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THE IMPACT OF DIGITAL LEADERSHIP ON INNOVATIVENESS IN SMALL AND MEDIUM-SIZED ENTERPRISES

ABSTRACT

This study aims to reveal the factors that determine the innovation management capability of enterprises in order to determine why innovation applications are needed in the digital age, how businesses manage their innovation applications, and what kind of recommendations and solutions the innovation applications made in the global competitive environment offer businesses.

The aim of the research is to investigate whether digital leadership practice and innovation capacity influence innovative performance and if so, what is its degree. This study includes studies and statistical values on digital leadership, innovation capacity and innovative performance perceptions. When the literature studies are reviewed, it is seen that no studies have been conducted in SMEs on the "Effect of the Relationship between Digital Leadership Application and Innovation Capacity on Innovative Performance".

Keywords: Digital Leadership, İnnovation, İnnovation Capacity.

1. INTRODUCTION

The aim of the research is to investigate whether digital leadership practice and innovation capacity influence innovative performance and if so, what is its degree. This study includes studies and statistical values on digital leadership, innovation capacity and innovative performance perceptions. When the literature studies are reviewed, it is seen that no studies have been conducted in SMEs on the "Effect of the Relationship Betwen Digital Leadership Application and Innovation Capacity on Innovative Performance".

Turkey, Istanbul was carried out with the participation of people who are not working executives and managers in SMEs in general. If it is understood that the relationship between digital leadership practice and innovation capacity has an impact on innovative performance, employees in SMEs will consider the importance of digital leadership and innovation capacity structure in order to effectively manage their individual performance. Thus, it will give a deeper perspective to performance management applications.

To date, research by scientists in various disciplines has contributed to an understanding of leadership in the digital age. These contributions range from theoretical and practical to methodological advances in tools for studying leadership. Studies in management and applied psychology have examined in detail how various forms of leadership facilitate group performance in terms of different types of digital media, how mistakes in performance evaluations affect the progress of female leaders, and how original research in political science affects politicians followers. However, studies have shown that various aspects of leadership are not sufficiently understood as a phenomenon.

2. DIGITAL LEADERSHIP and ITS IMPORTANCE

Leaders are people who direct the community they live in, motivate people with their work, and make great contributions by encouraging society to reach its goals. The drive to obtain power generally manifests itself in two ways in society. People either become leaders or follow the leader. According to, Akdemir, Konakay and Demirkaya (2014: 21), "Leadership can be simply expressed as the ability to influence a group of people to achieve a goal." While those who have power in the society are positioned as the leader, those who do not feel strong will follow the power owner in order to be close to this power and to provide a sense of trust. According to Şimşeker and Ünsar (2008: 1031), "Managers can rely on their past technical experience and local success, but when it comes to leadership required by global conditions, this is a very different situation."

Leadership is defined as a process of social influence, in which the leader seeks the voluntary participation of subordinates in activities to achieve organizational goals; or as a process of influencing group activities, which is aimed at achieving goals. Leadership is also defined as the specific actions of the leader to coordinate and manage the activities of the group. The phenomenon of leadership is rooted in the very nature of man and society. Phenomena, in many ways similar to leadership, are found in the environment of animals leading a collective, herd lifestyle. The strongest, intelligent enough, stubborn, and decisive individual always stands out here - the leader who leads the herd (flock) in accordance with his unwritten laws, which are dictated by the relationship with the environment and are biologically programmed (Pittaway, Carmouche & Chell, 1998:410).

Leadership has a strong personality basis. Therefore, his first researchers analyzed the personal qualities of leaders who have achieved outstanding success, or leaders who did not occupy a certain position but had a significant impact on large groups of people. Analysis of the role of personality in history can be considered the starting point of the study of leadership. The most important task here is to find out the list and the optimal combination of personal qualities that provide effective leadership. Such qualities are appearance, general and special education, level of intelligence, professional experience. However, not all well-known leaders possessed these qualities equally. It is also important to consider the ratio of the personal qualities of the leader and other members of the group. For example, if there are several people in a group with a pronounced need for power, then conflicts are inevitable and leadership is unlikely to be effective (Çelik & Şimşek, 2015:5)

The leadership approaches that have emerged according to the work of different people or institutions in different periods are summarized in Table 1.

Table 1: Leadership Approaches and Scopes

Scope of Leadership	Approaches
Features Approach	Big Men - Traits Approach
Behavioral Approach	Ohio State University Studies, The University of Michigan Studies, Blake and Mouton's Managerial Grid Model, Mc Gregor's X and Y Theories
Situational Approach	Fiedler's Contingency Approach, Hersey and Blanchard's Situational Leadership Approach, House's Road Purpose Approach, Vroom and Yetton's Decision Making Model
New approaches	Charismatic leadership Interactive Leadership Transformational Leadership

Sources: Balcı, 2009

A lot of scientific research has been done on the concept of leadership and approaches have been developed. Although many different leadership theories have emerged, historically they can be classified under eight headings. Among these titles, the Great Man Theory, which was introduced in the first half of the 1900s, the Traits Theory that developed after it, Behavioral Theories and Contingency Theories are the leading theories. Recently, studies on New Approaches are continuing by considering additional variables.

The digital economy is at the heart of development in general and has an impact on industries as diverse as banking, retail, transportation, energy, education, healthcare and many others. Digital technologies such as the Internet of Things (IoT), big data, the use of mobile devices and devices are transforming the ways of social interaction, economic relations, and institutions. New ways of cooperation and

coordination of economic agents are emerging for the joint solution of certain problems (sharing economy) (Bennis, 2013:635)

Although the role of the influence of digital technologies on the transformation of socio-economic systems is quite obvious, many issues remain poorly understood. Insufficient attention is paid to the development of digital potential in order to achieve the innovative growth of individual firms and industries, the institutional aspects of the digital economy remain without due attention, the problems and prospects of business development in the formation of the digital economy are poorly covered, the place of the digital economy in the general system of modern economic relations. Therefore, the purpose of this work is to consider the main aspects of the development of the digital economy and to formulate judgments about its role in the general system of economic relations (Bennis, 2013:635).

Leading in the digital age is much more difficult and complex than leading a world where there are no opportunities, no technology. Leadership until the last century; While it is a concept based on power and military intelligence, today leadership is almost never associated with physical power. It is obvious that 20 years from now, there will be no relationship between leadership and physical power. In the future, leaders will only be able to survive with their intelligence, strategies and moves, and they will drag their masses in this way (Prentice, 2013:7). As stated above, being able to lead in the digital age will be much more difficult than in the past and even more difficult today. Even in recent years, when technology and digitalization have just spread around the world, developments and changes have started to make leadership and management phenomena difficult and complex (Bennis, 2013:635). For the audience, handling too many variables at the same time and dealing with these factors one by one makes the job of a leader difficult and burdened.

People who will lead in the digital age cannot exhibit sufficient leadership behaviors with only their charisma, only knowledge, only vision, as they were before. In a globalizing world order where the breath of competition is always felt and the economic and political conjuncture changes from moment to moment, the leaders of the new age should have many of the following characteristics (Toduk & Gande, 2016:2):

- To be able to evaluate from different points of view.
- Being future oriented
- Have a vision.
- Have the ability to encourage people.
- To have the ability to perceive and solve problems.
- Have the ability to empathize.
- To maintain management by trying new approaches
- To adopt a philosophy of continuous learning
- Making it easier for people to do their jobs.
- Searching for opportunities and providing opportunities to people • Inspire both with their behavior and their speech.
- To motivate people
- Providing innovation and being an entrepreneur
- Having digital skills
- To abandon standard practices and methods when necessary
- To have a strong business network
- To be able to create strong collaborations.
- Acting with passion
- Keeping the business going and being carried out - as a silent leader - without talking too much.

- To be able to actively use social media tools and to be able to intervene by learning the negativities especially about the institution on time.
- Have at least basic level if possible intermediate digital skills
- Having strong communication skills
- To be able to acquire and manage information.
- To be able to keep up with fast and continuous changes.
- To ensure sustainable change

It can be said that those who have most of these features and equipment have higher leadership potential in the digital age. Those who can adapt their characteristics and behaviors to the new age and step forward by improving their skills will be the people who are sought after and preferred in management levels in the digital age. Each of the above features does not have the same severity. In fact, these characteristics may differ according to different variables such as industry, organizational factors, and audience. However, some essential qualities must be possessed by a good leader, even if any distinction is made. Characteristics such as being entrepreneurial and innovative, possessing digital skills, having a strong vision and keeping the audience aware of this, pursuing innovation and establishing sustainable business relationships can be among the most important for the digital age.

As a result of digital transformation, human resources can be defined as the execution of human resources management tasks with internet technology. In other words, digital human resources are a digital process that involves the re-creation and implementation of relationships between businesses, suppliers, customers and service providers (Göktaş & Baysal, 2018: 1415). Six driving forces that make digital transformation necessary in human resources have been identified (Güler, 2006: 19): Information technology, re-planning and organizing the process, high-speed management, network organizations, information workers and globalization. The six drivers are also evolving towards human resource departments seeking to increase their own value while reducing costs at the same time.

Fundamental changes in the digital age are changing the profile of human resource management. Understanding Industry 4.0 and applying its benefits will make businesses sustainable in the digital age. The Fourth Industrial Revolution has brought risks, opportunities, and challenges with it. Risks can be seen as job losses and the widening of the gap between developed and developing economies. Opportunities can be listed as more efficient production systems and customized goods and services at low cost. The difficulties are that organizations must use internal processes for the transition to HR 4.0. This change leads to changes in education systems by taking the traditional recruitment, selection, evaluation and reward approach to a new business model based on collaborative learning and competence development. From this point of view, organizations are responsible for taking themselves into a socio-cyber technical perspective and offering creative solutions to the emerging human-machine interface (Liboni, Cezarino, Jabbour., Oliveira & Stefanelli, 2019: 137). Successfully adapting to the Industry 4.0 process will also enable adaptation to the quality of human resources (Aytar, 2019: 89). Digital human resources management or HR 4.0 should not be seen as the digitalized and automated form of traditional human resources management functions. Human resources management functions have been redesigned on the basis of the new digital business idea, with a focus on human and business efficiency. Digital transformation in human resources management has been realized on the basis of changing priorities, real-time processing of functions, use of social media, cloud technologies, automation and mobility. The use of artificial intelligence and automation has also increased the importance of technical skills that enable machines to be created, installed and maintained.

The World Economic Forum (2018: 12) identified competencies that could become a high priority for employers in 2022: analytical thinking and innovation, active learning and learning strategies, creativity and originality, technology design and programming, critical thinking and analysis, ability to solve complex tasks, leadership and social influence, problem solving and comprehension, system analysis and evaluation. Artificial intelligence and digital technologies are very important for HR 4.0. However, it is important not to lose a validated set of human values at this point. Despite the importance of digital transformation and technological developments, it is thought that people and human competencies will play a more important role in the long-term success of companies.

3. INNOVATION PROCESS IN ORGANIZATIONS

Innovation is a moving cycle from the birth of new information or entrepreneurial idea to its transfer to the production stage and presentation to customers Therefore, there are innovations that create social or economic value in the innovation phase. The models that explain the stages of innovation can be briefly mentioned as follows: It can be said that these models are handled in two classes in terms of their main boundaries (Aygören&Varnali, 2011: 8).

Innovation management is an independent area of economic science and professional activity aimed at creating and ensuring the achievement of innovative goals by any organizational structure through the expedient application of labor, material and financial resources. The concept of management has quickly and firmly entered today's Russian economic lexicon, being in its essence an analogy to the concept of management. It is widely used in relation to diverse socio-economic processes in enterprises operating in the current market conditions. Together with the principles, processes and methods of general management inherent in every enterprise in general, there are separate types of it that apply specific forms of management of various functional areas of the enterprise or types of economic activity. They are called functional management. For example, the management of production processes is the content of production management, financial processes - financial, investments - investment, personnel - personal management, etc. (Erkek, 2017: 15).

An innovative type of economic development is the logic of the development of an innovative company, which leads to a shift in the center of gravity from operational tactical planning and management to the strategic level, to the level of formation of a new type of management - innovative marketing. With a high activity of the external environment with its social and political conflicts and shocks, information and technological transformations, the behavior of the economic system and its structure-forming elements begin to acquire an increasingly probabilistic and unpredictable character. In these conditions, the survival of enterprises is directly dependent on the ability of managers and their ability to navigate in unexpected situations, to anticipate risk (Terzioğlu, Mehmet & Gökovali, 2008: 378) It retains various fragments of traditional principles but applies them to situational analysis. This allows the company to optimize its activities in the face of a continuous search for innovations, sources of capital and new markets. In such circumstances, the situation as a whole is determined by the interaction of the conditions of the internal and external environment. In innovative marketing, the methods, approaches and style of effective leadership change depending on the situation. Each stage of the innovation life cycle requires different methods and approaches, different marketing strategies and tactics. The system of innovative marketing measures is closely linked not only with production renewal systems but also with the dynamics of capital accumulation and overflow. The most important direction of marketing activities is the strategy and tactics of innovation penetration into the market, including the formation of a competitive innovation strategy based on the formation of sales channels and positioning of a new product. Positioning is a system for determining the place of innovation among the range of products already on the market. The aim of positioning is to strengthen the position of the innovation in the market. Positioning a new product means, first of all, competition between a new product and existing products. Positioning an innovation is defining its place among the existing ones. So, from the standpoint of a marketer, innovation can be understood as a qualitatively new product that has no analogs, new for a given company or a given market, and an imitation product that already has analogies in domestic or foreign practice, and a product with a new field of application. A product of fundamental novelty is distinguished from a product of market novelty, from a modifier product, from an applicant product, and from a substitute product, any innovation should be distinguished by its purpose from complementary, displacing, and displacing innovation. (Terzioğlu, A. G. M., Mehmet, A. V. C. I., & Gökovali, U. 2008: 378) This moment does not play a special role at the stage of production of innovation but becomes crucial when an innovation enters the market. Both the success of the innovation and the marketing strategy depend on this. Positioning affects a variety of marketing activities: sales, advertising, commodity, price, service, etc. The concept of innovative marketing provides not only the conquest of new customers but the optimal use of the company's competitive advantages, the multiplication of spheres of influence through diversification and expansion of the company's areas of activity, and expansion into new industries and new markets.

Innovation is reflected in all activities of the organization. It is seen that many different classifications are made regarding innovation according to the areas where it is applied and the impact it creates. While innovation is classified as radical and incremental innovation according to the degree of change and difference it creates, it is classified as product, service, process, marketing and organizational innovation

according to the application areas. Classifications regarding innovation are primarily handled over technical activities. The interaction of innovation with other fields of activity in the organization expands its classification around technical activities. In Table 3, Paul Tortt's innovation classification, which examines innovation types in a wide range, is included.

Table2. Types of Innovation

Types of Innovation	Scope of application
Product Innovation	New or existing product development (new generation mobile phones, android phones)
Process Innovation	Developing a new production process
Organizational Innovation	A new risk unit, a new internal communication system, new methods and practices regarding new accounting processes
Manufacturing Innovation	Quality circles, zero stock production system, new production planning system, new quality system
Commercial / Marketing Innovation	New financial regulations, new sales approach
Service Innovation	Internet-based financial service (internet banking, telephone banking)

Sources: Trott, 2017, 17.

In Table 2, it is seen that the types of innovation basically differ in product, process and organizational level. This classification includes product and service innovation that focuses on new or improved products and services. As seen in Table 2, innovation types; varies with production, marketing, and managerial processes. In this context, the types of innovation detailed by P. Trott are basically considered as the diversification of product and process innovations.

Organizational innovation is the implementation of a new method in running a business, organizing jobs, or organizing external relations. These innovations are aimed at increasing the efficiency of the organization by reducing administrative and transaction costs, increasing employee satisfaction with the organization of jobs (working hours) and thereby increasing labor productivity by gaining access to assets that are not on the market or reducing the cost of supplies. An organization does not have to be the first to implement these organizational innovations. It doesn't matter if the innovations were developed by your organization or other organizations. (Dr Steadman, Ms Robbins, and Mr Silver, Drs Mulvey and Roth, Dr Monahan, Drs Appelbaum and Grisso).

Organizational performance refers to a whole as a success indicator determined by different factors. Therefore, when the periodic or integrated performance of an organization is mentioned, it should be understood that all of the factors that contribute to the formation of this performance or affect it in some ways are expressed simultaneously. Organizational performance refers not to the organization as an abstract concept, but to the final outputs of the whole of material and human beings, which means much more than that.

Hagedoorn and Cloodt (2003), in their comprehensive study, the innovation performance indicators of business lines using advanced technology; R&D entries, patent numbers, patent references and new product announcements. On the other hand, emphasizes the importance of perceived innovation efficiency in this measurement. Although the innovation performance of an organization has been measured on the basis of quite a variety of factors, references to patents and patents and notifications of new products have been reported by many researchers. Therefore, it can be argued that indicators related to patents are the most important factors in measuring innovation performance (Calantone, R. J., Cavusgil, S. T., & Zhao, Y. 2002).

Innovation performance measurement is the interpretation of information obtained from inside and outside the organization. As a result of the innovation performance measurement, the organization determines the impact of the developments in its environment on the innovation activities in a timely manner. Innovation performance measurement covers all decisions that will achieve the goals of the organization and include activities in this direction. Determining and applying the correct metrics in performance measurement should be monitored systematically.

Innovation performance measurements of enterprises make it possible to show the outputs of the innovations that the business has already realized in order to generate new ideas. Senior executives of many businesses also put innovation performance as a prerequisite for the realization of the innovation activities planned. The innovation performance of businesses is affected by a number of factors. We can list these elements as the learning ability of the company, the capacity to grasp information, the human

resources policies it applies and the cooperation relationship it establishes with its external environment. Especially, the effect of cooperation with the personnel in its immediate outer environment on the innovation performance is considerable (Demirel, 2015: 67).

The dimensions that consider innovation as a process and measure the performance of this process vary considerably. The indicators that measure the performance of the innovation process determine the cost of the innovation project, the time spent to realize this project, and the extent to which the targets determined in advance and varying according to the project have been achieved. However, in the studies using these performance indicators, each innovation was considered as a separate project rather than measuring the performance of each stage of the innovation process, and these indicators were examined as a kind of "project evaluation dimensions" (Demirel, 2015: 69). The organizations' knowing the information they obtain from their environment and using this information effectively will reflect positively on their performance. Moilanen, Mstbye and Woll (2014) state that businesses with high innovation performance owe this situation to their high cognitive potential.

4. IMPACT OF DIGITAL LEADERSHIP ON INNOVATIVENESS IN THE SME

The aim of the research is to investigate whether digital leadership practice and innovation capacity influence innovative performance and if so, what is its degree. This study includes studies and statistical values on digital leadership, innovation capacity and innovative performance perceptions. When the literature studies are reviewed, it is seen that no studies have been conducted in SMEs on the "Effect of the Relationship Between Digital Leadership Application and Innovation Capacity on Innovative Performance". This work: Turkey, İstanbul was carried out with the participation of people who are not working executives and managers in SMEs in general. If it is understood that the relationship between digital leadership practice and innovation capacity has an impact on innovative performance, employees in SMEs will consider the importance of digital leadership and innovation capacity structure in order to effectively manage their individual performance. Thus, it will give a deeper perspective to performance management applications.

4.1. Questionnaire

The research was carried out in Istanbul, Turkey. Within the scope of the research the questions were prepared completely in digital environment and addressed to the participants using mail, WhatsApp and Facebook applications.

Turkey, Istanbul has participated in a total of 425 public and private sector employees to research conducted by employees. It was formed from 425 samples that have the ability to represent the population and the study was conducted on them. Employees are classified according to gender, age, education level and years of experience.

In the research, the digital leadership scale developed by Ulutaş and Arslan (2018) was used to measure the digital leadership perceptions of the participants (Ulutaş & Arslan, 2018:109-118).

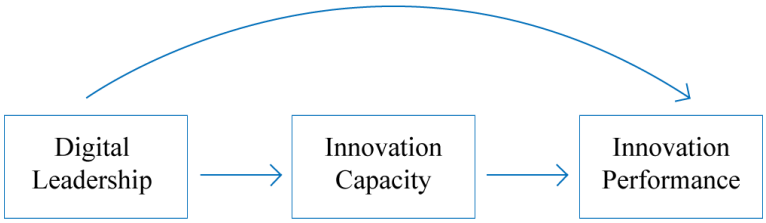
While creating the survey questions, the innovation performance was taken from Sabiha Cansu Atakan's master thesis titled "The Effect of Innovation Strategies on Innovation Performance and An Application" for innovation performance survey questions.

Innovation capacity is the most commonly used in the literature, Oura et al. It was developed on the basis of the scale developed by (2016). In this context, innovation capacity, "R&D Capacity (4 Questions)", "Marketing Capacity (5 Questions)", "Production Capacity (4 Questions)", "Learning Capacity (4 Questions)", "Management Capacity (5 Questions) “Resource Utilization Capacity (5 Questions)” and “Strategic Capacity (4 Questions)” (presented in Appendix 1) and consists of 31 questions.

4.2. Research Model and Hypotheses

As a result of the study, it was aimed to answer the following questions:

1. Does Digital Leadership Affect Innovation capacity?
2. Does digital leadership affect innovation performance?
3. Does innovation capacity affect innovation performance?



Hypothesis 1: There is a relationship between digital leadership and innovation capacity.

Hypothesis 2: There is a relationship between digital leadership and innovation performance.

Hypothesis 3: There is a relationship between Innovation capacity and innovation performance.

4.3. Data Collection Method

The quantitative data collection method, one of the data collection techniques, was used in the research. A sample mass consisting of employees of the same institutions in corporated companies operating in the province of Istanbul was selected over the Internet and digital survey questions were sent to them. The number of collected questionnaires is 445. The research was carried out between 10 April-24 May 2021.

20 of the collected questionnaires were incorrect or incomplete, so they were excluded from the study. As a result, 425 questionnaires were considered suitable for analysis. After the data collection phase was over, the data were analyzed with the İBM SPSS 25.0 package program.

4.4. Demographic Characteristics of Participants

As seen in Table 3, according to the gender distribution of the participants, 190 (44.6%) of the 425 participants were female and 235(55.3%), were male.

Table3: Gender Distribution

Gender	Frequency	Percent	Valid Percent
Male	235	55.3	55.3
Female	190	44.7	44.7
Total	425	100.00	100.00

Age information was asked in the form of a categorical question and the researcher collected them in 7 groups up to 24 years old, 25-29, 30-34, 35-39, 40-44, 45-49, over 50 years old. According to Table 4, 93 people are up to 24 years old, 94 people 25-29, 70 people 30-34, 63 people 35-39, 33 people 40-44, 33 people 45-49, 39 people 50 and over. The highest distribution in this group is in the 25-29 age group with 22.1%.

Table 4: Age Distribution

Age	Frequency	Percent	Valid Percent
24 and younger	93	21.9	21.9
25-29	94	22.1	22.1
30-34	70	16.5	16.5
35-39	63	14.8	14.8
40-44	33	7.8	7.8
45-49	33	7.8	7.8
50 and above	39	9.2	9.2
Total	425	100.00	100.00

Education level information was asked in 4 groups, including high school, undergraduate, graduate, and Ph.D and the results are shown in Table 5. According to the participants, the groups consist of 75 (17.6%) graduates, 173 (40.7%) undergraduate graduates, 131 (30.8%) graduate graduates, and 46 (10.8%) Ph.D.

Table 5: Education Level Distribution

Education level	Frequency	Percent	Valid Percent
High school	75	17.6	17.6
Bachelor	173	40.7	40.7
Master	131	30.8	30.8
PhD	46	10.8	10.8
Total	425	100.0	100.0

The years of experience of participants asked in 5 groups and the results are shown in Table 6. Groups according to the level of experience of the employees 105 (24.7%) people 0-1 years, 104 (24.5%) 2-5 years, 140 (32.9%) 6-10 years, 34 (8.0%) people 11-20 years and 42 people (9.9% is over 20 years.

Table 6: Experience Level Distribution

Years of experience	Frequency	Percent	Valid Percent
0-1 years	105	24.7	24.7
2-5 years	104	24.5	24.5
6-10 years	140	32.9	32.9
11-20 years	34	8.0	8.0
over 20 years	42	9.9	9.9
total	425	100.0	100.0

4.5. Mean and Standard Deviation Values of the Scales Used in the Study

The digital leadership scale used in the research consists of 17 questions, Innovation Performance consists of 10 statements, and Innovation Capacity consists of 31 questions. The mean and standard deviation values of all scales are given in Table 7, Table 8, and Table 9. According to Table 8, it can be said that the DL6 expression has the lowest average (3.096) and the Dl3 expression has the highest average (4.073) in the digital leadership scale.

Table 7: Mean and Std. Deviation of Digital Leadership scale

	ITEMS OF THE SCALE	mean	Std. Deviation
DL1	My manager at the institution; raises the awareness ofthe employees of the institution about the risks of information technologies.	3.661	1.153
DL2	My manager at the institution; makes use of information technologies in communication with social actors (NGOs, trade associations, etc.).	3,598	1,207
DL3	My manager at the institution; uses different tools (Computer, internet, mobile media, etc.) to accessinformation.	4,073	1.121
DL4	My manager at the institution; raises the awareness ofthose around about technologies that can be used to improve organizational processes.	3,513	1,194
DL5	My manager at the institution; Introduces the institutionwhere he works in a virtual environment (social media, website, etc.)	3.762	1.278
DL6	My manager at the institution; is in an effort to create information infrastructures such as technological tools and library facilities that can be used by everyone in itsinstitution.	3,096	1,245
DL7	My manager at the institution; determines the ethical behaviours required for informatics applications togetherwith all its.	3.358	1,183
DL8	My manager at the institution; makes use of information technologies in meetings held.	3.659	1.218
DL9	My manager at the institution; uses information technologies actively in management.	3.798	1.231
DL10	My manager at the institution; takes an informative role to reduce the resistance to the innovations brought byinformation technologies.	3.421	1,245
DL11	My manager at the institution; attaches importance to research and development activities related toinformation technologies.	3,722	1.203
DL12	My manager at the institution; shares their own experiences on technological opportunities that will increase the contribution of colleagues to the learningorganization structure.	3.678	1.222
DL13	My manager at the institution; makes use of information technologies to develop internationalrelations.	3,581	1,260
DL14	My manager at the institution; closely follows developments in the field of informatics.	3,567	1,240
DL15	My manager at the institution; provides guidance on technological tools that the employees of the institutioncan utilize to increase participation in the corporate vision.	3.442	1,170
DL16	My manager at the institution; pioneers the use of information technologies in the establishment ofcorporate communication networks	3.704	1,235
DL17	My manager at the institution; organizes educational activities related to informatics in the process ofobtaining information.	3.624	1,277

(Sample (n): 425 (1) Strongly Disagree … (5) Strongly Agree)

According to Table 8, it can be said that IC30 expression has the lowest average (3,280) and IC12 expression has the highest average (3,885) in the innovation capacity scale.

Table 8: Mean and Std. Deviation of Innovation Capacity

	ITEMS OF THE SCALE	mean	Std. Deviation
IC1	Our company develops technologies by investing in R&D.	3.388	1,204
IC2	Our company acquires new technologies	3,569	1,281
IC3	Our company is recognized for its technologically superior products	3.798	1,162
IC4	Our company employs some of the most qualified industry experts in the country in product development.	3.421	1,273
IC5	Our company can segment and target specific markets.	3.856	1.268
IC6	Our company uses marketing tools (product design, product design, etc.) to differentiate our products pricing, advertising)	3.819	1,237
IC7	Our company applies new pricing methods for exports of goods and services.	3,504	1,281
IC8	Our company uses new sales channels abroad	3.315	1,232
IC9	Our company applies new techniques to promote its products abroad.	3.339	1,220
IC10	Our company is consistent in product or production quality	3.652	1,180
IC11	Our company produces products designed with R & D (Research and Development) studies.	3,633	1,202
IC12	Our company products are compatible with production and production lead times.	3.885	1.161
IC13	Our company uses advanced technologies in production compared to our international competitors.	3.296	1,212
IC14	Our company identifies and applies technological trends in our industry.	3.718	1,330
IC15	Our company promotes a learning culture that enables the identification, assimilation and use of new knowledge necessary forcompetitive success.	3.816	1.128
IC16	New skills and new abilities to make learning new products easier acquisition	3,633	1,252
IC17	When we needed to develop new skills or technologies to deliver new products, we were able to do this efficiently.	3,513	1,170
IC18	Our company adopts a flexible organizational structure to adapt to new projects focused on product or process innovation (innovation)when necessary.	3,555	1,194
IC19	Our company offers managers a significant degree of autonomy in the innovation process.	3.511	1.444
IC20	There is strong coordination between technical (For example engineering, projects), sales and production departments in ourcompany.	3.753	1.091
IC21	Our company applies new management techniques to improve routines and business practices and to facilitate the use ofknowledge and skills within the company.	3,569	1,235
IC22	Our company applies new working organization methods to better distribute the responsibilities and decision-making tasks (For example, creating teamwork, distributing centers, or integration ofdepartments).	3.809	1.153
IC23	Our company combines technologies that have been developed internally and externally (for example, technologies developed bybusiness partners).	3,588	1,228
IC24	Our company maintains a constant flow of financial resources for the promotion of new products in the market.	3,631	1,309
IC25	Our company is skilled in staff allocation	3,520	1,233
IC26	Our staff constantly strives to improve our products and processes.	3.414	1,226
IC27	Our people believe they are responsible for improving our products and processes.	3,567	1.365
IC28	Strategy formulation in our company is guided by a strong entrepreneurial vision.	3.645	1.218
IC29	In our company, the top management can very well understand the external factors that may affect commercial activities.	3.852	1.151
IC30	Senior management in our company immediately notices the movements of foreign competitors and organizations' strategies for this action.	3,280	1,312
IC31	At our company, there is a strong link between innovation and customer appreciation.	3.616	1,225

(Sample (n): 425 (1) Strongly Disagree … (5) Strongly Agree)

According to Table 9, it can be said that IP5 expression has the lowest average (3,631) and IP4 expression has the highest average (3,976) in the innovation performance scale.

Table 9: Mean and Std. Deviation of Innovation Performance

	ITEMS OF THE SCALE	mean	Std. Deviation
IP1	The level of offering new products and services to customers	3.878	1.132
IP2	The level of using the latest technology in producing new products and services	3.718	1,263
IP3	Speed of new service development process	3,920	1,236
IP4	The level of launching new services first is high.	3,976	1,215
IP5	The technologically competitive level is high.	3,631	1.210
IP6	The level of adapting technological innovations in service processes to the business is high.	3.718	1,186
IP7	The process, technology and techniques used are highly changing.	3.776	1,249
IP8	The level of creative reaction to environmental changes is high.	3.918	1.145
IP9	The level of adoption of innovation management in planning, control and integration processes is high.	3.908	1,189
IP10	The level of using new processes to improve quality and cost is high.	3.779	1,282

(Sample (n): 425 (1) Strongly Disagree … (5) Strongly Agree)

4.6. Reliability Tests of Variables and Factor Analysis

Reliability is a concept that reveals the consistency of the variables in the scale with each other (Kurtuluş, 2010, p. 184). The alpha value is used to show the reliability level of the questions under the factor. If the Cronbach's Alpha value is 0.70 and above, the scale is considered reliable (Nunnaly, 1979).

Factor analysis is a type of multivariate statistical analysis and helps to reveal the interrelationships between data (Kurtuluş, 2010, p.189). In order to be able to perform factor analysis on the variables, there must be a relationship between them (Durmuş, Yurtkoru, & Çinko, 2013, p. 79). For this reason, the KMO (Kaiser-Meyer-Olkin) test and the Barlett Sphericity test are used. In order to control the scales to be analyzed in this study, all sub-dimensions of the variables were subjected to factor analysis. KMO evaluations are carried out on the basis of the table below.

Table 10: KMO Values and Description

KMO value	Explanation
0.80 and higher	Excellent
between 0.70-0.80	Good
between 0.60-0.70	Middle
between 0.50-0.6	Bad
lower than 0.50	Unacceptable

Source: Durmus, Yurtkoru and Zinc, 2013, p. 80

4.7. Factor and Reliability Analysis of the Digital Leadership Scale

First of all, the reliability analysis of the digital leadership scale was made. As the Cronbach's Alpha value was 82.2%, it was seen that factor analysis could be continued. The scale's appropriability for factor analysis was checked, the sample size was found to be appropriate because the KMO value was 0.798 and the Barlett test was below the 0.05 significance level.

According to the exploratory factor analysis, the digital leadership scale was collected in two dimensions. The expressions DL1, DL6, DL2, DL16, DL10, DL5, DL12, DL4 and DL8 in the scale were collected in the first dimension, while the expressions DL3, DL14, DL9, DL15, DL13, DL11, DL7 and DL17 were collected in the second dimension (see Table 12). However, when the reliability analysis of the new dimensions was made separately, the Cronbach's Alpha value of the 1st dimension was 81.0% and the Cronbach's Alpha value of the 2nd dimension was 78.5%. These values show that the reliability of both dimensions of the scale is at a good level. The first of the new sub-dimensions formed was called Communication, and the second was called Information sub-dimension. While the Communication sub-dimension of the Digital Leadership scale explains 28.9% of the total variance and the information sub-dimension explains 26.9% of the total variance, the Digital Leadership scale explains 55.8% of the total variance.

Table 11: Factor Analysis Results of the Digital Leadership Scale

			Factor Expressions	Factor Loads	Explained Variance	Reliability
Digital Leadership	**Communication**	**DL1**	My manager at the institution; raises the awareness of the employees of the institution about the risks of information technologies.	0.810	28.92	0.810
		DL6	My manager at the institution; is in an effort to create information infrastructures such as technological tools and library facilities that can be used by everyone in its institution.	0.767		
		DL2	My manager at the institution; makes use of information technologies in communication with social actors (NGOs, trade associations, etc.).	0.760		
		DL16	My manager at the institution; pioneers the use of information technologies in the establishment of corporate communication networks	0.695		
		DL10	My manager at the institution; takes aninformative role to reduce the resistance to the innovations brought by information technologies.	0.665		
		DL5	My manager at the institution; Introduces the institution where he works in a virtual environment(social media, website, etc.)	0.630		
		DL12	My manager at the institution; shares their own experiences on technological opportunities thatwill increase the contribution of colleagues to the learning organization structure.	0.628		
		DL4	My manager at the institution; raisesthe awareness of those around about technologies that can be used to improve organizational processes.	0.620		

Information	**DL8**	My manager at the institution; makes use of information technologies in meetings held.	0.585		0.785
	DL3	My manager at the institution; uses different tools (computer, internet,mobile media, etc.)to access information.	0.782		
	DL14	My manager at the institution; closelyfollows developments in the field of informatics.	0.744		
	DL9	My manager at the institution; uses information technologies actively in management.	0.735		
	DL15	My manager at the institution provides guidance on technological tools that the employees of the institution can utilize to increase participation in thecorporate vision.	0.716		
	DL13	My manager at the institution; makes use of information technologies to develop international relations.	0.658		
	DL11	My manager at the institution attachesimportance to research and development activities related toinformation technologies.	0.578		
	DL7	My manager at the Institution; determines the ethical behaviors required for informatics applications together with all its.	0.52		
	DL17	My manager at the institution; organizes educational activities related to informatics in the process of obtaining information.	0.519		
Total			55,832		
KMO Value			0.798		
Bartlett Sphericity Test			Chi square 173,695 p value 0.000		

The reliability Cronbach's Alpha value of all six-factor statements of the Innovation Capacity scale is 80.3%. At the same time, separate reliability analysis of each factor was performed and Cronbach's Alpha value for all factors were above 0.70. According to the result of the analysis, KMO value is 0.842 and the value of Barlet test is below 0.05, it is appropriate to subject the scale to factor analysis and sample adequacy. Here, 31 expressions were collected in 7 factors. Reliability analysis of each repetitive factor was performed separately and Cronbach's Alpha value of all factors were above 0.70. As a result of the analysis, the perceived innovation capacity, which consists of 7 factors, explains 57% of the total variance. Reliability values, factor loads and variance explanation percentages of the statements in the scale are given in Table 12

Table 12: Factor Analysis Results of the Innovation Capacity Scale

			Factor expressions	**Factor loads**	**Explained variance**	**Reliability**
Innovation Capacity	**R&D capacity**	IC2	Our company acquires new technologies	0.851	8,765	0.835
		IC1	Our company develops technologies by investing in R&D.	0.769		
		IC3	Our company is recognized for its technologically superior products	0.750		
		IC4	Our company employs some of the most qualified industry experts in the country in product development.	0.698		
	Marketing capacity	IC8	Our company uses new sales channels abroad	0.868	8.563	0.803
		IC9	Our company applies new techniques to promote its products abroad.	0.854		
		IC6	Our company uses marketing tools (product design, product design, etc.) to differentiate ourproducts, pricing, advertising)	0.837		
		IC7	Our company applies new pricingmethods for exports of goods and services.	0.791		
		IC5	Our company can segment and target specific markets.	0.645		
	Manufacturing Capacity	IC10	Our company is consistent in product or production quality	0.798	8.211	0.785
		IC13	Our company uses advanced technologies in production compared to our internationalcompetitors.	0.796		
		IC11	Our company produces products designed with R & D (Researchand Development) studies.	0.786		
		IC12	Our company products are compatible with production andproduction lead times.	0.654		
	Learning capacity	IC16	New skills and new abilities to make learning new products easier acquisition	0.894	8.073	0.769
		IC17	When we needed to develop new skills or technologies to deliver new products, we were able to dothis efficiently.	0.868		
		IC15	Our company promotes a learning culture that enables the identification, assimilation and use of new knowledge necessary for competitive success.	0.857		
		IC14	Our company identifies and applies technological trends inour industry.	0.697		
	Organiz	IC22	Our company applies new working organization methods to better distribute the responsibilities and decision- making tasks (For example creating teamwork, distributing centers, or integrating of departments).	0.899		

		IC21	Our company applies newmanagement techniques to improve routines and business practices and to facilitate the useof knowledge and skills within the company.	0.895	7,953	0.761
		IC20	There is strong coordination between technical (For example: engineering, projects), sales andproduction departments in our company.	0.872		
		IC18	Our company adopts a flexible organizational structure to adaptto new projects focused on product or process innovation (innovation) when necessary.	0.837		
		IC19	Our company offers managers a significant degree of autonomy inthe innovation process.	0.799		
	Resource exploitation	IC26	Our staff constantly strives to improve our products andprocesses.	0.865	7,795	0.701
		IC24	Our company maintains a constant flow of financial resources for the promotion ofnew products in the market.	0.811		
		IC25	Our company is skilled in staff allocation	0.808		
		IC27	Our people believe they are responsible for improving ourproducts and processes.	0.796		
		IC23	Our company combines technologies that have beendeveloped internally and externally (for example, technologies developed by business partners).	0.701		
	Strategic capacity	IC30	Senior management in our company immediately notices themovements of foreign competitors and organizations' strategies for this action.	0.946	7.687	0.833
		IC29	In our company, the top management can very well understand the external factorsthat may affect commercial activities.	0.911		
		IC28	Strategy formulation in our company is guided by a strong entrepreneurial vision.	0.89		
		IC31	At our company, there is a strong link between innovation andcustomer appreciation.	0.863		
Total					57,047	
KMO Value					0.842	
Bartlett Sphericity Test					Chi square 1056.186 p value 0.000	

According to the data in Table 13, the innovation performance scale was factored as one dimension. The KMO (Kaiser-Meyer-Olkin) value of 0.779 indicates that the sample size is appropriate for factor analysis. Also, the Chi-Square value is 37,984 and sig. value of 0.000 indicates that the data are normally distributed. The innovation scale explains 55.9% of the total variance. The factor load values of some of the items in the scale were low, they were excluded from the factor analysis and the analysis was repeated. These items are items 6 and 7

Table 13: Factor Analysis Results of the Innovation Performance Scale

		Factor Expressions	**Factor loads**	**Explained variance**	**Reliability**
Innovation Performance	**IP4**	The level of launching new services first is high.	0.652	55,905	0.791
	IP1	The level of offering new products and services tocustomers is high	0.765		
	IP9	The level of adoption of innovation management in planning, control, and integration processes is high.	0.822		
	IP10	The level of using new processes to improve quality and cost ishigh.	0.805		
	IP3	Speed of new service development process is high	0.830		
	IP2	The level of change in the processes, technologies and techniques used is high	0.679		
	IP8	The level of creative reaction to environmental changes is high.	0.521		
	IP5	The technologically competitive level is high.	0.505		
Total				55.686	
KMO Value				0.779	
Bartlett Sphericity Test				Chi square 37,984 p value 0.000	

4.8. Regression Analysis

Regression analysis is used to examine the effect relationship between at least two variables. It is the type of analysis that measures and defines the changes made on the dependent variable by the change in the independent variable. In the study, the averages of the content expressions of each factor were calculated and the regression analysis was continued with these averages. In the regression model, if there is one dependent and one independent variable, then simple linear regression is used, and if there are two or more independent variables, multiple regression analysis is performed (Durmuş, Yurtkoru, & Çinko, 2013, p. 154).

4.9. Hypothesis Testing

H1: Digital leadership has significant effect on innovation capacity.

Simple linear regression analysis was used to examine the impact of Digital Leadership on Innovation Capacity. In this analysis, digital leadership is the independent variable and innovation capacity is the dependent variable. According to Table 14, digital leadership can explain 28.5% of innovation capacity.

Table 14: Digital Leadership and Innovation Capacity Regression Analysis Conclusion Table Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.515[a]	0.28 5	0. 272	0.84886

a. Predictors: (Constant), Digital Leadership
b. Dependent Variable: Innovation Capacity

In Table 15, the regression model was considered statistically significant because the F value of the innovation capacity was 168.669 and the significance value was 0.00 (< 0.05).

Table 15: Digital Leadership and İmpact on Innovation Capacity Regression Analysis ANOVA Table

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	206.113	1	206.113	168.669	0.000[b]
	Residuals	517.092	423	1.222		
	Total	723.205	424			

a. Dependent Variable: Innovation Capacity
b. Predictors: (Constant), Digital Leadership

When Table 16 is examined, Digital Leadership has a significant effect on Innovation Capacity. The positive values of beta coefficients indicate that the variable has a positive effect on Innovation Capacity. In other words, the rise of Digital Leadership will increase Innovation Capacity.

Table 16: Digital Leadership and its impact on innovation capacity Table of Regression Coefficients

Coefficients [a]

Unstandardized Coefficients				Standardized Coefficients	t	sig.	Collinearity Statistics	
Model		B	Std. error				Tolerance	VIF
One	(Constant)	3.509	0.232		15.125	0.000		
	Digital Leadership	0.147	0.062	0.112	2.370	0.017	1.000	1.000

a. Dependent Variable: Innovation Capacity

H1 hypothesis is accepted. According to the data in the table, Innovation Capacity can be formulated as follows:

Innovation Capacity = 3,509+ 0. 147 * Digital Leadership

H2. Digital leadership has significant effect on innovation performance.

Simple linear regression analysis was used to examine the impact of Digital Leadership on Innovation Performance. In this analysis, digital leadership is the independent variable and innovation performance is the dependent variable. According to Table 17, digital leadership can explain 26.4% of innovation capacity.

Table 17: Digital Leadership and Innovation Performance Regression Analysis Result Table

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
one	0.406[a]	0.264	0.236	0.41754

a. Dependent Variable: Innovation Performance
b. Predictors: (Constant), Digital Leadership

In Table 18, the regression model was considered statistically significant because the F value of innovation performance was 151.877 and the significance value was 0.000 (< 0.05).

Table 18: Digital Leadership and its Impact on Innovation Performance Regression Analysis Anova Table

Sum of Model	Squares		df	Mean Square	F	sig.
One	Regression	75.787	1	75.787	151.877	0.000[b]
	Residual	211.286	423	0.499		
	Total	287,073	424			

a. Dependent Variable: Innovation Performance
b. Predictors: (Constant), Digital Leadership

When Table 19 is examined, Digital Leadership has a significant effect on Innovation Performance (Sig<0.05). The positive values of beta coefficients indicate that the variable has a positive effect on Innovation Performance. In other words, the rise of Digital Leadership will increase Innovation Performance.

Table 19: Digital Leadership and its Impact on Innovation Performance Regression Coefficients Table

Unstandardized Coefficients				Standardized Coefficients Beta	t	sig.	Collinearity Statistics	
Model	B		Std. error				Tolerance	VIF
One	(Constant)	3.683	0.247		14,911	0.000		
	Digital Leadership	0.440	0.068	0.451	0.647	0.021	1.000	1.000

a. Dependent Variable: Innovation Performance

The H2 hypothesis was accepted. According to the data in the table, Innovation Performance can be formulated as follows:

Innovation Performance = 3,683 + 0,440* Digital Leadership

H3. Innovation capacity has significant effect on innovation performance

Simple linear regression analysis was used to examine the effect of Innovation Capacity on Innovation Performance. In this analysis, Innovation Capacity is the independent variable and innovation performance is the dependent variable. According to Table 20, it can explain 32.0% of Innovation Capacity.

Table 20 Innovation Capacity and Innovation Performance Regression Analysis Result Table

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
one	. 0.565 [a]	0.320	0.318	.41774

a. Predictors: (Constant), Innovation Capacity b. Dependent Variable: Innovation Performance

In Table 21, the regression model was considered statistically significant because the F value of innovation performance was 199.116 and the significance value was 0.000 (< 0.05).

Table 21: Innovation capacity and its impact on innovation performance Regression Analysis

Anova Table

Model		Sum of Squares	df	Mean Square	F	sig.
1	Regression	264.427	1	264.427	199.116	0.000[b]
	Residuals	561.907	423	1.328		
	Total	826.334	424			

a. Dependent Variable Innovation Capacity

b. Predictors: (Constant), Innovation Performance

When Table 22 is examined, Innovation Capacity has a significant effect on Innovation Performance (Sig=0.003<0.05). The positive values of beta coefficients indicate that the variable has a positive effect on Innovation Performance. In other words, increasing the Innovation Capacity will increase the Innovation Performance.

Table 22: Innovation Capacity and Its Impact on Innovation Performance Regression Coefficients Table

Unstandardized Coefficients				Standardized Coefficients Beta	t	sig.	Collinearity Statistics	
ModelB			Std. error				tolerance	VIF
one	(Constant)	3.801	0.342		11.114	0.000		
	Innovation Capacity	0.782	0.095	0.565	8.231	0.003	1.000	1.000

a. Dependent Variable: Innovation Performance

H 3 hypothesis is accepted. According to the data in the table, Innovation Performance can be formulated as follows:

Innovation Performance = 3.801 + 0.782 * Innovation Capacity

5. CONCLUSION

Today, the speed experienced in technological developments and the spread of the internet appear in the form of mobile devices, wearable technology, artificial intelligence and virtual reality. In this direction, it is seen that the private sector or government institutions are working to develop human resources on subjects such as technology literacy and robotic coding. In addition, it is one of the results reached that understanding the changes and transformations in the world in educational organizations, being aware of developing technologies, has a great effect on individuals in order to touch the future (Harris, Al-Bataineh, & Al-Bataineh, 2016). In this context, the development of digital competencies of corporate leaders may result in the development of learning, supporting the principle of lifelong learning and development, and increasing work efficiency (Blau & Shamir-Inbal, 2016). We can say that digital skills, which stand out in line with the characteristics of digital leaders, have changed with the developing information and communication technologies. In this context, the introduction of information and communication technologies to institutions also affects the roles and responsibilities of corporate leaders.

In the entire history of humanity, data has not been as important as it is today, and the collected data has never needed to be used and consumed at this speed. Because the modern age is in constant cooperation with data, businesses need leaders who will understand the importance of digitalization and believe in its necessity and who can realize this new trend in the entire working process and applications of the institution. In this context, the formation of the idea of transformation, its adoption by the entire organization and its implementation with determination are seen as the success of the leader. The effort

to establish a culture of digitalization and continuous learning is possible with the strategy, foresight and determination of the digital leader.

In the globalizing world, business owners and organizations need a leader more than a manager. Leaders who have the ability to mobilize the individual powers of their employees in different ways are the people who will carry the business to the future. First of all, a leader strives to ensure that the vision he sets for the organization is compatible with the values of the employees and takes care to express this in a way that does not contradict their social understanding. It shares with its employees the decisions it has taken on how to implement this vision. Today, the business environment is in a radical and continuous change. Digitization affects organizations as well as the whole world, and appropriate leaders are needed. The shorter, the more successful and the more harmonious a business's digital transformation process is; its future competitiveness and lifetime will be proportional to the degree of success of this transformation. The architects of this transformation in businesses will also be digital leaders.

Managers need to be at peace with information and communication technologies and make information and communication technologies indispensable in their daily lives in order to perceive, make sense, organize when necessary, and deliver all kinds of information produced internally and externally. The proliferation of expectations suitable for the needs of the future will necessitate multidimensional thinking and making new interpretations. It can be seen as an expectation that information technologies will contribute to managerial activities in the future (Sincar & Aslan, 2011).

The fact that the field is so new and therefore not enough conscious practice suggests that leaders need successful models that they can use as guides. The rapid development of today's information technologies also creates new competence areas. With the spread of communication technologies, learning life has entered a new dimension. This new situation, which can be defined as the spread of information, the increase in its use, and the acceleration of access to information and communication, bring about changes such as digital freedom (Yamaç, 2009).

Organizations need to benefit from information resources and share information in order to adapt to constantly changing conditions, make effective decisions and continue their lives, increase their resources and develop their skills. They need knowledge management to ensure knowledge sharing and continuous learning. In this context, managers and especially leaders have a great responsibility. The increasing importance and increasing use of information and communication technologies with globalization, the rapid spread of information, has made information one of the basic production factors.

It has been revealed that leadership is an influencing process. The innovation leader demonstrates this power of influence by using information technologies, exhibiting his skills in this field, making use of technologies such as social media in his communications, being a model for those around him, rewarding those who follow him when necessary, setting a participatory vision and revealing his researcher personality. Richardson and McLeod (2011) and Beytekin (2014) emphasized technology standards for managers in their related studies and conducted their research on these standards. It can be said that the concept of innovation leadership comes to the fore with sharing. Leadership is a force that emerges through influence. Çelik (2012) revealed in his definition that leadership occurs on influence. The innovation leader is a leader who makes use of information technologies while making this impact. A leader is also a person who directs those around him towards a goal. In addition, in order to this to continue, the innovation leader must also have a role that initiates and continues educational activities. Another important feature of it is that it provides these environments and enables resource transportation. Of course, the leader should have all these features by prioritizing scientific values.

In today's globalizing world, the concept of innovation, like the concept of data, is becoming more and more important and has a great place in our lives. In particular, it is an indispensable element for businesses to show innovation performance in terms of continuing their activities by competing in the market in which they operate, growing financially by gaining development and keeping their business performance active all the time. Innovation performance is important not only for businesses but also for individuals, societies, and industries. Through innovation efforts, businesses will be able to continue their work in the markets they operate in, show growth, maintain their market share in the market they are in and open up to new markets and industrial areas. They will receive the necessary support from innovation to achieve these goals. While businesses gain an advantageous position against their competitors through innovation practices, they can maintain this advantage. Businesses must constantly determine new strategies in order to maintain the advantage they have gained. The knowledge and skills of digital leaders are at the forefront in determining these strategies. In this way, by strengthening their

positions against their competitors, businesses can take a leading role in racing market conditions by directing their future and gaining an advantage over their competitors. Thus, businesses can stay ahead of their competitors through the innovation strategies they develop and contribute to the total innovation performance by affecting their internal and external environment.

As a result of the literature review, very limited resources and information were found about the application of digital leadership. In addition, very few studies have been found in which the subject is discussed together with innovation capacity and innovation performance. For this reason, it is recommended that more studies being conducted based on the criteria set out in the research to better define and investigate the impact of the digital leadership concept on innovation performance and innovation capacity. At the same time, dividing the companies into clusters with cluster analysis for research, that is, making sector-based research can help to understand in which sector the model can yield more efficient results. With this method, the proposed model can be made more acceptable for social science research.

This study was conducted as a digital survey study among small and medium-sized enterprises. On the other hand, the constructed model has not been used in any other research before. Therefore, the results of the study are not suitable for generalization. As reported as a recommendation, generalization can be achieved after the impact of digital leadership on innovation capacity and innovation performance is more thoroughly discussed in several studies. This issue should be taken into account in studies related to this subject that is planned to be carried out.

When the results of the research are evaluated, we can say that the answers to the hypotheses determined in this study were obtained at a high rate and the objectives were achieved. According to the results of the research, it can be said that digital leadership has a positive effect on innovation capacity and innovation performance.

According to the findings, digital leadership has a positive effect on innovation

performance. This result is similar to Zhang, D., Sun, X., Liu, Y., Zhou, S., and Zhang, H. (2018), although not exactly the same, in the study of the effect of integrative leadership on innovation performance, Zheng, J. ., Wu, G., and Xie, H. (2017) the effect of the concept of leadership on innovation performance and the results of Sawaean, F., and Ali, K. (2020) the effect of business leadership on organizational (innovation) performance, came out the same. The impact of digital leadership on innovation performance reveals the need for small and medium-sized businesses to increase the proportion of employees with digital leadership skills. Businesses gain a stronger position in the market, differentiate from their competitors, and further expand into foreign markets are related with their innovation performance. Having leaders who have high digital leadership skills within the organization and who can transfer digitalization practices, which are one of today's needs, will enable this organization to gain competitive advantage and to exist in rapidly developing new markets. It is recommended that local businesses that want to increase the innovation performance of the institution adopt the concept of digitalization and train employees with leadership skills in this direction.

As a result of the analysis, it has been revealed that digital leadership has an impact on innovation capacity for small and medium-sized enterprises. Prajogo, D. I., and Ahmed, P. K. (2006) revealed that there is a relationship between the two variables discussed in the relationship between innovation incentives (leadership dimension) and innovation capacity. At the same time, Sawaean, F., and Ali, K. (2020), another study conducted on small and medium-sized enterprises, also overlap with the results of the study of the impact of organizational leadership on corporate performance. In terms of small and medium-sized enterprises in Istanbul, the result that digital leadership is effective in the innovation capacity of institutions is the same as the results of previous studies in the literature. It can be said that the innovation capacity of enterprises with a high number of employees with digital and leadership skills will also be high. Leaders who constantly research modern needs and digital innovations, have knowledge in the field of R&D and can apply this knowledge in their corporate strategy, increase the innovation capacity of the business they work for. For example, the digital leader, who is aware of the convenience, speed and other factors provided by cloud technology, can calculate the benefit that will be obtained as a result of implementing this innovation within the enterprise.

As a result of the research conducted among small and medium-sized enterprises in Istanbul, it has been revealed that the innovation capacity of the institution is effective on innovation performance. The relationship between the innovation capacity of Prajogo, D. I., and Ahmed, P. K. (2006) and innovation

performance, which was previously conducted among 1000 managers, was not found between the two variables. However, in the research conducted on 121 financial project enterprises in Taiwan, it has been revealed that innovation capacity has a positive effect on innovation performance. This result supports the results of our research.

Our findings have important managerial implications for small and medium-sized businesses. The results obtained can be helpful for project leaders or individuals who manage teams in a project-based organizational environment, providing important information about inter-organizational information exchange. Our results show that through an appropriate leadership style, project-based businesses can increase their coordination and knowledge sharing with social capital management, thereby generating and improving high levels of innovation performance. (Zheng, J., Wu, G., and Xie, H. (2017).

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