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The effect of digital leadership on the performance of businesses: the mediating role of organizational entrepreneurship

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ABSTRACT

BACKGROUND AND OBJECTIVES: The digital age has led to significant changes in all aspects of human life, including the way businesses operate. It is expected that the digitalization process of this type of business will accelerate in the coming years, therefore the results of this research can have a great impact on increasing their productivity and economic growth. In this context, the current study aims to investigate the impact of digital leadership on the performance of businesses, with a particular focus on the mediating role of organizational entrepreneurship.

METHODS: This research is applied in terms of research purpose and descriptive-survey method. The statistical population of this study consists of 601 employees and managers working in the printing and publishing industry in Tehran province. The sample size was determined using Cochran's formula, and a total of 235 individuals were selected using available sampling techniques. Data was collected using standard questionnaires, and SmartPLS4 software and structural equation modeling were utilized to analyze the data. This approach allows for the examination of the complex relationships between digital leadership, organizational entrepreneurship, and business performance in the publishing industry.

FINDINGS: This research examines the fit of a model at three levels of measurement: structural, general, and combined reliability. The R2 (equal path squared) values for organizational entrepreneurship and the performance of printing and publishing businesses are 0.739 and 0.653, respectively, indicating a strong level of fit for the structural model. The t-statistic was used to check the assumed relationships between the variables, with seven sub-hypotheses used to measure the main hypothesis. The t-coefficients relevant to the seven existing relationships have been confirmed, supporting the main hypothesis.

CONCLUSION: Businesses that adopt digital leadership strategies are more likely to develop new digital facilities and make significant changes in their strategy-making processes and organizational culture. These findings emphasize the importance of digital leadership in the publishing industry and suggest that businesses that embrace digital leadership strategies are more likely to succeed in the digital age. The insights gained from this study can be used to develop effective digital leadership strategies to help publishing businesses thrive in an increasingly digital world.

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INTRODUCTION

Theoretical framework and research background

Digital transformation and emerging technologies including mobile phones, cloud memory, data analysis systems are applied to develop new business models and improve business performance (Vicere, 2021). During the digital age, the changes has increased rapidly, extensive access to data has become feasible, and geographical boundaries and limitations have been eliminated. This digital revolution can be an opportunity for the entrepreneurial ecosystem to proceed to the following stage of development (McAdam, 2022). Nevertheless, leaders of organizations should be concerned about the way technology transforms the business environment, since any change provokes chain reactions in the entrepreneurial environment (Rainer and Prince, 2022). Digital transformation has globalized the entrepreneurship and this revolution has continuously developed (McAdam, 2022). Due to the development of such transformation, organizations and companies in all industries are rapidly becoming digital and transforming to a new form of organization (Harto *et al*., 2022(. Through applying technology to all aspects of business, digital leaders perfectly transform business operations and subsequently improve business efficiency. Technology can enhance the process of education so that intellectual talent and ability becomes more important for the purpose of producing something unique in order to create wealth for future generations (Vayrynen *et al*., 2023). Today, various studies in the field of digital transformation have examined the fundamental effects of digital transformation on businesses, societies and people's lives. The technology development and new design of activities have resulted in the change in nature of work and the resources required for success. Westerman *et al.* in their study in 2014, showed that companies which have problems in the digitalization process present a poor performance in the leadership process required to create a prospect. On the other hand, this study also stated that successful digital companies have been able to develop leadership capabilities effectively (Westerman *et al*., 2014). Leadership capabilities mean the solutions through which managers and leaders develop digital changes (Yunus and Ernawati, 2018). There are numerous references relevant to the importance of leadership capabilities in digital transformation and success in digital organization. It is worth noting that digital leadership is known as an emerging and growing concept. Accordingly, there are still no instruments and concepts approved by the academic community for a better understanding of the situation (Kolasa *et al*., 2023). Therefore, digital transformation is not simply a higher level of application and development of information and communication technology (ICT); it is also a strategy for information and digital technology to adjust the model, process, product, as well as the profit of production and business processes in the organization. Secondly, strategy is a key factor to determine the success of the digital transformation process in a business (Hosseini *et al*., 2020; Ziyae *et al.,* 2019). The traditional strategy is no longer appropriate for nowadays business requirements. However, an efficient digital strategy creates initial experiences and integrates those experiences into the strategic process. Thirdly, digital transformation is not only an activity to optimize workflow but improving productivity and making profit is considered as the cultural foundation of a business, and this culture should be designed and performed through a long and sustainable strategy (Vayrynen *et al*., 2023). The principal beneficiaries of the present study include small and large organizations working in the industry of publishing and still use traditional mechanisms in leadership. Policy makers of such organizations apparently understand the variables and their interrelationships and take them into account for the development of transformational leadership. This type of information may help them prioritize their efforts and select proper strategies to focus on the most important variables in order to develop transformational leaders that eventually lead to business success (Avidov-Ungar *et al*., 2022). The digitalization of the printing and publishing industry brings about an important challenge to the existing companies dealing with new technologies (Tajpour *et al*., 2023). A large number of companies in this industry have been obliged to seek new markets through digital technologies for their survival (Kolasa *et al*., 2023). Analysis achieved from large data saved in digitally enabled organizations in the literature has indicated that, during global crises (combating the covid-19 pandemic), when employees worked from home in virtual teams, leaders were compelled to express different behaviors and reactions regarding the issue of digital and observe it through the eyes of organizational innovation. The process of these changes is expected to change direction (Ramdani *et al*., 2022). Despite the

fact that entrepreneurs are increasingly use Facebook, LinkedIn, Instagram, and other social networking sites (SNSs), including Twitter, how entrepreneurs create social capital online less is still unknown (Smith *et al*., 2017; Mobaraki *et al*., 2021). Digital innovation in SMEs is directed by a set of four factors (individual, technological, organizational and environmental). The four factors will pass a four-step process (i.e., intention, adoption, implementation, and use), and result in two outcomes (organizational performance and commercialization). Moreover, digital innovation in small and medium-sized companies includes a number of results, such as profitability, competitiveness and internationalization. Lastly, this analysis indicates that a limited number of studies have been carried out in low-income economies and more empirical studies are required for a higher level of understanding relevant to the role of digital innovation for development (Al-Kurdi *et al*., 2020). Accordingly, digital leadership indexes (mental framework, social capital and virtual team leadership) have been considered as independent variables, organizational entrepreneurship as a mediating variable, and business performance in the field of publishing as a dependent variable. Finally, according to what mentioned above, the hypotheses of the study are as follows:

H1: The digital mental framework has a significant effect on the performance of businesses in the field of printing and publishing.

H2: The digital mental framework has a significant effect on the performance of publishing businesses with the mediating role of organizational entrepreneurship.

H3: Social capital has a significant effect on the performance of businesses in the field of publishing.

H4: Social capital has a significant effect on the performance of publishing businesses with the mediating role of organizational entrepreneurship.

H5: The leadership of virtual teams has a significant effect on the performance of businesses in the field of printing and publishing.

H6: The leadership of virtual teams has a significant effect on the performance of businesses in the field of publishing with the mediating role of organizational entrepreneurship.

H7: Organizational entrepreneurship has a significant effect on the performance of businesses in the field of printing and publishing.

The current study has been carried out in Tehran in 2023.

MATERIALS AND METHODS

The present study is classified as a descriptive-correlational research that aims to explore and analyses the relationships between variables. The statistical population of the study includes all employees and managers working in the printing and publishing industry in Tehran province, which amounts to 601 individuals based on data from 70 companies active in this industry in March 2023. Data was collected through a questionnaire developed by the researcher. The sample size of 235 individuals was determined using available sampling and Cochran's formula for a limited population, with an error level of 5% at a confidence level of 95%. The questionnaire consisted of 25 items rated on a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The study utilized SmartPLS4 software and structural equation modelling to analyze the data, which is a statistical method used to investigate the relationship between latent and manifest variables. By applying these methods, the study provides valuable insights into the relationships between digital leadership, organizational entrepreneurship, and business performance in the publishing industry.

RESULTS AND DISCUSSION

Descriptive statistics

Demographic characteristics showed that the statistical population included 52% male and 48% female. 17% were between 20 and 30 years old in terms of age, 23% were between 30 and 40 years old, 49% were between 50 and 40 years old, and 9% were over 50 years old. In terms of education level, 10% of the population have an associate degree, 32% have a bachelor's degree, 41% have a master's degree, and 16% have a PhD degree.

Inferential statistics

Model fit (measurement, structural and general)

To investigate the fit of the model in three levels of measurement, structural and general in the present study, the technical characteristics of the questionnaire were evaluated in two sections, validity and reliability using different criteria. Construct and content validity were applied to evaluate the validity of the questionnaire, and Cronbach's alpha coefficient and composite reliability

Table1: The relationship between variables and questionnaire

Row	Variable	questions	Cronbach's alpha
1	Organizational Entrepreneurship	1-6	0.749
2	Social capital	7-12	0.705
3	Virtual team	13-17	0.928
4	Mental framework	18-21	0.733
5	Business performance	22-25	0.906

Table 2: Composite reliability, communality and convergent validity

Variable		communality	Confidence level	AVE	R2
Organizational Entrepreneurship		0.819	0.852	0.504	0.739
	Social capital	0.759	0.781	0.738	---
Virtual team		0.933	0.946	0.777	---
mental framework		0.812	0.826	0.549	---
Business performance		0.907	0.935	0.781	0.653

Table 3: Divergent validity

Variables	Virtual teams	Social capital	Business performance	mental framework	Organizational Entrepreneurship
Virtual teams	0.882				
Social capital	0.186	0.615			
Business performance	0.599	0.212	0.884		
mental framework	0.321	0.044	0.365	0.741	
Organizational Entrepreneurship	0.711	0.194	0.796	0.582	0.781

index were applied to examine the reliability of the measuring instrument. The results indicated that the questionnaire has suitable reliability and Cronbach's alpha coefficients and the combined reliability of all variables are more than acceptable. As can be observed in Table 1, Cronbach's alpha coefficients and the combined reliability of all variables are more than the acceptable minimum, i.e. 0.7; therefore, it can be concluded that the variable measurement instrument has suitable reliability.

To verify the reliability of the questionnaire partial least squares method criteria have been applied. In this method, reliability is measured using two criteria of factor loadings and composite reliability. According to the results, all the coefficients of factor loadings are greater than the minimum acceptable value of 0.4 and the value of Cronbach's alpha coefficients and the combined reliability of all constructs are greater than the minimum acceptable value of 0.7. Furthermore, the investigation of Average Variance Extracted (AVE) from the acceptable minimum of 0.5 and shared reliability shows that the value of all constructs is greater than the acceptable minimum of 0.7. Therefore, the questionnaire has reliability and convergent validity (Tables 1 and 2).

The average variance extracted was applied to evaluate the convergent validity, the square root of AVE was used to examine divergent measurement. The results indicated that the value of average variance extracted is greater than the minimum acceptable value of 0.5. Therefore, the research variables have convergent validity. Furthermore, since the square root values of the average variance extracted are greater than the correlation of the considered variable with other variables, divergent validity is acceptable if the numbers included in the main diameter are greater than their underlying values. Therefore, the variables have validity and their divergent validity is also confirmed.

Considering what mentioned earlier and the results achieved from the SmartPLS4 software output in Tables 2 and 3, the validity (convergent and divergent) and reliability (factor loading, composite reliability coefficient and Cronbach's alpha)

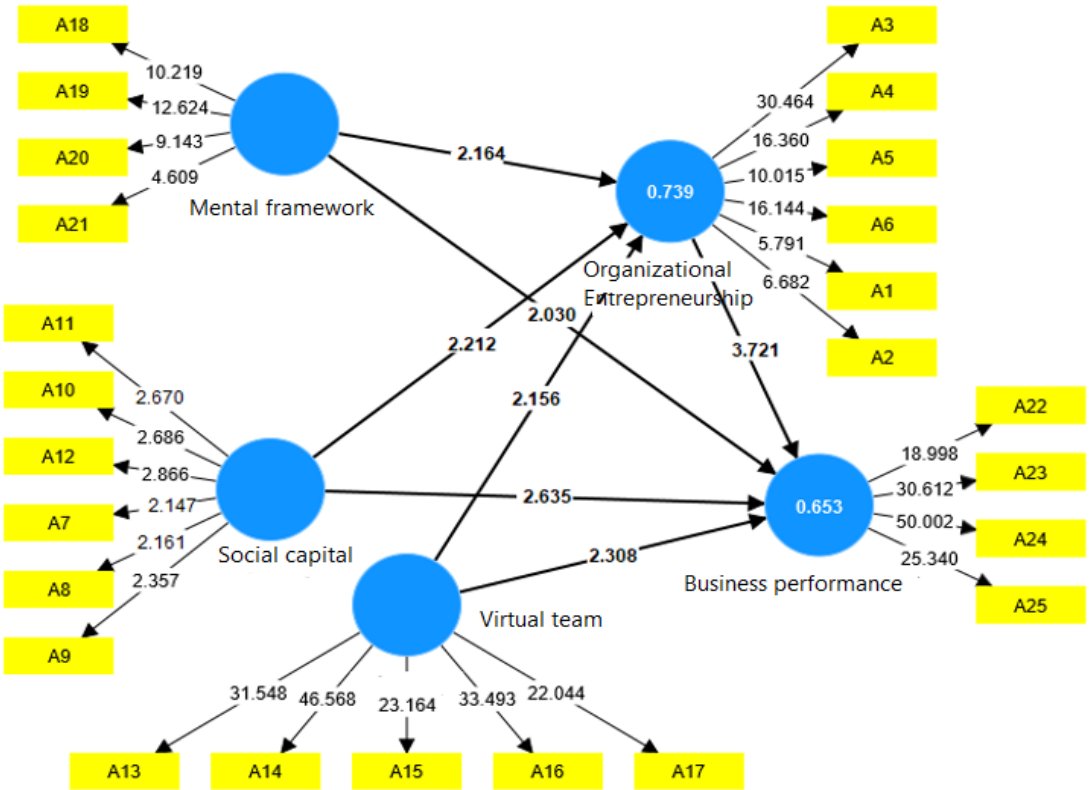

Fig. 1: t-statistic values

measurement models are fit and suitable. Several criteria have been applied to investigate the fit of the structural model of the research using the partial least squares method. The first and most fundamental criterion is the significance coefficients or the values of t-statistic. In order to confirm the fit of the structural model using t-coefficients, the coefficients must be greater than 1.96 in order to confirm their significance at the 95% confidence level. Accordingly, Fig.1 shows that 7 out of 7 hypotheses have been confirmed, so the fit of the structural model in the present study is suitable and acceptable.

The second criterion for investigating the fit of the structural model in a study is the R^2 coefficients relevant to the endogenous hidden variables of the model (Samimi and Nouri, 2023). R^2 is a criterion that presents the influence of exogenous variables on an endogenous variable and three values of 0.19, 0.33 and 0.67 are considered for weak, medium and strong values of R^2.

This criterion is shown in the circles relevant to the structural model of the study, and in the case of the structural model of the present study, considering that there are three endogenous variables, the number inside another circle is naturally equal to zero. In the present study, the mentioned criterion for organizational entrepreneurship is 0.739 and the performance of printing and publishing businesses is 0.653, therefore the structural model from the view of this criterion has a suitable fit at a strong level. Fig. 2 indicates that the structural model has a suitable fit considering this criterion. In the present study, the general model including the measurement and structural sections was investigated, and when the fit was confirmed, it was also examined in a general model. The fit of general model was conducted using the GOF goodness of fit criterion and the value of 0.767 shows the accepted fit of the general research model. Sobel's test was used to investigate the mediating role of Organizational Entrepreneurship

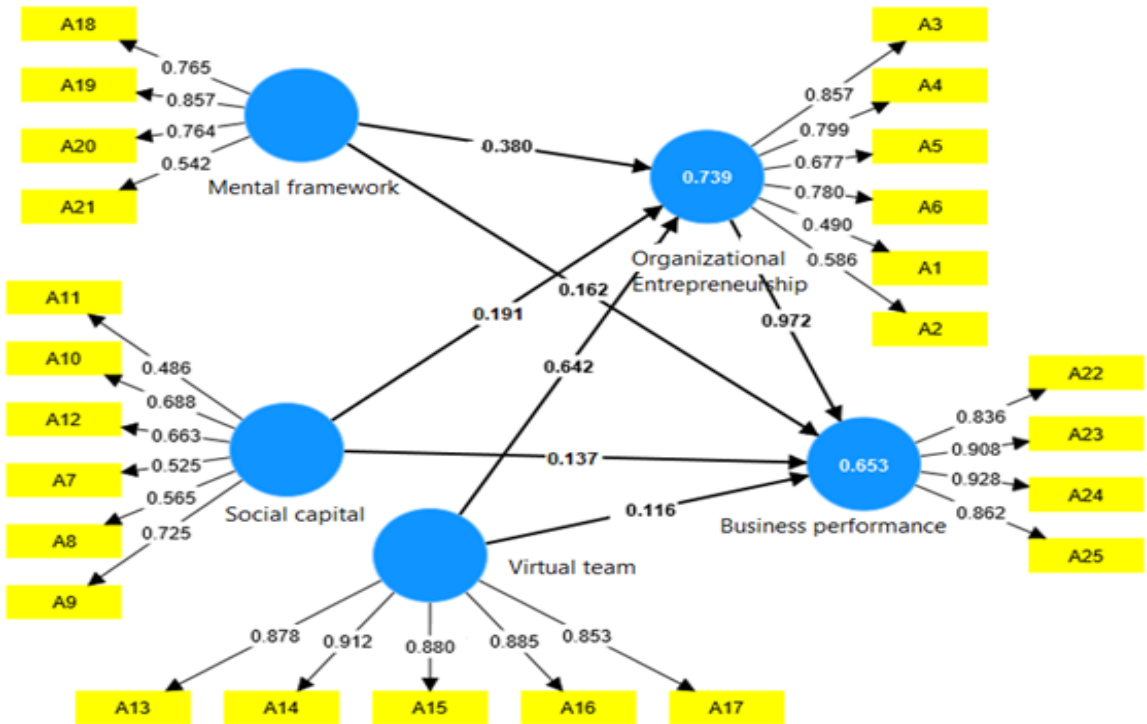

Fig. 2: The model in the state of standard factor loading coefficients

in businesses in the field of printing and publishing. The path coefficients and standard errors of the paths were investigated, and the Variance Accounted for (VAF) value was calculated to investigate the mediating effect of organizational entrepreneurship on printing and publishing businesses.

(a) The value of coefficient of independent and mediator variable=0.404

(b) The value of coefficient of dependent and mediator variable=0.972

(c) The value of coefficient of dependent and independent variable=0.138

(Sa) The standard error of the independent and mediator variable=0.078

(Sb) The standard error of the dependent and mediator variable=0.069

VAF= (a×b) / (a×b) +c

The value of 4.861 achieved in this test, is more than the base value of 1.96 showing the role of mediator for the construct of organizational entrepreneurship. The VAF statistic shows that the mediation value of organizational entrepreneurship is 0.739 meaning that the mediation effect is slight. According to the results, the fit of the model is confirmed in both sections of measurement and structure.

Hypotheses test

In this stage, the t-statistic was applied to check the assumed relationships between the variables. Seven sub-hypotheses were used to measure the main hypothesis, and based on the Table 4: T-coefficients relevant to seven existing relationships have been confirmed. The standardized factor loading coefficients related to the paths of each of the hypotheses have been investigated to determine the impact of the predictor variables on the dependent variables. These coefficients show what percentage of the changes in the dependent variables are described by the independent variables.

Considering the analysis of the hypotheses, the results showed that according to the first hypothesis i.e. the mental framework has a positive

Table 4. T-statistics and research impact coefficients

Path	t-statistics	Impact coefficient	test
Mental framework -performance of printing and publishing businesses	2.030	0.162	confirmed
Mental framework - organizational entrepreneurship-performance of printing and publishing businesses	2.164	0.380	confirmed
Social capital- performance of printing and publishing businesses	2.635	0.137	confirmed
Social capital- organizational entrepreneurship-performance of printing and publishing businesses	2.212	0.191	confirmed
Virtual teams-performance of printing and publishing businesses	2.308	0.116	confirmed
Virtual teams- organizational entrepreneurship-performance of printing and publishing businesses	2.158	0.642	confirmed
Organizational entrepreneurship-performance of printing and publishing businesses	3.721	0.972	confirmed

effect on the performance of printing and publishing businesses, it can be stated that digital leadership with regard to the requirements and motivation of employees and enhancing personal and group needs provides new opportunities for the organization (Hensellek, 2020). Digital leadership uses motivational instruments to move the organization towards digitization and improve business performance by applying technology. Digital leadership anticipates environmental changes, and in order to achieve success in a more dynamic environment, changing the leadership process is essential. By confirming the second hypothesis i.e. the mental framework has a positive effect on the performance of printing and publishing businesses through the mediation role of organizational entrepreneurship, it can be concluded that digitalization requires decision makers who have a digital mental framework to be able to recognize and evaluate digital the opportunities and challenges associated with transformation of digital in time and properly (Hensellek, 2020). Accordingly, the presence of leaders who manage the organizational strategy, describe the culture and express an evident vision and plan for their employees is an undeniable necessity (Meffert and Swaminathan, 2018). Furthermore, it is clear that the digital environment of business is basically different from its traditional form. Businesses manage to achieve digital maturity if they recognize differences and seek to make changes on how to learn and lead in order to adapt and perform better in a rapidly changing world (Kane *et al*., 2018). Thus, the digital leader, due to their role which is formed by the necessity of environments established by transformative technologies, apply an appropriate combination of resources and leadership skills and media and digital capabilities to develop compatibility between the strategy of Information technology and business strategy in order to turn the uncertainty caused by the technology into opportunity and finally turn the digital opportunities into reality. Therefore, the survival and development of industries in the age of digital transformation depends upon this issue. According to the third hypothesis i.e. social capital has a positive effect on the performance of printing and publishing businesses, it can be stated that social capital promotes organizational performance by providing the possibility of access to key resources and information (Johnson *et al*., 2013). Also, social capital can influence the efficiency of organizations by knowledge sharing and innovation (Tsai and Ghoshal, 1998). Structural social capital facilitates access to various sides to transfer and share knowledge and improves the opportunity for exchange knowledge (Ansari *et al*., 2012). It also enables people to contact their peers for sharing knowledge and expertise (Andrews, 2010). Relational social capital is known as the most emotional component of social capital and it determines networks in respect of shared norms, interpersonal trust, and relationships with other people (Cabrera and Cabrera, 2005). This aspect of social capital is directed to the quality and nature of relationships and it can be established through history of interaction with one another or others (Lefebvre *et al*., 2016) and in several behavioral traits including commitments, trust, shared norms

and group identification (Davenport and Daellenbach, 2011). Therefore, digital environments are established by trust, which can be reached through knowledge sharing and transactional behavior (Ridings *et al*., 2002). Finally, the third component is cognitive social capital, which includes the values, prospect, and shared objectives of the organization's members. Social cognitive capital includes resources that provide systems of meaning, interpretations, and shared representations between parties (Nahapiet and Ghoshal, 1998). It is a common code and language that displays the principal components of communication (Gooderham, 2007). Nahapiet and Ghoshal (1998) have connected social cognitive capital to shared narratives and shared language, while other authors have described it through shared culture, shared prospect, and shared goals. These three dimensions of social capital perform a significant function in the entrepreneurship development of any organization (Ganguly *et al*., 2019) and this innovative potential eventually indicates the enhancement and development of organizational performance (Sheen and Yang, 2018). Researchers state that less developed economies are dependent upon industrialized economies for smart digital technologies (Shamim *et al*., 2019). Khan *et al*. (2019) also asserted that companies in less developed economies seek knowledge and support from external sources. Social capital is one of the most established instruments in this regard in respect of knowledge extraction. Social capital influences the dynamics of the organization's performance and enhances the application of knowledge for the organization's entrepreneurship. According to the fourth hypothesis i.e. social capital has a positive effect on the performance of printing and publishing businesses through the mediation of organizational entrepreneurship, it can be stated that the globalization of markets provides opportunities for companies to collaborate in various activities. Such collaborations can be a source of social capital for companies to achieve sustainable competition. Social capital can enhance production performance (Ul zia *et al*., 2022; Escobar *et al*., 2023). Social capital has a close relationship with the level at which people share information and other resources provided in the network of relationships (Wang and Ho, 2017). Furthermore, it is possible to prompt resources in the organizational structure to accept and improve new technology (Parellada *et al*., 2011). Social capital performs an important function in organizational innovation and entrepreneurship (Sánchez *et al*., 2015). Social capital theory shows that socialization is an essential and vital requirement for valuable resources. Moreover, researchers suggest that all relationships between organization members and external actors are necessary for innovation, knowledge development, and information sharing, and subsequently may influence the organization's performance. The fifth hypothesis indicated that virtual teams have a positive effect on the performance of printing and publishing businesses. Therefore, virtual teams are new organizational structures that are becoming extensively developed, and knowledge-based organizations are exclusively focused on them due to the increasing dependence of large parts of the organization on information technology. The dependence and need for this type of teams is more required in research and development departments and in organizational structures with a dispersed feature (Mesmer-Magnus *et al*., 2011). When the prerequisites for the virtualization of activities are provided, team members can share information in various organizational structures and departments with no to face-to-face interaction. Employees can have an electronical collaboration with people from inside or outside their organization (Turel and Zhang, 2010). With multiple teams and employees participating in virtual activities in most organizations today, and with organizational processes existing in both virtual and traditional forms, teams can exhibit a degree of virtuality depending on the level of tool or information technology usage. Therefore, instead of examining virtual teams, the degree of virtuality of teams should be examined. Furthermore, despite the widespread use of virtual teams, sound and logical insights into the characteristics and functions, processes and output variables of these teams are not satisfactory (Bierly *et al*., 2009). Due to the enhanced virtuality of teams and the decrease of face-to-face communication, one of the affected dimensions is the method and the amount of interaction. An

essential feature of teamwork is the interaction and communication of team members and such interactions are followed by many consequences. Accordingly, the researchers stated that working relationships based on trust reduce conflict and increase cooperation; therefore, when members have a temporary interaction (or they are members of dispersed and virtual teams), the type of their communication changes, and conflict and trust in the group, as well as the extent of their role on team cooperation will be different compared to when members have long-term interaction. The sixth hypothesis showed the positive effect of virtual teams on the performance of printing and publishing businesses through the mediation role of organizational entrepreneurship. Therefore, it can be stated that strategic digital leadership can enhance innovation in the organization. Due to the technological progress, organizations have experienced many changes in work structure and leadership. These significant changes have developed a large network of labor, objects, and computers and has made everything connectable (Harto *et al*., 2022; Tajpour *et al*., 2023). Analysis achieved from large data saved in digitally enabled organizations in the literature has indicated that, during global crises (combating the covid-19 pandemic), when employees worked from home in virtual teams, leaders were compelled to express different behaviors and reactions regarding the issue of digital and observe it through the eyes of organizational innovation. The process of these changes is expected to change direction (Avidov-Ungar *et al*., 2022). The seventh hypothesis showed that organizational entrepreneurship has a positive effect on the performance of printing and publishing businesses. Therefore, it can be said that today, countries that tend to value economic and social development and support the development of a work environment based on knowledge technology, has increased their success to a remarkable rate. The world is now moving towards an entrepreneurial economy and development. Entrepreneurs become heroes in economic and commercial development. Entrepreneurship is described as a multidimensional phenomenon that consists of profitable opportunities, risky person, etc. Entrepreneurship is a dynamic process of creating wealth and value in the society, which is earned by the understanding and suitable placement of resources and skills, and it includes personal, management, and technical skills of the entrepreneur.

CONCLUSION

Several components such as considering the advancement and development of personal aspects including looking to the future in life, personal independence in decision-making, etc. can be the foundation for the development of entrepreneurial skills that should be taken into consideration. Access to information sources, using public knowledge, improving information system to achieve information and technical knowledge on entrepreneurship are known as significant and influential topics on the development of entrepreneurial skills that can result in the optimization of the company's performance. It is also known as the process of identifying sources, recognizing, attaining and creating value from opportunities. Furthermore, entrepreneurial firms that are described by risk-taking, innovation and pioneering are more inclined to adapt their business and develop the essential capabilities to meet crucial requirements. At the level of supply chain, entrepreneurial orientation can enhance the efficiency of knowledge achievement to develop quality and strategies of efficiency. There are many obstacles and limitations in companies to advance towards entrepreneurship, while a number of these obstacles are unpredicted and they are considered as a consequence and feedback resulted from the use of traditional management. Organizations require suitable environmental and cultural conditions and an organizational entrepreneurship environment to motivate new ideas and experimental efforts, eliminate the restrictions of using opportunities and provide the necessary resources. It was also concluded that the variables of mental framework, social capital and virtual teams as well as the existence of organizational entrepreneurship as a mediating variable encourage digital leadership to pay attention to the needs and motivation of employees and meet personal and group needs and provide new opportunities for publishing businesses in order to identify effective methods for a better performance. A digital leader entirely transforms the business operations and then

improves the performance of the businesses in the relevant area by applying technology in all aspects of the business.

Research suggestions

According to what mentioned in the present study, the businesses in the industry of printing and publishing are possibly suggested to:

1. Managers in companies should seek to facilitate collaboration with foreign business partners to develop their social capital.

2. Managers should provide opportunities for employees to have a frequent interaction with each other and authorize employees to acquire valuable information, resources, and knowledge, particularly tacit knowledge that is hard to analyze.

3. Managers are suggested to develop and maintain trust with their business partners, so knowledge can be shared in business transactions without formal contracts.

AUTHOR CONTRIBUTIONS

A. Arabiun, M. Tajpour and M.R. Zahedi performed the conceptualization and literature review, manuscript preparation and editing references. M. Tajpour and M.R. Zahedi performed the Methodology, compiled the data, analyzed and prepared the manuscript text.

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CONFLICT OF INTEREST

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

ABBREVIATIONS (NOMENCLATURE)

AVE	average variance extracted
R^2	coefficient of determination
Q2	Predictive Relevance
GOF	The Goodness of Fit
SRMR	Standardized Root Mean Residual
NFI	Normed Fit Index
VAF	variance accounted for

REFERENCES

Al-Kurdi, O.F.; El-Haddadeh, R.; Eldabi, T., (2020). The role of organizational climate in managing knowledge sharing among academics in higher education. Int. J. Inf. Manage., 50: 217-227 **(11 pages).**

Andrews, R., (2010). Organizational social capital, structure and perform. Hum, Rel., 63(5): 583-608 **(26 pages).**

Ansari, S.; Munir, K.; Gregg, T., (2012). Impact at the 'bottom of the pyramid': The role of social capital in capability development and community empowerment. J. Manage. Stud., 49(4): 813-842 **(30 pages).**

Avidov-Ungar, O.; Shamir-Inbal, T.; Blau, I., (2022). Typology of digital leadership roles tasked with integrating new technologies into teaching: Insights from metaphor analysis. J. Res. Technol. Educ., 54(1): 92-107 **(16 pages).**

Bierly, P.E.; Stark, E.M.; Kessler, E.H., (2009). The moderating effects of virtuality on the antecedents and outcome of NPD team trust. J. Prod. Innov. Manage., 26(5): 551-565 **(15 pages).**

Cabrera, E.F.; Cabrera, A., (2005). Fostering knowledge sharing through people management practices. Int. J. Hum. Res. Manage., 16(5): 720-735 **(16 pages).**

Davenport, S.; Daellenbach, U., (2011). Belonging to a virtual research centre: exploring the influence of social capital formation processes on member identification in a virtual organization. Brit. J. Manage., 22(1): 54-76 **(23 pages).**

Della Corte, V.; Del Gaudio, G.; Sepe, F., (2019). Leadership in the digital realm: What are the main challenges. Digital Leadership-A New Leadership Style for the 21st Century.

Escobar, A.; Luna, J.; Caraballo, A., (2023). Barriers to sustainable green innovation to meet the challenges in the firms' global economy. Global J. Environ. Sci. Manage., 9(SI): 219-232 **(14 pages).**

Ganguly, A.; Talukdar, A.; Chatterjee, D., (2019). Evaluating the role of social capital, tacit knowledge sharing, knowledge quality and reciprocity in determining innovation capability of an organization. J. Knowl. Manage., 23(6):1105-1135 **(31 pages).**

Gooderham, P.N., (2007). Enhancing knowledge transfer in multinational corporations: a dynamic capabilities driven model. Knowl. Manage. Res. Practice., 5: 34-43 **(10 pages).**

Harto, B.; Wibowo, L.A.; Yuniarsih, T., (2022). Bibliometric analysis of strategic digital leadership to boost innovation in organization. In 6th Global Conference on Business, Management, and Entrepreneurship, 429-435 (**7 pages).**

Hensellek, S., (2020). Digital leadership: A framework for successful leadership in the digital age. J. Media Manage. Entrepr., 2(1): 55-69 **(15 pages).**

Hosseini, E.; Tajpour, M.; Lashkarbooluki, M., (2020). The impact of entrepreneurial skills on manager's job performance. Int. J. Hum. Capital Urban Manage., 5(4): 361-372 **(12 pages)**.

Johnson, S.G.; Schnatterly, K.; Hill, A.D., (2013). Board composition beyond independence: Social capital, human capital, and demographics. J. Manage., 39(1): 232-262 **(31 pages).**

Kane, G.C.; Palmer, D.; Phillips, A.N.; Kiron, D.; Buckley, N., (2018). Coming of age digitally. MIT. Sloan. Manage. Rev.

Khan, Z.; Lew, Y.K.; Marinova, S., (2019). Exploitative and exploratory innovations in emerging economies: The role of realized absorptive capacity and learning intent. Int. Bus. Rev., 28(3): 499-512 **(14 pages).**

Kolasa, K., (2023). The digital transformation of the healthcare system*:* healthcare 5.0. Routledge.

Lefebvre, V.M.; Sorenson, D.; Henchion, M.; Gellynck, X., (2016). Social capital and knowledge sharing performance of learning networks. Int. J. Inf. Manage., 36(4): 570-579 **(10 pages).**

Maxwell, J.C., (2021), The irrefutable laws of leadership: follow them and people will follow, Thomas Nelson Publishers, Nashville, TN.

McAdam, M., (2022). Women's entrepreneurship. Taylor & Francis.

Meffert, J.; Swaminathan, A., (2018). Leadership and the urgency for digital transformation. Leader. Leader., (88): 44-49 **(6 pages).**

Mesmer-Magnus, J.R.; DeChurch, L.A.; Jimenez-Rodriguez, M.; Wildman, J.; Shuffler, M., (2011). A meta-analytic investigation of virtuality and information sharing in teams. Organ. Behar. Hum. Decis. Process., 115(2): 214-225 **(12 pages).**

Mobarki, M; Ziyae, B; Rezvani, M; Tajpour, M., (2021). Conceptual model of internationalization of the entrepreneurial university with an interpretive structural modeling approach. J. Res. Manage. Teach. Marine Sci., 8(4): 186-209 (**24 pages**).

Nahapiet, J.; Ghoshal, S., (1998). Social capital, intellectual capital, and the organizational advantage. Acad. Manage. Rev., 23(2): 242-266 **(25 pages).**

Parellada, F.S.; Soriano, D.R.; Huarng, K.H., (2011). An overview of the service industries' future (priorities: linking past and future). Serv. Ind. J., 31(1): 1-6 **(6 pages).**

Rainer, R.K.; Prince, B., (2022). Introduction to information systems: Supporting and transforming business. John Wiley Sons.

Ramdani, B.; Raja, S.; Kayumova, M., (2022). Digital innovation in SMEs: a systematic review, synthesis and research agenda. Inf. Technol. Dev., 28(1): 56-80 **(25 pages).**

Ridings, C.M.; Gefen, D.; Arinze, B., (2002). Some antecedents and effects of trust in virtual communities. J. Strateg. Inf. Syst., 11(3-4): 271-295 **(25 pages).**

Samimi, M.; Nouri, J., (2023). Optimized Zinc Uptake from the Aquatic Environment Using Biomass Derived from Lantana Camara L. Stem, Pollution, 9(4).

Sánchez, A.A.; Marín, G. S.; Morales, A. M., (2015). The mediating effect of strategic human resource practices on knowledge management and firm performance. Revista Europea de Dirección y Economía de la Empresa., 24(3): 138-148 **(11 pages).**

Shamim, S.; Zeng, J.; Shariq, S. M.; Khan, Z., (2019). Role of big data management in enhancing big data decision-making capability and quality among Chinese firms: A dynamic capabilities view. Inf. Manage., 56(6): 103135 **(1 page).**

Sheen, D.P.; Yang, Y., (2018). Assessment of readiness for smart manufacturing and innovation in Korea. In 2018 IEEE Techno and Engine Management Conference, 1-5 **(5 pages)**.

Smith, C.; Smith, J.B.; Shaw, E., (2017). Embracing digital networks: Entrepreneurs' social capital online. J. Bus. Venturing. 32(1): 18-34 **(17pages).**

Tajpour, M.; Razavi, S.M., (2023). The effect of team performance on the internationalization of Digital Startups: The mediating role of entrepreneurship. Int. J. Hum. Capital. Urban Manage., 8(1): 17-30 **(14 pages)**.

Tajpour, M.; Hosseini, E.; Ratten, V.; Bahman-Zangi, B.; Soleymanian, S.M., (2023). The role of entrepreneurial thinking mediated by social media on the sustainability of small and medium-sized enterprises in Iran. Sustainability, 15(5): 1-26 **(26 pages).**

Tajpour, M.; Farsi, J.Y.; Mohsen, B., (2023). A review of corporate social responsibility literature and future directions. Expl. Bus. Ecosystem. Innov. Capacity Build. Glob. Econ., 48-65 **(18 pages).**

Tsai, W.; Ghoshal, S., (1998). Social capital and value creation: The role of intrafirm networks. Acad. Manage. J., 41(4): 464-476 **(13 pages).**

Turel, O.; Zhang, Y., (2010). Does virtual team composition matter? Trait and problem-solving configuration effects on team performance. Behav. Inf. Technol. 29(4): 363-375 **(13 pages).**

Ul zia, N.; Burita, L.; Yang, Y., (2023). Inter-organizational social capital of firms in developing economies and industry 4.0 readiness: the role of innovative capability and absorptive capacity. Rev. Manage. Sci., 17(2): 661-682 **(22 pages).**

Vayrynen, H.; Helander, N.; Jalonen, H., (2023). Public innovation and digital transformation. Taylor and Francis, **P.210**.

Vicere, A.A.; Fulmer, R. M., (2021). Leadership by design. Boston, MA: Harvard Business School.

Wang, Y.B.; Ho, C.W., (2017). No money? No problem! The value of sustainability: Social capital drives the relationship among customer identification and citizenship behavior in sharing economy. Sustainability. 9(8): 1400 **(1 page).**

Warner, K.S.; Wager, M., (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. Long. Range Plan., 52(3): 326-349 **(24 pages).**

Westerman, G.; Bonnet, D.; McAfee, A., (2014). Leading digital: Turning technology into business transformation.

Harvard Bus. Pr.
Yunus, E.N.; Ernawati, E., (2018). Productivity paradox? The impact of office redesign on employee productivity. Int. J. Prod. Perform. Manage., 67(9): 1918-1939 **(22 pages).**
Ziyae, B.; Rezvani, M.; Mobarki, M.H.; Tajpour, M., (2019). Internationalization pattern of University with an Entrepreneurial Approach. J. Ent. Dev., 12(2): 301-320 **(19 pages). (In Persian)**

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