

New Challenges and Opportunities in Corporate Governance with Emphasis on Artificial Intelligence and Ethics in Business

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ABSTRACT

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The present study aimed to investigate the new challenges and opportunities in corporate governance with an emphasis on artificial intelligence and business ethics. It is a mixed study (the qualitative part includes the meta-synthesis and theme analysis, and the quantitative part includes the t-test). In terms of the objective, it is cross-sectional applied-developmental research. The research field to determine the indicators includes all scientific articles and documents relevant to the research subject in the 2015-2024 period. The research population for the semi-structured part includes the academic experts among whom 12 were chosen as the samples using the snowball sampling method until the theoretical saturation is reached. The meta-synthesis of the related literature revealed that 35 primary concepts in 4 categories can be identified. Also, based on the interviews with experts, 43 components were extracted in the form of 11 factors. Through combining and modifying these two parts, 66 primary concepts (elements) and 11 main themes were identified and determined as new challenges and opportunities in corporate governance with an emphasis on artificial intelligence and ethics in business ethics. Therefore, it can be concluded that artificial intelligence provides firms with unparalleled opportunities, although it creates complex challenges. To optimally exploit this technology and create an ethical workspace, the firms should consider the technical, social, and cultural challenges simultaneously, and utilize the existing opportunities to strengthen their position in the market and improve their performance.

Keywords: Artificial Intelligence, Professional ethics, Corporate governance.

INTRODUCTION

In today's competitive world, firms always try to create appropriate governance knowledge. With the rapid trend of technological transformations, globalization, and increased complexity of the business environment, firms are facing new challenges in the area of governance. The presence of corporate governance in governmental and non-governmental organizations is so vital because it can affect their performance (Akpınar & Ozer-Caylan, 2022). Corporate governance is the structure, processes, and methods employed by an organization to communicate, organize, and control its activities. In other words, corporate governance is important for organization improvement at various levels. It can help with the increase in productivity, efficiency, and effectiveness through better organization, more correct communication, better risk management, and access to human and financial resources through the application of correct governance methods (Shaabani & Sharafi, 2023). The presence of corporate governance in governmental and non-governmental organizations is very vital and they use it to implement a governance policy and achieve their predetermined goals (Beikzad & Zarei, 2018). Regarding the fact that corporate governance is a relatively new discipline, the present study tries to create a synergy among the activists in the field of management science to improve and strengthen the knowledge in this field (Baratloo, 2023). Generally, corporate governance refers to methods by which the organizations are managed, operated, regulated, and financed. The important elements of corporate governance include the legal status of corporations in political jurisdictions, relationships between investors and executives, information flows inside and outside the corporation, and specific

operational decisions made throughout the corporation (Cihon et al., 2021). Therefore, it can be said that corporate governance are facilitates that combine and share knowledge between the organizations and its members, and can help create appropriate channels and platforms to disseminate the knowledge in the organization, facilitate cooperation and interaction between organization members to share knowledge, empower people to create, access and share knowledge using appropriate technologies for storage, transfer and share knowledge , continuously monitor and evaluate knowledge management and corporate governance processes, and create an organizational culture based on trust and knowledge-sharing where people are willing to share knowledge (Shaabani & Sharafi, 2023).

Beside the new opportunities provided, the development of new technologies, the increased complexity of the business environment, unknown risks, and uncertainty have created some challenges for the corporate governance (Baratloo, 2023). The governments are forced to provide the citizens' needs and more efficient and effective services, and improve the policy-making process that enhances governance legitimacy. Therefore, the challenge the governments face is how they can make the public policy-making cycle more agile, efficient, precise, transparent, and accountable to citizens' needs. Thus, recognition of the role of Artificial Intelligence (AI) in improvement of the governance quality in general, and the promotion of public policy-making processes and governmental services in specific, is necessary (Yagosh et al., 2021). Recently, various studies have been done on the utilization of the applied programs of AI in different government departments including health, education, security, transportation, and communication (McClough et al., 2019).

On the other hand, in the contemporary era, corporate governance has gone through fundamental upheavals. Newly emerged technologies such as AI, blockchain, and the Internet of Things have created new opportunities for the improvement of organizational performance. At the same time, they have been associated with complicated ethical challenges. Thus, society's expectations for organizations' ethical behavior have risen on all levels (Al-Halbusi et al., 2021). Therefore, it is necessary to observe the professional ethics in all organizations (Mirhosseini et al., 2022). In this context, business ethics is raised as both a challenge, and an opportunity for organizations. On the one hand, complicated ethical decision-making in areas such as data privacy, AI, and social responsibility of the firms have created serious challenges for the organizations (Ogbuke et al., 2022). On the other hand, organizations that manage to effectively consider the moral principles in their decision-making can gain customers, employees, and society's trust and consequently, achieve sustainable competitive advantage (Hategan et al., 2018). In this regard, the development of an ethic-based organizational culture and creation of mechanisms of transparency and accountability are among the solutions the organizations can adopt to face the challenges and exploit new opportunities for corporate governance.

With the ever-increasing advancement of AI technology and its penetration into all aspects of human life, organizations are faced with new challenges in the area of governance and management. On one hand, AI has created unparalleled opportunities to increase efficiency, improve decision-making, and create innovations in businesses (Kaplan & Haenlein, 2019). On the other hand, the ethical issues related to the use of AI such as privacy, discrimination, and accountability have created serious challenges for the organizations and the society (Bryson, 2020). In this regard, the main research question is how organizations can reap the benefits of artificial intelligence and at the same time, remain ethical. In other words, the present study aims to answer the question of how corporate governance can be adapted to the ethical requirements in the AI age.

Based on the above-mentioned, in the contemporary era, AI, as a revolutionary technology, is rapidly penetrating all aspects of life and business. When creating unique opportunities to improve efficiency and innovation and provide better services, this technology has also created new challenges in the area of corporate governance. One of the most important challenges is to ensure the ethical use of AI in business. Therefore, a comprehensive and detailed examination of new challenges and opportunities in corporate governance with a focus on artificial intelligence and ethics is of particular importance. This research can help managers, policymakers, and researchers gain a deeper understanding of the effects of AI on organizations and provide appropriate solutions to manage these challenges and take advantage of existing opportunities.

REVIEW OF RELATED LITERATURE

Artificial Intelligence and its Effects on Corporate Governance:

AI, as both a research field and a collection of technologies, is rapidly developing and is currently extending to applied areas ranging from the police to health care and transportation (Rezende, 2020; Stilgoe, 2018; Trocin et al., 2021). The increase in the applications of AI is supposed to continue in the short run. In the long run, AI technologies can transform areas such as scientific methods, foreign policy, and customized medicine (Tewari, 2022). Generally, AI is integrated into information systems and refers to data interpretation, learning, and adaptation which aims to achieve human-level capabilities for specific tasks (Kaplan & Haenlein, 2019; Russel & Norvig, 2021). The increased capabilities and programs of AI have created potentially new risks for people and societies such as the lack of transparency and accountability as well as bias against individuals and groups (Dignum, 2020; Floridi et al., 2018; Martin, 2019). These challenges and risks related to AI systems emphasize the importance of AI's governance at the organizational, inter-organizational, and social levels (Laato et al., 2022; Mäntymäki et al., 2022; Minkkinen et al., 2022; Schneider et al., 2022; Seppälä et al., 2021). Parallel to governance, AI auditing is promoted as a tool to address risks by holding AI systems and organizations that use it to certain criteria and requiring appropriate controls (Kusumo et al., 2021; Mäntymäki et al., 2022a; Mökander et al., 2021; Sandvig et al., 2014). The development of AI technologies in the countries leads to an increase in efficiency and productivity in the industries and helps with economic growth and the creation of new job opportunities (Mohammadi et al., 2024). The AI also allows the policymakers and the administration to make more comprehensive predictions and be less subject to human bias (Khan et al., 2019). On the other hand, intelligent algorithms help identify violations, significantly reduce fraud and errors, and improve the implementation of financial and tax policies (Kohan Khoshnezhad, 2024). Artificial intelligence and big data analytics make it possible for the evaluation process to be included in every stage of the public policy cycle. In other words, the AI implements continuous evaluations from the very beginning and strengthens the idea of this evaluation among the governments and government departments, and allows the decision-makers to perceive the long-term effects of the implementation of the policies on the citizens (Jarmin & O'Hara, 2016). The AI is used for image analysis, big data platforms for storing and processing big data, and real-time data analysis for instant data processing. These technologies help with the optimization of data gathering analysis and improvement of decision-making (Whang et al., 2023).

In this regard, Akbari et al. (2024) aimed to identify and prioritize the obstacles and challenges of data-driven governance from the viewpoint of the use of AI and data-based technologies in the public sector. It showed that the access to the data and their quality are the most important obstacle while the ignorance of the public and social considerations are the most important challenges. Also, in terms of the role of AI in governance quality, Kohan Khoshnezhad (2024) shows that AI affects the governance quality in two dimensions including 1) an increase in dynamism and interaction in the public policymaking cycle in various stages, and 2) Improvement of the government of services and efficiency of the administrative system. In this regard, Marango et al. (2023) concluded in a study that AI has great potential to improve the management of internal affairs and provide services in the public sector. However, the realization of this potential depends on the correct implementation of the technology that is determined by unique factors that allow for its use or restrict it.

Ethics in Business and its Effects on Corporate Governance:

The development of new technologies has created new challenges and opportunities in the area of corporate governance which have affected the roles of organizations. As a strategy to confront the dynamic and unknown context the organizations work in, they began to incorporate new values and goals beyond economic profit into their organizational cultures (Martins et al., 2021). Therefore, the social roles and the business procedures of the firms have evolved (Freeman, 2023). Many organizations are adopting ethics as a strategy to respond to social demands (Trevino et al., 2014). One of the main reasons behind the 2007-2009 financial crisis was the lack of ethics in management. Ever since, due to prominent ethical issues in the technology department, which has long been considered an alarm for the economy, ethics has received higher attention (Martins et al., 2021). The dominant approach in business ethics management is focused on the alignment of individual employee values with the organization (Bolton, 2018). As a result, further research has been focused on individual factors such as age, behavior, individual values, or organizational commitment rather than organizational factors such as culture, policies, rewards, or training (Lehnhart et al., 2015).

In this regard, Fakher et al. (2023) showed in an investigation of the ethical approach to governance that the central phenomenon includes two categories of good governance based on social capital and human capital, the causal conditions include three main categories of environmental factors, policy factors and structural factors, and

background conditions include two categories of organizational factors and educational factors. Mathison (2023) showed that although the use of machine learning algorithms in organizational decision-making leads to improvement in efficiency, it brings ethical challenges such as algorithmic bias and violation of privacy. On the other hand, studies by Abdullah & Al-Qallaf (2022) have emphasized the importance of the development of organizational culture and showed that firms with stronger ethical culture performed better financially, and gained the stakeholders’ trust. Also, Davenport and Ronanki (2018) stated that complex AI algorithms may make decisions that are incomprehensible to human beings, which leads to a decrease in trust and transparency in decision-making processes. Finally, studies such as Tushar’s (2017) have emphasized the role of ethical leadership in the promotion of ethical behavior in organizations and the creation of sustainable competitive advantage.

METHODOLOGY

The present study is mixed (the qualitative part includes the meta-synthesis and theme analysis, and the quantitative part includes the t-test to test the model’s fitness). In terms of the objective, it is cross-sectional applied-developmental research. Both library and field methods were used to collect the data. In addition to the investigation of the texts related to new challenges and opportunities in corporate governance with emphasis on AI and ethics in business (data collection using the library method and meta-synthesis of previous studies), the semi-structured interview with the experts and analysis with Delphi method have been used to identify the new challenges and opportunities in corporate governance with emphasis on the AI and business ethics.

First, the a research field including all articles and scientific documents relevant to the present study was considered to identify the new challenges and opportunities in corporate governance with an emphasis on AI and business ethics. The references were investigated by a systematic review of articles obtained from Google Scholar, Elsevier, ScienceDirect, SID, CiteSeer, etc. from 2015 to 2024. In this chapter, the meta-synthesis of the related literature with a systematic review has been used. To assess the authenticity of the selected items, Lawshe’s Method as well as the opinions of a panel of experts in the field of general, strategic, and administrative management have been used. The meta-synthesis is a qualitative method based on a systematic review of library studies to deeply recognize the phenomenon under study. Each article was evaluated in terms of quality using the Critical Assessment Skills Program (CASP method) with 10 quality conditions. Each article was assigned a score between 1 and 5 based on these conditions. Articles with an overall score of 25 and above are qualitatively qualified and the other articles without this condition are excluded. The Scott’s Pi method was used to determine the reliability.

In the next stage, semi-structured interview with academic experts (the inclusion criteria included at least three articles in the related field, a Ph.D. degree, and being a member of faculty) was performed to identify the new challenges and opportunities in corporate governance with emphasis on the AI and business ethics in government departments. The primary coding was done by thematic analysis. For the qualitative part, the sampling was done using targeted interviews and the snowball sampling method at the saturation point. Finally, we reached saturation at 11 people, which continued to 12, to increase the validity and cover all latent components.

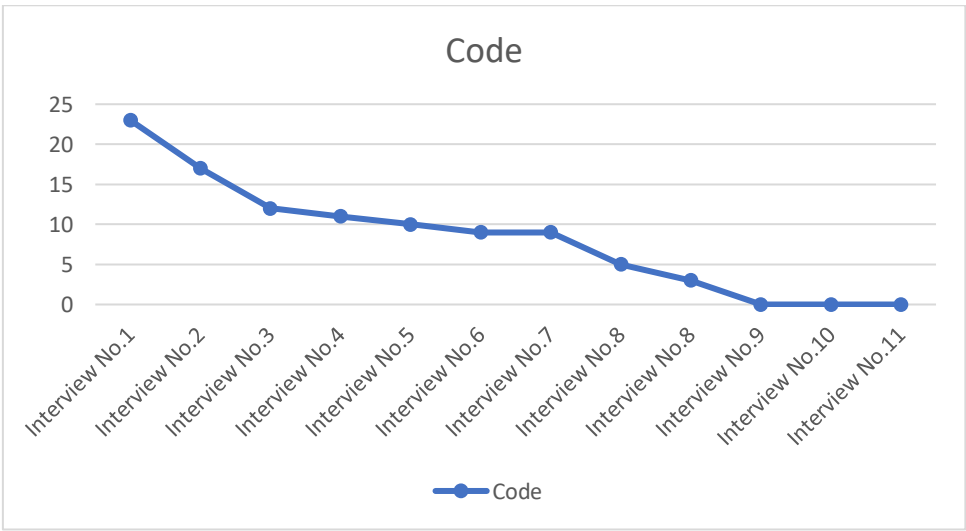


Fig.1: Theoretical saturation process

Validity, reliability, and objectivity are the criteria used to evaluate the quality of research in the conventional research paradigm of positivists. As an interpretive method, qualitative thematic analysis differs from the positivist tradition in its main hypotheses, research objectives, and reasoning processes. Regarding the fact that the qualitative method has been used in the present study, validity, and reliability are presented accordingly. Generally, according to Guba and Lincoln (2000), the evaluation of the validity and reliability of qualitative research includes four criteria namely the validity, transferability, reliability, and verifiability. In this regard, besides the review questions, a moral commitment paper signed by the researcher to ensure the anonymity of the contents of the interview and participants' information was handed to the interviewees. Moreover, all interviews were recorded and investigated to extract the key points, with the consent of the participants. After the agreement was announced, an interview was held focusing on perception and desired indicators. In the conducted interviews, the respondents expressed their opinion on the desired question about presenting a new component or index or confirming the collected components and indicators. To increase the reliability and confirm the validity of the tool in this research and make the interviews reliable, the rules and framework of conducting a good interview were observed as follows: interviewing in a calm and appropriate environment; the researcher first stated the purpose of his research and then, he ensured that interested people participated in the interview; ensuring that the interview questions were comprehensible for the participants; typing the text of the interviews at the first opportunity and presenting them to the interviewees to confirm the authenticity, analyzing the interviews, and coding them as soon as possible. In short, to ensure the reliability of the data, repeated research, data comparison, summarization, and data categorization were used without any modifications in the data in a way that after the interviews were performed, they were noted down on the paper with more precision and were handed to the interviewee so that any difference could be obviated and corrected. To evaluate the interview protocol reliability, the inter-coder reliability evaluation method was used.

Tab.1: Inter-coder reliability evaluation

Number	Number of the interview	Number of codes	Agreed codes	Reliability
1	Second interview	15	13	0.86
2	Sixth interview	16	12	0.75
3	Tenth interview	9	8	0.88
Total		40	33	0.82

Based on this evaluation, the reliability coefficient for the interview protocol in the present study is equal to 0.82. this value is desirable from the researchers' point of view. Finally, the t-test and the four criteria of Glaser and Strauss (1967) (adaptation, comprehensibility, generalization, and control) were used to examine the fitness and credibility of the proposed model.

RESEARCH FINDINGS

The related literature was investigated and analyzed with scrutiny. First, all the articles in local and international databases from 2015 to 2024 were investigated using the meta-synthesis method. The meta-synthesis reliability for all the select articles was evaluated using 10 criteria of the CASP and 142 articles were found, among which 66 were excluded after screening due to a mismatch between the articles' title and abstract and the subject of the present study. In the next stage, among the remaining 76 articles, 32 were excluded due to the duplication and mismatched population. Finally, after the evaluation of the full texts of the remaining 44 articles, 30 were dismissed due to not having the inclusion criteria, so 24 articles qualified for the inclusion criteria and had a score of above 31. Also, the coding procedure and classification of the information were evaluated several times. All these measures were taken to ensure the quality of the findings. The items in Tab.2 were extracted as the new challenges and opportunities in corporate governance with an emphasis on AI and business ethics.

Tab.2: Challenges and opportunities extracted from the related literature

No.	Component	Researcher (year)
Corporate governance challenges with an emphasis on artificial intelligence	Evasion of the law, AI regulatory problems, algorithmic transparency requirements, social responsibilities, ethical problems, the absence of an ethical committee, increased risk, increased inequality, lack of technical knowledge of employees, reduced cyber security, reduced number of employees, and growth of unemployment.	Hung and Yen (2021), Thelisson et al. (2017), Wagner et al. (2020), Davenport and Ronanki (2018), O'Keefe et al. (2020), Weitz et al. (2022), Langer (2020), Manyika et al. (2017), Margossian(2019) ,
Challenges of corporate governance with an emphasis on business ethics	Lack of moral competence, exercising greater power of managers, weakening internal influence networks, increasing pressure on employees, reducing employee independence, rapid technological changes, loss of privacy, conflict of interests, misalignment of individual-organizational values	Martinez et al. (2021), Roszkowska and Melé, (2021), Davenport and Kirby (2016), Zuboff, (2023), Bolton(2018)
Corporate governance opportunities with an emphasis on artificial intelligence	Accelerating strategic decision-making, preventing information censorship, saving time, reducing errors and fraud, developing financial tools, improving internal supervision and monitoring, increasing productivity and efficiency, improving customer experience, increasing organizational flexibility, improving internal processes of the organization, Increasing dynamism, developing electronic government	Haesevoets et al. (2024), Cion et al. (2021), Hadley et al. (2024), Davenport and Ronanki (2018), Schwab (2017), Maragno et al. (2023), Kohan Khoshnezhad (2024), Whang et al(2023) .
Corporate governance opportunities with an emphasis on business ethics	Development of moral leadership, redefinition of organizational values, development of social-environmental values, development of human and social capital	Martinez et al. (2021), Maxfield et al. (2018), Fakher (2023)

According to the findings, 35 primary concepts in the form of 4 main concepts or themes were identified and determined as new challenges and opportunities in corporate governance with an emphasis on artificial intelligence and ethics in business from an empirical background. To examine the content validity, the backgrounds were reviewed by two experts in the field. Also, the reliability was examined using Scott's Pi method. This criterion was designed by William Scott (1955) to measure the nominal data reliability. In this method, two coders (evaluators) should present the data so that the reliability can be determined based on the correlation between the data presented by these evaluators.

$$Pi = (OA - EA) / (1 - EA)$$

$$Pi = (0.864 - 0.50) / (1 - 0.50) = 0.728$$

Since Scott's pi is above 0.7, the reliability of the method is confirmed. Then, by referring to the studied units with 12 university professors and experts of the country's government department, using a combined targeted and snowball method with a semi-structured interview design, their opinion on new challenges and opportunities in corporate governance with an emphasis on artificial intelligence and business ethics were recorded. These experts named many cases and elaborated on each, which raised some questions for the researcher during the interviews. In the end, the researcher, trusting that the saturation point is satisfied with the snowball method in terms of achieving the required factors (according to the repetitiveness of the opinions of interviews with professors and experts), wrote the opinions briefly, then coded them, and after summarizing the contents of the factors of the category, classified them.

Tab.3: Coding of the main categories and theme

Main theme	Sub-theme	Micro-categories
Corporate governance challenges with an emphasis on artificial intelligence	Technological challenges	Lack of specialized workforce, high cost of implementation, maintaining data security, dependence on IT infrastructure, digital gap
	Human challenges	Change in organizational structure, job loss, reduced human interactions, privacy.
	Structural challenges	Incompatibility of organizational culture with new technologies, lack of appropriate rules and regulations, lack of responsibility in algorithmic decisions, spread of false information, increased risk
Challenges of corporate governance with an emphasis on ethics in business	Sociocultural challenges	Climate change and sustainability, globalization, diversity of cultures and values, racial, ethnic and gender discrimination
	Organizational challenges	High expectations of stakeholders, decrease in organizational transparency, increase in conflicts, corruption and bribery, rent.
	Technological challenges	Rapid technological changes, data privacy, algorithmic biases, filtering
Corporate governance opportunities with an emphasis on artificial intelligence	Creating a competitive advantage	Increasing creativity and innovation, increasing flexibility, strengthening the organization's competitive position, creating a smart organization, personalizing the customer experience
	Development of organizational processes	Automation of processes, improvement of decision-making, creation of new business models, improvement of the quality of public services, development of digital economy
	Occupational development	Improving the skills of employees, creating new job opportunities, improving the quality of life, and increasing the empowerment of employees
Corporate governance opportunities with an emphasis on business ethics	Strengthening social capital	Developing relationships with the community, creating interaction with customers, improving interpersonal relationships, developing loyalty, creating social networks, strengthening social participation
	Promotion of organizational culture	Strengthening the brand of the organization, creating an organizational culture based on values, strengthening professional ethics, increasing the trust of investors, developing organizational commitment

Based on the interviews, 43 components were extracted in the form of 11 factors of new challenges and opportunities in corporate governance with emphasis on artificial intelligence and business ethics. Finally, the factors extracted from the library sources and the opinions of professors and experts were organized in order, replicated, and similar items were removed.

Tab.4: Final dimensions and elements of research

Main topic	Main theme	Sub-theme	Miro-categories
New challenges	Corporate governance challenges with an	Technological challenges	Lack of specialized workforce, high cost of implementation, maintaining data security, digital gap, reduction of cyber security

	emphasis on artificial intelligence	Human challenges	Change in organizational structure, job loss, decrease in human interactions, lack of privacy, and increase in inequality.
		Structural challenges	Incompatibility of organizational culture with new technologies, lack of appropriate rules and regulations, lack of responsibility in algorithmic decisions, increased risk, evasion of the law, regulatory problems in artificial intelligence
	Challenges of corporate governance with an emphasis on ethics in business	Sociocultural challenges	climate change and sustainability, globalization, diversity of cultures and values, racial, ethnic and gender discrimination
		Organizational challenges	High expectations of stakeholders, reduction of organizational transparency, increase in conflicts, corruption, and bribery, lack of moral competence, exercising more power of managers, reduction of employee independence, lack of alignment of individual-organizational values
		Technological challenges	Rapid technological change, algorithmic biases, filtering, rapid technological change, loss of privacy
	Corporate governance opportunities with an emphasis on artificial intelligence	Creating a competitive advantage	Increasing creativity and innovation, increasing organizational flexibility, strengthening the competitive position of the organization, creating a smart organization, personalizing the customer experience, developing financial tools, developing E-government
		Development of organizational processes	Automating processes, creating new business models, improving the quality of public services, accelerating strategic decision-making, preventing censorship, error and fraud, saving time, and improving the organization's internal processes
		Occupational development	Improving employee skills, creating new job opportunities, improving quality of life, increasing employee empowerment, increasing productivity and efficiency, increasing dynamism
	Corporate governance opportunities with an emphasis on business ethics	Strengthening social capital	Creating interaction with customers, developing loyalty, creating social networks, strengthening social participation, redefining organizational values, growing social-environmental values, developing human and social capital
		Promotion of organizational culture	Strengthening the organization's brand, creating a value-based organizational culture, strengthening professional ethics, increasing investors' trust, developing organizational commitment, developing ethical leadership

Based on the findings, 66 primary concepts (elements) and 11 main themes were identified and determined as new challenges and opportunities in corporate governance concerning artificial intelligence and business ethics.

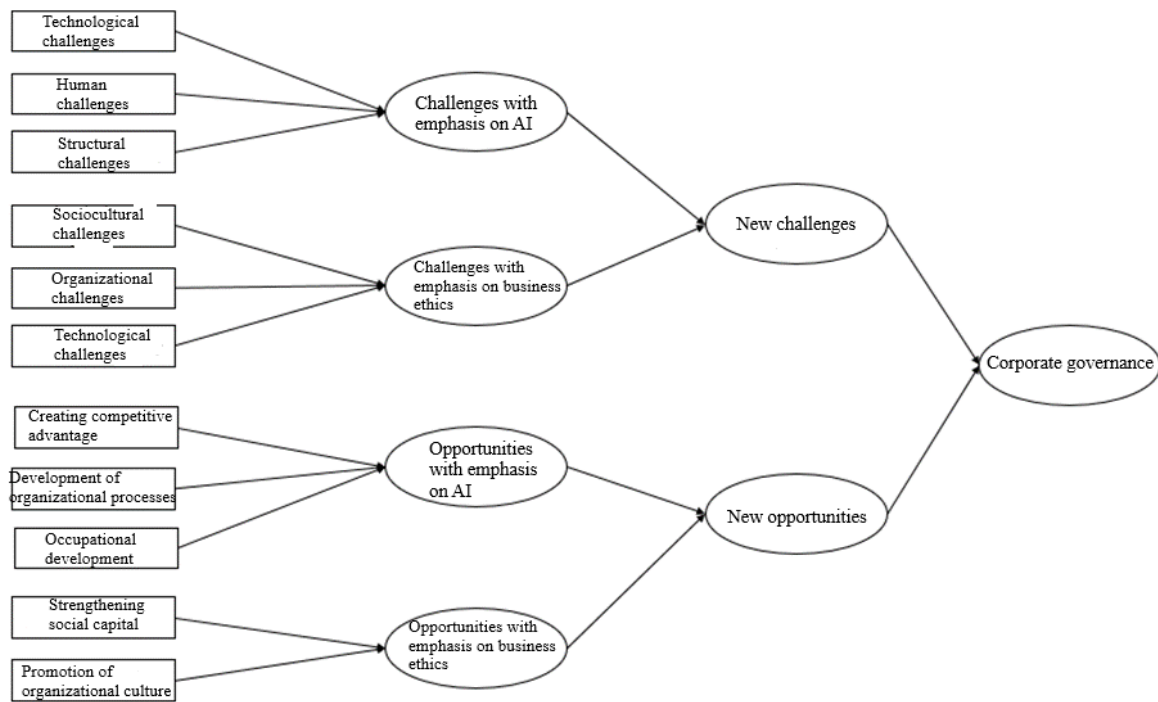


Fig.1: Qualitative model of new challenges and opportunities in corporate governance with an emphasis on artificial intelligence and ethics in business

Also, to examine the credibility of the indicators and the model, the four criteria of Glaser and Strauss (1967) which were confirmed by 12 experts, were used.

Tab.5: Results of one-sample t-test to determine the validity of the proposed model

Item	Questions	Mean	t	df	Sig.
Adaptation	Are the indicators produced from the reviewed data?	4.653	14.173	1	0.0001
Comprehensibility	Are the indicators connected systematically?	4.124	8.348	11	0.0001
Generalization	Is the model explained in such a way that it takes into account different changing conditions?	4.076	8.942	11	0.0001
Control	Are theoretical findings important for model design?	4.025	5.197	11	0.0001

Results in Tab.5 indicate that in adaptation, comprehensibility, generalization, and control constructs, the t-value is significant at 0.01, and comparison of the observed mean with the expected mean shows that the final model is valid at 99% confidence level, from the experts' point of view.

Discussion and Conclusion:

Today, AI, as a revolutionary technology, has provided firms with unique opportunities to improve their efficiency, innovation, and decision-making. However, this technology has made firms and businesses face serious ethical challenges recognition of which is necessary to plan for the development of corporate governance processes. The present study aimed to investigate the new challenges and opportunities of corporate governance with an emphasis on artificial intelligence and business ethics. The findings obtained from the meta-synthesis indicated that 35 primary concepts in the form of 4 concepts can be identified. Also, based on the interviews with the experts, 43 components in the form of 11 factors were extracted through combining and modifying of which, a total of 66 primary concepts (elements) and 11 main themes can be obtained as the new challenges and opportunities of the corporate governance with the emphasis on the artificial intelligence and business ethics.

According to the findings, the challenges in corporate governance with an emphasis on artificial intelligence include technological, human, and structural challenges. These findings show that for effective exploitation of the AI

advantages, the firms should consider all three types of challenges at the same time, and adopt appropriate solutions. Technological challenges such as the algorithmic biases, complexity of the models, and lack of quality data restrict the optimal use of this technology. At the same time, human challenges such as resistance to change, ethical concerns, and lack of workforce, acceptance process can slow down integration of the AI in the organization. On the other hand, structural challenges such as lack of appropriate legal frameworks, lack of coordination between organizations and institutions, and budget restrictions prevent the creation of the necessary infrastructure for the development and use of artificial intelligence. Overall, and the interaction between these challenges make it difficult to realize the full potential of artificial intelligence. According to the findings, the technological challenges themselves consist of components such as a lack of a specialized workforce, high implementation costs, maintaining data security, a digital gap, and reduced cyber security. Human challenges also include changes in organizational structure, loss of jobs, reduction of human interactions, lack of privacy protection, and increase in inequality. Moreover, structural challenges include things such as the mismatch of organizational culture with new technologies, lack of appropriate rules and regulations, lack of responsibility in algorithmic decisions, Increased risk, evasion of the law, and AI regulatory issues. Generally, the results indicate that the process of digital evolution, and especially the entrance of artificial intelligence into firms creates complex and multifaceted challenges that require the adoption of a comprehensive and multilateral approach towards management. Organizations should consider all the dimensions of these challenges to create a suitable environment for development and use of artificial intelligence. In this regard, some challenges and components found in this research are in line with the results of Hung and Yen (2021), Thelisson et al. (2017), Wagner et al. (2020), Davenport and Ronanki (2018), O'Keefe et al. (2020), Weitz et al. (2022), Langer (2020), Minkinen et al. (2017), and Margossian (2019).

The findings indicated that corporate governance challenges with emphasis on business ethics also consist of three main challenges namely the sociocultural, organizational, and technological challenges. Thus, it can be said that corporate governance is not merely a technical or organizational issue, but it is a complex collection of social, cultural, and technological factors, the sociocultural challenges are related to the beliefs, values, and attitudes of individuals and the society to the business and its role in the society. Organizational challenges are related to the structures, organizational structures, processes, and culture. Finally, technological challenges are related to the pace of technological changes and complexity of the information systems. These three types of challenges mutually affect each other and for effective corporate governance, the organizations should consider them all, at the same time. Sociocultural challenges include things such as climate change and sustainability, globalization, diversity of cultures and values, and racial, ethnic, and gender discrimination. Organizational challenges include components such as high expectations of stakeholders, decreased organizational transparency, increase in conflicts, corruption and bribery, lack of moral competence, managers exercising more power, reducing the independence of employees, and mismatch of individual-organizational values. Finally, technological challenges include rapid changes in technology, algorithmic biases, filtering, rapid changes in technology, and loss of privacy. To face these challenges and take advantage of the available opportunities, organizations must adopt a comprehensive and multilateral approach. This approach includes creating a strong organizational culture based on ethical values, transparency, and accountability. Also, it is necessary to invest in the development of employees' skills, especially in the field of information technology. In addition, organizations must constantly assess their environment and adapt to rapid changes. By adopting this approach, organizations can use crises as opportunities for growth and development and be more successful in today's complex and dynamic world. Some of the challenges and components found in this research are in line with the results of Martinez et al. (2021), Roszkowska and Melé (2021), Davenport and Kirby (2016), Zuboff (2023), and Bolton (2018).

Based on the findings, the corporate governance opportunities with an emphasis on artificial intelligence consist of three main opportunities including the creation of competitive advantage, development of organizational processes, and occupational development. The AI has a great potential to transform the corporate governance. With a precise perception of the existing opportunities and their relevant challenges, the firms can use it as a powerful tool to achieve their strategic goals. In this regard, the creation of competitive advantage includes increasing creativity and innovation, increasing organizational flexibility, strengthening the organization's competitive position, creating a smart organization, personalizing the customer experience, developing financial tools, and developing electronic government. Organizational processes are also one of the opportunities including automation processes, creating new business models, improving the quality of public services, accelerating strategic decision-making, preventing censorship, error and fraud, saving time, and improving the internal processes of the organization. Finally,

occupational development includes components such as improving the skills of employees, creating new job opportunities, improving quality of life, increasing employee empowerment, increasing productivity and efficiency, and increasing dynamism. Research findings show that artificial intelligence and automation can act as the main driver of digital transformation in organizations. However, for the optimal use of these technologies, organizations need to develop comprehensive and long-term strategies in which special attention is paid to technical, organizational, and ethical issues. Some of the opportunities and components found in this research are in line with those found by Haesevoets et al. (2024), Cihon et al. (2021), Hadley et al. (2023), Kohan Khoshnezhad (2024), and Whang et al. (2023).

Corporate governance opportunities, with an emphasis on business ethics, consider the opportunity to strengthen the social capital and promote the organizational culture. It provides valuable opportunities to strengthen the social capital and promote the organizational culture, i.e., through focusing on the ethical principles in organizational decision-making and interactions, stronger and more stable relationships between the members can be achieved, trust and cooperation can be increased, and finally, an organizational culture based on shared values can be achieved. Based on the findings, strengthening social capital includes such cases as creating interaction with customers, developing loyalty, creating social networks, strengthening social participation, redefining organizational values, growing social-environmental values, developing human and social capital, and promoting organizational culture. Promotion of the organizational culture also includes dimensions such as strengthening the organization's brand, creating a value-based organizational culture, strengthening professional ethics, increasing investors' trust, developing organizational commitment, and developing ethical leadership. In other words, these findings indicate that social capital and organizational culture are closely related, and strengthening one of these two components helps to strengthen the other. For example, creating an organizational culture based on social and environmental values can lead to stronger social networks and increased social participation. Also, the development of human and social capital helps to strengthen the brand of the organization and increase the confidence of investors. Some of the opportunities and components found in this research are in line with those found by Martinez et al. (2021), Maxfield et al. (2018), and Fakher (2023).

Based on the findings, it is recommended that organizations develop strong ethical frameworks and make their AI-based decision-making transparent to effectively exploit the advantages of AI and reduce its relevant risks. Also, investing in employee training for AI and ethics, creating flexible and accountable organizational structures, and cooperating with other stakeholders such as the government and society are among the necessary measures that should be taken to be successful in this field. Also, regarding the rapid pace of developments in the area of technology, the challenges and opportunities related to AI and corporate governance are expected to continuously change in the future. Thus, further studies should focus on the evaluation of the effects of AI on various areas of business, development of the AI-based corporate governance models, and the examination of the social and environmental effects of this technology.

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