

Based on an in-depth analysis of the available information, the study's findings can be summarized as follows:

- Enhancing the accuracy and speed of data analysis: The study demonstrated that artificial intelligence significantly contributes to the efficient processing and analysis of vast amounts of financial and non-financial data in startups. This precise and rapid analysis provides investors and decision-makers with deeper and more insightful perspectives, supporting investment decisions grounded on solid foundations.

- Effectiveness in risk assessment and opportunity identification: The study revealed that AI models, through their ability to recognize complex patterns and predict future trends, enhance the capacity of startups and investors to assess potential risks and identify promising investment opportunities that may not be apparent through traditional methods. This leads to reduced potential losses and increased investment returns.

- Existing challenges and the possibility of overcoming them: The study identified key challenges, including the lack of high-quality data, difficulties in integrating AI systems with current infrastructure, and resistance to change among individuals. However, these challenges are not insurmountable and can be addressed by adopting clear strategies that involve investing in data collection and quality improvement, developing supportive regulatory frameworks, and providing adequate training for human resources.

- Positive impact on startup performance: The results showed that integrating artificial intelligence leads to tangible improvements in startup performance by enhancing operational efficiency, improving decision quality, and increasing competitiveness. This performance improvement makes startups more attractive to investors, thereby facilitating access to the necessary funding for growth and expansion.

References

1. Mohamed Fathallah M ohamed, Advanced Management Systems and Information Technology, 1st ed., Al-Maktaba, 2017, Egypt, Modern Publishing and Distribution, p. 237.
2. Mahdi Al-Khafaf, Ghassan Ahmed Al-Otaibi, Intelligent Systems and Decision Support Systems, 1st ed., Dar Al-Hamid for Publishing and Distribution, 2012, Jordan, p. 166.
3. Jamal bin Hamala Al-Sharari, The Impact of Artificial Intelligence on the Quality of Administrative Decision from the Perspective of School Leaders in the Secondary Stage in the Educational Gulf Region, Journal of Behavior, Vol. 8, No. 01, 2021, Saudi Arabia, p. 19.
4. Sabah Anwar Yaqoub Al-Younis, The Use of Artificial Intelligence Technology in Re-engineering Operations, Journal of Future Research, Vol. 03, No. 01, 2012, p. 07.
5. Malika Zakour, Artificial Intelligence for the Future of Remote Intelligence, Journal of Studies in Development, Vol. 06, No. 03, Hassiba Ben Bouali University, Chlef, Algeria, 2021, p. 138.
6. Abdellah Moussa, Ahmed Habib Bellal, Artificial Intelligence: A Revolution in Modern Technologies, 1st ed., The Arab Group for Publishing and Training, 2019, Egypt, p. 2.
7. Madeeha Fakhri Mahmoud, Artificial Intelligence and University Re-engineering, 1st ed., Dar Al-Jalad, 2023, Jordan, p. 24.
8. Marzouka Hamoud Rashid Al-Balawi, Application of Artificial Intelligence in Reforming Learning Outcomes, Dar Wael for Publishing and Distribution, 2021, Jordan, p. 20.
9. Madeeha Fakhri Mahmoud, Artificial Intelligence and University Re-engineering, 1st ed., Dar Al-Jalad, 2023, Jordan, p. 24.
10. REIS, T. R. (2020). Trends and Innovations in Information Systems and Technologies. Trends and Innovations in Information Systems and Advances in Intelligent Systems and Computing, 1160, p. 159. Portugal.
11. Quach, p. t. (2023). artificial intelligence for marketing management. galliard, p. 4
12. Adel Abdel Nour, Basics of Artificial Intelligence, 2nd ed., Dar Al-Fasl Al-Thaqafi for Publishing, 2010, Saudi Arabia, p. 43.

13. Doubah Abdel Jalil, The Use of Expert Systems in the Field of Decision-Making for Granting Bank Loans, a thesis submitted as part of the requirements for obtaining a doctorate degree, Faculty of Economic Sciences and Management, Mentouri University, Constantine, Algeria, 2007, pp. 16-17.
14. Adel Abdel Nour, Introduction to Artificial Intelligence Science, 2nd ed., King Abdulaziz City for Science and Technology, 2009, Saudi Arabia, p. 24.
15. Saif Salam Mohsen Al-Musallami, The Impact of Artificial Intelligence on Improving Human Resources Management Performance: An Applied Study on the General Command of Abu Dhabi Police, a thesis submitted as part of the requirements for obtaining a doctorate degree in Human Resources Management, Malaysian Islamic Science University, Malaysia, 2022, p. 22.
16. Doubah Abdel Jalil, previous reference, p. 18.
17. Ihsan bin Ali, The Importance of Artificial Intelligence in the Shadow of COVID-19 - The Experience of the United Arab Emirates, Journal of Horizons of Management and Economics Sciences, Vol. 06, No. 02, Ziane Achour University, Djelfa, Algeria, 2022, pp. 469-470.
18. Shams Nasib, Artificial Intelligence and its Future Implications for Humanity: Available at: http://WWW, Arabrhought, Org /AR/ research center/of oqelectron -article-details-id-1006 alarabiya,Net/soudi to day 25/12/2024, at 19:14.
19. Sanaa Tabart, The Impact of Using Artificial Intelligence Applications on Improving Institutional Performance, Journal of Human Sciences, Vol. 09, No. 03, University of Oum El Bouaghi, Algeria, 2022, p. 1245.
20. Abd El Wahab Shalali and others, Artificial Intelligence Opportunities and Threats in the Coming Decades, Future Report Journal, No. 27, Future Research and Studies Center, 2018, p. 2.
21. Sarah bint Thunayyan bin Muhammad Al-Saud, Educational Applications of Artificial Intelligence in Social Studies, Journal of Behavior, Vol. 07, No. 02, Algeria, December 2020, p. 27.
22. Maaraj Hawari, Abbas Hanas, Ahmed Majd Al-Qarar Al-Istithmari in the Shadow of Uncertainty and Crisis, 1st ed., Dar Kunooz Al-Ma'rifa Al-Ilmiyya, 2013, Jordan, p. 64.
23. Abd Al-Muttalib Abd Al-Hamid, Studies of Economic Feasibility for Making Investment Decisions, 2nd ed., Dar Al-Jami'iyya, 2011, Egypt, p. 38.
24. Khalid Jamal Al-Araj, International Financial Reporting Standards 2007, 2nd ed., Ethraa Publishing House, 1st ed., 2012, Jordan, Publishing and Distribution, p. 143.
25. Hanan Tartour, The Effectiveness of Investment Decision in Rationalizing Investments, Journal of Human Sciences, Vol. 08, No. 03, Algeria, 2021, p. 62.
26. Mahmoud Jamaj, Amira Dabash, The Impact of the Fairness of Accounting Disclosure in Rationalizing Investment Decisions: A Case Study of a Sample of Investors in the Algerian Stock Exchange, Journal of Research and Studies, No. 09, University of Oum El Bouaghi, Algeria, 2017, p. 04.
27. Samir Abd Al-Dayem Hassan Al-Owaissi, Analysis of Individual Investors' Trends in the Palestine Securities Market: An Exploratory Study on Individual Investors in the Gaza Strip, Master's thesis in Accounting and Finance, Faculty of Commerce, Islamic University, Gaza, 2010, p. 58.

28. Hussein Mahmoud Al-Ajoz, Al-Jawadi Satouri, Selection and Evaluation of Investment Projects, 1st ed., Diwan Al-Matbouat Al-Jami'iyya, 2013, Algeria, pp. 22-23.
29. Maaraj Hawari and others, Investment Decision in the Shadow of Financial Crisis and Uncertainty, 1st ed., Kunooz Al-Ma'rifa, 2013, Jordan, p. 57.
30. Sulaiman Abd Al-Hakim, The Role of Accounting Information Quality in Rationalizing Investment Decisions in the Shadow of the New Financial and Accounting System, PhD thesis, Accounting Specialization, Faculty of Economic, Commercial and Management Sciences, Biskra University, Algeria, 2020, p. 97.
31. Hayat Zaid, The Role of Technical Analysis in Making Investment Decisions in Shares: An Applied Study in a Sample of Arab Stock Markets (Jordan, Saudi Arabia, Palestine), a memorandum submitted to obtain a Master's degree in Economic Sciences, Specialization in Financial Markets and Stock Exchanges, Faculty of Economic, Commercial and Management Sciences, Mohamed Khider University, Biskra, Algeria, 2015, p. 60.
32. Ashour Belcharif, The Role of Incubators in Supporting and Developing Startup Companies, Journal of Economic Horizons, Vol. 04, No. 02, November 2021, p. 420.
33. Moumen Abd Al-Karim, Tawfiq Karima, Ashour Hadaidi, Startup Companies and their Role in Economic Recovery, 20th Small and Medium Enterprises Laboratory in Local Development, Algeria, February 2020, p. 16.
34. Tayeb Boumediene Al-Amri Khadija, Problems of Financing Startup Companies and Mechanisms of their Financial Support: Venture Capital as a Model, Journal of Anniversaries of Bashar University in Economic Sciences, 2020, Vol. 07, No. 03, p. 505.
35. Salih Khalaf, Fatima Fouqa, Muhammad Tartour, Venture Investment as a Supporter for Financing Startup Projects and Ways to Activate it in Algeria, Journal of North African Economies, Vol. 17, No. 25, Algeria, 2021, p. 254.
36. Samihah Bouanani, Asia Kroumi, An Evaluative Study of the Reality of Activating and Financing Startup Companies in Algeria, Anniversaries of Bashar University in Economic Sciences, No. 03, Bashar University, Algeria, 2020, p. 169.
37. Mustafa Bournane, Ali Souli, Strategies Used in Financing and Supporting Startup Companies, Journal of Economic Notebooks, Vol. 11, No. 1, Algeria, 2020, p. 130.
38. Samihah Bouanani, Asia Kroumi, previous reference, p. 171.
39. Hussein Youssef, Sadiq Ismail, A Field Study of the Reality of Establishing Startup Companies in Algeria, Anniversaries of Bashar University in Economic Sciences, Vol. 08, No. 01, Bashar University, Algeria, 2020, p. 71.
40. Samir Jadali, The Problem of Financing Startup Companies in Algeria Between Traditional and Modern Methods, 1st ed., Jijel University, Algeria, 2021, p. 74.
41. Samir Jadali, previous reference, p. 75.
42. Hussein Youssef, Sadiq Ismail, A Field Study of the Reality of Establishing Startup Companies in Algeria, Anniversaries of Bashar University in Economic Sciences, No. 01, Bashar University, Algeria, 2021, p. 73.
43. Hussein Youssef, Sadiq Ismail, previous reference, p. 74.
44. Samir Jadali, previous reference, p. 77.
45. Samir Jadali, previous reference, p. 78.
46. Samir Jadali, previous reference, p. 79.

47. Goldman Sachs. Harnessing the Power of AI to Enhance Investment Decision-Making. https://am.gs.com/fr-fr/advisors/insights/article/2024/harnessing-the-power-of-ai-to-enhance-investment-decision-making
48. AMF. Using Artificial Intelligence for Investing: What to Pay Attention to? (https://www.amf-france.org/fr/espace-epargnants/actualites-mises-en-garde/utiliser-lintelligence-artificielle-pour-investir-quoi-faut-il-faire-attention)
49. SESAMm. Homepage (https://www.sesamm.com)
50. Same reference.
51. SESAMm. Homepage (https://www.sesamm.com)
52. SESAMm: Revenue, Competitors, Alternatives. Growjo. (https://growjo.com/company/SESAMm)
53. Artificial Intelligence in the Service of More Effective Decision Making. J Hadjitchoneva. (https://open.icm.edu.pl/server/api/core/bitstreams/23528b3e-e22f-40b9-ad67-a6d1f258eb0e/content#page=149)