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METAVERSE TECHNOLOGY AND CORPORATE GOVERNANCE: A STUDY ON THE IMPACT OF VIRTUAL REALITY TECHNOLOGIES ON CORPORATE GOVERNANCE

TECNOLOGIA DO METAVERSO E GOVERNANÇA CORPORATIVA: UM ESTUDO SOBRE O IMPACTO DAS TECNOLOGIAS DE REALIDADE VIRTUAL NA GOVERNANÇA CORPORATIVA

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ABSTRACT

This study aims to emphasize the significance of artificial intelligence (AI) applications in the corporate governance of commercial enterprises. The researcher has chosen the Metaverse technology as a case study. The first section of the research explores the concept of the Metaverse, while the second section examines how this technology can be integrated into corporate governance systems. To address the research problem, the study adopts both the descriptive and analytical methodologies. The issue of the research is that it investigates the potential of integrating artificial intelligence applications, more particularly Metaverse technology, into corporate governance systems. Among the key objectives is to establish whether the integration can establish a collaborative and trustworthy business environment that improves healthy competition between shareholders and a company's management. The research also aims to examine the existence and role of global collaboration in improving the performance of AI applications

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and their seamless integration into corporate governance systems. The findings of the study show that the applications of Metaverse in corporate governance can largely enhance governance principles, and that these applications play a significant role in enhancing management and supervision while enabling shareholders and stakeholders to audit information and thereby gain a sense of security and trust. Regarding the primary recommendations, the researcher strongly advises that business organizations must adopt AI applications in their activities, as this would significantly enhance governance processes. Additionally, organizations should implement programs for the improvement of information security and privacy.

Keywords: Information Security; Corporate Governance; Artificial Intelligence; Financial Oversight; Transparency.

RESUMO

Este estudo tem como objetivo enfatizar a importância das aplicações de Inteligência artificial (IA) na governança corporativa de empresas comerciais. O pesquisador escolheu a tecnologia do metaverso como estudo de caso. A primeira seção da pesquisa explora o conceito de metaverso, enquanto a segunda seção examina como essa tecnologia pode ser integrada aos sistemas de governança corporativa. Para abordar o problema de pesquisa, o estudo adota as metodologias descritiva e analítica. A questão da pesquisa é que ela investiga o potencial de integração de aplicativos de inteligência artificial, mais particularmente a tecnologia metaverso, em sistemas de governança corporativa. Entre os principais objetivos está estabelecer se a integração pode estabelecer um ambiente de negócios colaborativo e confiável que melhore a concorrência saudável entre os acionistas e a administração de uma empresa. A pesquisa também visa examinar a existência e o papel da colaboração global na melhoria do desempenho dos aplicativos de IA e sua integração perfeita nos sistemas de governança corporativa. As descobertas do estudo mostram que as aplicações do metaverso na governança corporativa podem aprimorar amplamente os princípios de governança e que essas aplicações desempenham um papel significativo no aprimoramento da Gestão e supervisão, permitindo que acionistas e partes interessadas auditem informações e, assim, ganhem uma sensação de segurança e confiança. Em relação às principais recomendações, o pesquisador aconselha fortemente que as organizações empresariais devem adotar aplicações de IA em suas atividades, pois isso melhoraria significativamente os processos de governança. Além disso, as organizações devem implementar programas para a melhoria da segurança e privacidade das informações.

Palavras-chave: Segurança Da Informação; Governança Corporativa; Inteligência Artificial; Fiscalização Financeira; Transparência.

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1. INTRODUCTION

The world around us is undergoing rapid evolution, with technologies that are constantly being renewed and developed within days. This rapid progression is mainly driven by the scientific revolution, characterized by advancements in technology and information systems, among which artificial intelligence (AI) plays a pivotal role. AI relies on techniques and methods that replicate human operations with minimal error rates

Undoubtedly, AI represents the most significant communication and information technology revolution of the present era, given its substantial impact and effectiveness. It has the potential to substitute human roles across various sectors. AI's origins date back to the mid-20th century, and it is widely recognized for its capacity to induce transformative changes across industries. This underscores its importance, leading some to label it as the forthcoming technological revolution (Chatterjee, 2020).

Metaverse is one of the most significant and contemporary AI-driven innovations. This technology combines virtual and digital realities into a shared space, enabling institutions to strengthen governance and transparency principles. The metaverse is expected to play a pivotal role when combined with AI, as it will contribute to the development of systems capable of recognizing and interacting with users within the metaverse environment, The metaverse is undoubtedly a shared, immersive, and interactive virtual reality where users can create their own avatars and environments and interact with other users in real time. The metaverse could be a potential successor to the internet, providing a more immersive and interactive way to connect with others. It could also be a potential platform for a wide range of applications, including social media, entertainment, education, and commerce.

Accordingly, this study aims to investigate the impact of metaverse applications on corporate governance and oversight systems, particularly in enhancing transparency and accountability. Given that metaverse applications represent a significant paradigm shift, most legal frameworks, including Jordanian legislation, currently lack specific provisions regulating their operation.

1.1. Research Significance

The contemporary communication and information technology revolution has

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resulted in a qualitative shift across all sectors. However, this rapid evolution is accompanied by a delay in legislative adaptation, as lawmaking is a multi-stage process. Since corporate governance serves as the most robust regulatory framework available to management, integrating AI applications, particularly the metaverse, could enhance its efficacy. This integration necessitates the formulation of legal provisions to establish a structured regulatory framework. The significance of this research is twofold:

Theoretical Significance: The study aims to address the identified research problem by presenting findings and recommendations that answer key research questions based on relevant legal provisions, judicial interpretations, and scholarly opinions.

Practical Significance: This research is highly relevant to corporate professionals, business owners, programmers, and technology developers, as it may open new avenues for future research projects

1.2. Research Objectives

This study aims to explore metaverse technologies and their impact on corporate governance through the following key objectives:

1. Defining metaverse technology and emphasizing its significance as an AI-driven innovation.
2. Analyzing the legal framework governing the metaverse.
3. Evaluating the concept of corporate governance and assessing the role of metaverse applications in achieving governance objectives.

1.3. Research Problem

Corporate governance comprises a set of policies, regulatory frameworks, and legal structures that enhance corporate performance while promoting accountability, independence, and transparency. These goals are achieved by clearly defining responsibilities and rights among corporate stakeholders. Given the rapid technological advancements and the evolving global landscape, integrating AI applications to facilitate governance and enhance its efficiency has become imperative. The research problem centers on evaluating the feasibility of incorporating metaverse applications into corporate governance and assessing their effectiveness in enhancing governance frameworks. Furthermore, the study

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investigates whether existing legal provisions can accommodate such integration. The study seeks to answer the following research questions:

1. What are metaverse applications?
2. What is the significance of metaverse applications?
3. Is it possible to effectively implement corporate governance principles using the metaverse as an AI-driven application?

2. **METHODOLOGY**

Descriptive Approach: This study employs a descriptive methodology to explore the research problem by providing an in-depth examination of the subject matter.

Analytical Approach: The study also adopts an analytical methodology to examine legal provisions relevant to the research topic, incorporating scholarly opinions and judicial interpretations to address the research questions.

Section One: Definition of Metaverse Applications

Artificial intelligence (AI) technologies have emerged in our modern era as a result of the global information revolution. It is undeniable that AI has contributed to solving many problems that previously challenged human capabilities. These applications operate tirelessly and with an almost negligible margin of error (Zhang & Lu, 2021).

Artificial intelligence is defined as follows: "The term 'artificial intelligence' consists of two words. The first refers to the ability to understand new and changing conditions or situations, while the second is associated with something that is man-made. Thus, the term 'artificial intelligence' is applied to things that arise because of human activity or creation, distinguishing them from things that exist naturally without human intervention."(Gayed, 2025).

Undoubtedly, artificial intelligence is a branch of computer science and information technology that is programmed using technical means to perform tasks traditionally carried out by humans, but in a more professional manner and with an almost negligible margin of error. These machines are programmed to perform functions such as analysis, perception, and exploration, which are typically carried out by humans, with the aim of facilitating decision-making processes (Papagiannidis et al., 2025).

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3. RESULTS AND DISCUSSION

Therefore, we find that AI applications are modern systems characterized by intelligence that can mimic human intelligence. They possess the ability to understand problems, analyze data, and connect them to reality in a way that solves issues and contributes to optimal decision-making.

The significance of artificial intelligence technologies lies in their being exceptional electronic systems that simulate human intelligence through their remarkable ability to understand, analyze, and contextualize information. At the same time, they exhibit speed in decision-making and integrate logic based on their programming. Consequently, AI technologies contribute to problem-solving and decision-making in a manner like humans, but with a significantly lower margin of error (Micheal, 2023).

The concept of virtual world applications has been around for some time. One of the earliest high-quality virtual world applications was "Habitat," which introduced the first virtual environment to feature a three-dimensional graphical interface. Over time, these applications have developed into what is now known as the metaverse. (Dionisio et al., 2013).

Various definitions have attempted to encapsulate the essence of the metaverse. Linguistically, the term "metaverse" originates from "meta" (meaning "beyond") and "verse" short for "universe (Ng, 2022).

Legally, there is no legislative framework specifically governing metaverse applications yet; however, scholars define the metaverse as a virtual environment that brings individuals and entities from the physical world into a virtual world, making it possible to interact with digital avatars in real-time. This virtual environment is set to alter the way we interact, work, and socialize, and it raises important questions about governance, regulation, and how users' rights are safeguarded. As the metaverse is still evolving, there is a need to develop a comprehensive legislative framework that addresses these concerns and offers a secure and safe environment for all users. Furthermore, the possible impact of the metaverse on traditional notions of jurisdiction, sovereignty, and territoriality must be carefully studied, and new legal frameworks must be established to factor these in (Yılmaz, 2024).

Another definition describes the metaverse as an AI application designed to merge real-world experiences with virtual reality (VR) through interconnected social environments that provide users with a seamless interaction experience (Mystakidis,

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2022).

This study envisions the metaverse as an innovative AI-driven breakthrough that creates a shared virtual world where individuals can perform daily tasks in a highly immersive and secure virtual environment.

One of the remarkable things about metaverse applications is that they can create an entire new virtual world, and users can essentially go anywhere without physical movement. It is this characteristic that positions the metaverse to be a groundbreaking platform in AI, transforming the nature of human interaction, productivity, and education. By seamlessly converging physical and digital realities, the metaverse opens fresh avenues for groundbreaking innovation, cross-functional collaboration, and exponential growth, fundamentally reshaping the contours of possibility in the digital landscape (Iqbal & Campbell, 2023)

The metaverse is akin to a realm that is largely disconnected from the physical world, where individuals can work, conduct meetings, monitor company performance, and attend global events—all in the virtual environment using internet-connected VR and augmented reality (AR) technologies (Riva & Wiederhold, 2022).

Given that Metaverse technologies, as an application of artificial intelligence, represent a three-dimensional virtual environment that allows individuals to communicate and interact with each other in a digital space, they fundamentally aim to achieve several objectives, which can be outlined as follows

3.1. Education and Training

Undoubtedly, Metaverse technologies can be utilized in the realm of training and education. It is possible to create virtual worlds that enhance real-world experiences, enabling students to learn more effectively and efficiently. Metaverse applications are also increasingly being used in specialized education, enabling students to have more opportunities to conduct practical and scientific experiments using these technologies. This can lead to improved learning outcomes, increased student engagement, and greater collaboration among students and educators. Metaverse technologies also have the potential to provide access to learning content and experiences that may not be possible in traditional classroom settings, once more opening up the possibilities for education and training (Contreras et al., 2022).

3.2. Social Interaction

Relações Internacionais do Mundo Atual – unicuritiba
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Since Metaverse technologies enable users to communicate with one another through virtual reality, they offer a new and improved social experience. At the same time, it is possible to establish so-called virtual communities, which facilitate direct virtual communication, virtual collaboration, virtual social interaction, and cooperation in a virtual world. All these phenomena significantly add to social connectivity, as they allow people to get connected with others who have similar interests and passions, regardless of geographical location. Moreover, virtual communities can establish a feeling of belonging and identity, which can be particularly important for people who are lonely or marginalized in the real world. By leveraging Metaverse technologies, virtual communities can turn into active and dynamic spaces where meaningful social interactions and relationships are fostered. (Buana, 2023).

3.3. Enhancing Customer Experience in Commercial Enterprises

It is possible to create what is termed as virtual shopping, through which companies can reach a larger target market for their business operations. Moreover, through virtual marketing, virtualized products can be showcased by Metaverse applications, providing customers with a new experience to virtually try out goods prior to purchasing them—though this does not, of course, encompass food items. This new form of shopping has the capability to increase customer engagement, increase customer loyalty, and improve the overall shopping experience. In addition, virtual shopping also can provide companies with valuable information regarding the behavior and needs of customers, which can help them to make their marketing and product development more responsive to their target market. In addition, Metaverse applications also have the capability to enable companies to create interactive and immersive product demonstrations, through which customers can experience products in a more memorable and engaging way. Overall, integrating Metaverse technologies into e-commerce sites has the capability to transform the way companies engage with customers and sell their products (Jeon, 2022).

3.1. Innovation

Innovation is defined as the process of creating or developing a new idea or improving an existing one to achieve more effective outcomes. Technological innovation is one of the most prominent modern trends today, as it focuses on the development and enhancement of technology, with the Metaverse being a prime example as an application of artificial intelligence. Commercial companies

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extensively use Metaverse technologies for innovation, as they can develop products and improve services by conducting experiments in virtual reality (Latino et al., 2024). In summary, we believe that the Metaverse is a broad-spectrum technology encompassing all aspects of life, including social interaction, innovation, education, and training. The advantages offered by Metaverse provide a unique and qualitative experience for every individual, granting them the opportunity to enter the virtual world. However, this does not come without risks and challenges, as previously discussed. Like all artificial intelligence technologies, Metaverse faces issues related to information security, network protection, and social acceptance, which may be addressed in the future.

Despite its advantages, the metaverse raises privacy and security concerns, Digital workspaces, for instance, may pose risks to employee privacy, as managers could potentially monitor workplace activities and communications. This necessitates the implementation of robust privacy protection measures (Wang et al., 2022).

The issue of privacy in Metaverse applications is also taken into account that this technology leads to a direct link between the real world and the virtual world for those dealing with it, and at the same time for company data and so on, all of this creates a challenge to the most important issue in the field of digital space, which is protecting security and privacy (Wang et al., 2023).

Referring to the legislation regulating electronic means, we find that the Jordanian legislator has established legal solutions to the issue of information security by imposing strict penalties on perpetrators of electronic crimes. This is due to the fact that the fear of cyber breaches, which may lead to the exposure of company data and secrets, is one of the main reasons behind the reluctance to fully embrace digital transformation. Such breaches could result in the disclosure of critical secrets, causing significant harm to companies. In practice, the likelihood of such incidents occurring is high, although preventing them entirely remains challenging. However, these risks can be mitigated through a strict legal framework that imposes clear rules for dealing with unauthorized access to information networks.

This is clear in Article 3 of the Jordanian Cybercrime Law, which stipulates the following:

a) Anyone who intentionally accesses or connects to an information network, information system, or any part thereof by any means without authorization or in violation of the granted authorization shall be punished with imprisonment for a period of no less than one week and no more than three months, or a fine of no less than

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(300) three hundred dinars and no more than (600) six hundred dinars, or both penalties.

b) If the access or connection referred to in paragraph (a) of this article is for the purpose of canceling, deleting, adding, destroying, disclosing, publishing, republishing, damaging, blocking, modifying, altering, transferring, or copying data or information, or disclosing its confidentiality, encrypting it, or stopping or disabling the operation of the information network, information system, or any part thereof, the perpetrator shall be punished with imprisonment for a period of no less than three months and no more than one year, and a fine of no less than (600) six hundred dinars and no more than (3,000) three thousand dinars. The penalty shall be increased to imprisonment for a period of no less than one year and no more than three years, and a fine of no less than (3,000) three thousand dinars and no more than (15,000) fifteen thousand dinars, if the perpetrator succeeds in achieving the intended outcome of their action (Al-Sarayreh, 2024).

According to the latest studies related to the Metaverse, economists expect that within (10) years the Metaverse will boost the global economy by (3) trillion dollars, and there is no doubt that this is achieved through several things, including that introducing the Metaverse into international commercial services and contracts facilitates many functions such as inspection and monitoring of loading and shipping operations and many other things that contribute to solving problems related to international trade contracts, including the distances that require continuous travel (Trivedi & Negi, 2023).

To implement the Metaverse system on the ground, many technical requirements must be available, which are as follows: (Rawat & El Alami, 2023)

1. Digital twinning, through which virtual reality can be integrated with real reality through various sensors dedicated to these purposes, this innovative technology facilitates the creation of virtual duplicates of physical entities, systems, and environments, thereby enabling real-time monitoring, simulation, and analysis. Through digital twinning, organizations can streamline operations, anticipate maintenance requirements, and refine decision-making processes. Moreover, digital twinning enhances stakeholder collaboration and communication, providing a more engaging and interactive platform for understanding intricate systems and processes.

2. Artificial intelligence, through which devices and software are created that are very similar in intelligence to humans, helping to sense and perceive things around a person.

Relações Internacionais do Mundo Atual – unicuritiba
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3. Security systems, as one of the most prominent obstacles facing Metaverse technology, according to the opinion of jurisprudence, are what is known as information security and privacy, and therefore programs must be created that enhance the security level of these applications and prevent hacking in all its forms.

4. Technologies that help in implementing what is known as the virtual world, which consists of a group of visual and auditory sensors that can convey to the user a feeling that enters him into the real world through virtual reality.

5. High-speed Internet networks must be available to be able to simulate the virtual world in Metaverse technology, as these technologies need communication networks at very high speeds to transfer data between users and data servers.

Based on the above, the researcher finds that metaverse applications represent a qualitative leap in the field of artificial intelligence at all levels, as these applications allow permanent connection to a three-dimensional environment that aims to link the virtual world with the real world to perform all tasks, communicate and participate in the virtual reality environment, and these applications must be utilized in the context of talking about corporate governance, as these technologies will certainly enhance the implementation of governance objectives of transparency, control and accountability more effectively, and a legal framework must be found to regulate this matter, and this is what the researcher will talk about in the second requirement in some detail.

Section Two: Corporate Governance Using Metaverse Technology

Corporate governance has become a critical legislative focus due to its numerous benefits. In Jordan, corporate governance is regulated under the "Corporate Governance Regulations for Public Shareholding Companies (2024)," which apply to:

1. Public shareholding companies.
2. Private shareholding companies with subscribed capital exceeding JOD (500,000) (Atallah, 2024).

In the beginning, it is essential to note that commercial companies represent the sensitive nerve of the economic cycle in any country. To ensure the continuity of a company's operations effectively, it was necessary to establish a legal system whose primary task is to regulate the company administratively and financially. This is what is known as corporate governance. Governance is defined as "the legal system through which commercial companies are managed and directed, fundamentally working to define the mechanisms for distributing tasks,

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responsibilities, and rights among various participants in the company, such as managers, board members, employees, and shareholders." It cannot be overlooked that governance supports what is known as the competitive advantage of the commercial company, Moreover, effective corporate governance is instrumental in fostering a culture of transparency, accountability, and fairness within organizations, thereby bolstering investor confidence, enhancing financial performance, and driving sustainable growth. The mechanisms of corporate governance also serve to minimize risks, prevent corporate malfeasance, and ensure adherence to regulatory requirements. By implementing a robust governance framework, companies can cultivate trust with stakeholders, promote a culture of integrity, and ultimately achieve long-term success and prosperity (Albalawee et al., 2024).

However, Jordanian legislation does not explicitly define corporate governance. Scholarly interpretations describe corporate governance as "a set of standards and laws that establish relationships between corporate management and employees, aiming to enhance transparency, accountability, and fairness (Herenia et al., 2024)" Another definition refers to it as "a framework that defines relationships among shareholders, executive management, and other stakeholders" (Nasir et al., 2024).

Governance using artificial intelligence (AI) applications is defined as the integration of AI technologies into the operations of commercial enterprises in a manner that enhances the principles of governance, such as transparency, accountability, and performance improvement. The incorporation of AI applications into corporate governance contributes to the enhancement of data-driven decisions characterized by accuracy and objectivity. Simultaneously, AI applications can foster innovation within commercial enterprises (Walter, 2024).

Corporate governance enhances its performance by promoting innovation, trading and auditing to avoid anything that could harm the company and enhance its competitive advantage (Teixeira & Carvalho, 2024).

The role of corporate governance cannot be overlooked in the context of improving financial performance, as governance enhances confidence between shareholders in the company and its shareholders and dealers, and all of this in turn leads to improving its financial performance through the application of transparency and accountability standards, which is positively reflected in reducing risks in the company's activity (Nour et al., 2024).

The social dimension of corporate governance is equally significant, as it

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safeguards shareholder rights and promotes sustainable development within the corporate sector. This contributes to economic growth by expanding business operations and generating employment opportunities (Devinney et al., 2013).

There is no doubt that commercial companies seek to strengthen their financial position, and in addition to the fact that AI applications contribute to this goal, legal compliance by company employees also contributes to achieving this goal. All of this, in turn, creates confidence among shareholders in the company, this confidence is further bolstered when companies exhibit a steadfast commitment to robust corporate governance, unwavering transparency, and unshakeable accountability. Consequently, shareholders will be more willing to invest in the company, leading to increased financial stability and growth. Furthermore, a good financial position allows companies to invest in creative research and development, expand the scale of their operations, and create innovative job opportunities, thereby spurring economic growth, prosperity, and sustainable development (Albalawee et al., 2024).

Corporate governance social responsibility refers to the accountability of companies to manage their business in a manner that is ethical, transparent, and accountable to all stakeholders, from the shareholders and employees to the customers and the public. It involves considering the social and environmental impacts of business decisions and ensuring that companies act in a way that is responsible, sustainable, and respectful of human rights. Good corporate governance is essential for guaranteeing social responsibility and ensuring that companies are managed in a way that is not just profitable to the shareholders but also to the general society (Pagkalou et al., 2024).

Indeed, there are numerous challenges of corporate governance, and in the opinion of the researcher, the use of AI can go a long way in addressing and overcoming these challenges. This is because these technologies are autonomous and more effective in promoting governance objectives. Some of these challenges are as follows:

3.3. Accountability Challenges

A company must be accountable for its mistakes and bear all the consequences resulting from these errors. However, this is not always acceptable to management, as admitting fault may sometimes lead to penalties and sanctions against the management. These elements aim to achieve what is known as regulatory compliance, risk management within the company, and ethical behavior,

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all of which contribute to safeguarding the company's interests and protecting the rights of its shareholders (Efunniyi et al., 2024).

3.4. Transparency Challenges:

Transparency is one of the most critical elements that governance seeks to achieve. Challenges related to transparency in governance include data security and protection, the accessibility of company-related information, the ease of obtaining such information, and effective communication. The fear of disclosing sensitive information represents a form of fear of accountability and resistance to change. All these pose significant challenges to corporate governance. However, the integration of AI applications can significantly mitigate these challenges, by harnessing the power of AI-enabled solutions, companies can tighten data security, facilitate seamless information sharing, and promote effective communication, thereby promoting a culture of transparency and accountability. Moreover, AI can help detect and mitigate potential transparency-related risks, allowing companies to undertake proactive risk management, ensure stakeholder trust, and implement best practices of corporate governance (Walmsley, 2021).

In summary, the integration of AI into corporate governance not only enhances decision-making and innovation but also addresses fundamental issues of accountability and transparency. By leveraging AI technologies, companies can overcome traditional governance challenges and achieve a higher degree of operational excellence. The researchers believe that artificial intelligence applications can play a part in the issue of corporate governance because the applications greatly aid in data analysis and information provision that can detect fraud, improve management and control, and internal auditing. Also, analysis of market data can help decision-makers improve strategic decision-making and risk analysis, thereby enhancing the company's market position.

Artificial intelligence applications contribute to corporate governance by assisting decision-makers in making informed decisions and enabling the board of directors to analyze data using predictive analytics, which tend to be highly accurate. The automation of artificial intelligence simplifies rule compliance and enhances transparency, thereby improving the company's efficiency. However, these applications are not without risks, particularly in terms of privacy and information security, which may be addressed in the near future (Kumar, 2024).

Based on the above, the researcher concludes that metaverse technology can

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be utilized as an AI application in corporate governance by creating a virtual reality environment that enhances communication and collaboration through virtual meetings, allowing shareholders to participate in company meetings. Undoubtedly, the use of metaverse technology in corporate governance will streamline access to company-related information, making it more accessible to stakeholders. Simultaneously, metaverse technology will enhance accountability, transparency, and accounting by enabling the company's oversight bodies to access documents and reports more efficiently through virtual reality archiving. Ultimately, a future vision of the company's position can be developed, and business models can be visualized within the virtual reality framework using metaverse technologies, all of which contribute to achieving governance objectives in practicing.

4. CONCLUSION

Artificial intelligence has become a widely discussed topic due to its numerous advantages and potential when used effectively. These technologies have the remarkable ability to improve the performance and effectiveness of commercial companies, particularly when integrated into governance frameworks. A prime example of this is Metaverse technology, as discussed in this research. The researcher has reached several Results and recommendations, which are as follows:

1-The integration of metaverse applications in corporate governance will significantly strengthen governance principles. These applications enhance management and oversight, enabling shareholders and stakeholders to verify information, thereby fostering trust and confidence.

2-Artificial intelligence applications currently face several challenges, particularly in terms of security and data privacy. The risk of data breaches and unauthorized access poses a significant threat to companies, exposing sensitive information and eroding stakeholder confidence, thereby entailing severe repercussions on the company's reputation and financial stability.

3- The functionality of metaverse applications can be summarized as integrating real-world and virtual reality, enabling access to information and verification of certain matters using artificial intelligence technologies.

4- Metaverse technologies significantly contribute to enhancing transparency in corporate governance by providing a virtual environment that facilitates communication between shareholders and company management.

Relações Internacionais do Mundo Atual – unicuritiba
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5- Metaverse technologies help improve trust between a company's stakeholders and its management. This is achieved by enhancing the company's performance and developing its operations through virtual marketing and models provided by the virtual world using this technology.

5. RECOMMENDATIONS

1. Companies are encouraged to adopt AI applications, including the metaverse, to enhance governance frameworks, The integration of AI applications can enable more informed decision-making, increased transparency, and stronger accountability. Furthermore, by utilizing AI-driven solutions, companies can optimize governance processes, minimize costs, and boost operational efficiency, ultimately driving business excellence and sustainability

2. Corporate governance stakeholders are advised to establish virtual communication platforms to facilitate the adoption of metaverse applications within corporate structures.

3. Developers must prioritize the creation of advanced security solutions to address data privacy concerns associated with AI technologies.

4. We recommend that the Jordanian legislator amend the provisions of the Jordanian Companies Law by introducing legal rules that regulate the use of artificial intelligence and enhance its role in governance, particularly concerning Metaverse technology.

5. We recommend the establishment of a global framework through international efforts involving multiple countries. This framework would aim to create a regulatory umbrella for the use of artificial intelligence applications in international trade. Such a framework would positively impact the governance of commercial companies using AI applications while fostering global cooperation toward regulatory alignment on the issue.

6. We recommend the implementation of internal control mechanisms in commercial companies using artificial intelligence technologies across all domains. This would effectively improve efficiency and achieve the goals and objectives of governance.

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