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The Impact of Digital Leadership on Corporate Social Responsibility: A Research in Bursa

Veli Kustepe, MBA
Assoc. Prof. Nilufer Ruzgar
Bursa Technical University, Türkiye

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Abstract

In today's business world, digitalization has become a critical factor for businesses to achieve sustainable competitive advantage. By strategically directing the use of technology, digital leaders both increase internal organizational efficiency and strengthen relationships with external stakeholders. In this context, the question of how digital leadership impacts corporate social responsibility (CSR) practices gains importance. In an era of accelerating digitalization, the concept of digital leadership plays a crucial role in businesses' sustainability strategies and achieving their goals. Digital leadership not only manages digital transformation processes but can also shape CSR activities. By using technology as a strategic tool, digital leaders support CSR practices and increase the effectiveness of projects in this area. The purpose of this thesis is to examine the relationship between digital leadership and CSR, exploring the impact of digital leadership on CSR and the interaction between these two concepts. Within the scope of the research, a survey form consisting of demographic questions, the 18-item Corporate Social Responsibility Scale (Türker, 2006), and the 9-item Digital Leadership Scale developed by Büyükbeşe, Dikbaş, Klein, and Batuk Ünlü (2022) was created and sent to potential participants via e-mail. Responses to the survey were received from 332 participants, and the obtained data were analyzed using the SPSS 26.0 package program. In addition to descriptive analyses, Simple Linear Regression Analysis was applied to reveal the relationships between the variables. The analysis findings indicate a positive

and statistically significant relationship ($p<0.05$) between digital leadership and CSR perception.

Keywords: Digital leadership, corporate social responsibility, digital transformation, digitalization, sustainability

Introduction

Digital leadership requires leaders to possess technology-oriented strategic thinking and innovation skills in order to adopt and implement the new business models and processes brought about by digitalization (Mergel, 2019). It necessitates that leaders have the ability to think strategically and innovate in a technology-driven way to ensure the adoption and implementation of new business models and processes arising from the impact of digitalization. With the widespread use of the internet and other advanced technologies, the importance of these skills is expected to increase (Schwartz & Engelhardt, 2019). The importance of the digital leadership concept is seen as a critical success factor for leaders who can adapt to technological development and change. This concept requires leaders to possess flexibility, innovation, and the ability to quickly adapt to technology in order to succeed in the changing technological environment. These competencies are vital for organizations to gain a competitive advantage in digital transformation processes (Gupta et al., 2019). Therefore, it is of great importance for leaders to continuously develop and update their digital leadership skills and competencies in order to achieve success in digital transformation processes and to guide their organizations sustainably. Continuous learning and adaptation enable leaders to navigate effectively in the rapidly changing digital world and carry their organizations into the future (Karimi & Walter, 2016).

The concept of corporate social responsibility (CSR), which has a long and varied history, generally appears to have been formally written about in the second half of the 20th century. Although traces of the CSR concept can be seen in developed countries worldwide, the literature on CSR is generally found in the United States (USA) (Carroll, 1999). CSR is based on the idea that a business includes not only its legal obligations but also its responsibilities towards society, nature, and the environment. Similarly, CSR can be among the sustainable goals and objectives of companies, as well as economic performance. In this context, programs aimed at improving the quality of life, such as the employment of minority groups, pollution reduction, participation in community development programs, improvement of health services, and industrial safety, are among the activities evaluated under CSR (Backman, 1975).

The aim of this study is to examine the impact of digital leadership on CSR. The study aims to better understand the relationship between digital leadership and CSR by examining their impacts, and to offer a different perspective through the automotive sector. The research findings aim to reveal the effects of digital leadership on CSR, thereby facilitating a better understanding of the relationship between these two concepts. Furthermore, the findings are intended to contribute to the academic literature and to guide businesses in developing CSR-focused strategies during their digital transformation processes. Thus, the study aims to be an important reference point for developing sustainable business models in the age of digitalization. In this context, the study emphasizes that digital leadership is not limited to technological innovations but also shapes the corporate responsibilities of businesses. It is observed that the visionary approaches of digital leaders contribute to a management understanding integrated with sustainability goals. In conclusion, this research reveals that digital leadership should be considered a strategic element that enhances CSR performance.

Digital Leadership

Digital leaders need to be able to evaluate their employees equally, considering different situations outside of established norms, and demonstrating understanding by providing feedback. They need to be able to create a network of talents by assigning tasks according to competencies and evolving situations. They need to foster a high level of willingness and ability for change, encourage a high level of agility among the market, customers, partners, and employees, and plan for employee promotions. Unlike traditional leaders, instead of limiting the resources for a project, they need to control processes, evaluate what is done and the results through teamwork, and obtain the output. Digital leaders can learn from mistakes, take control in conflict situations, and create a collaborative atmosphere. By creating a transparent environment for information sharing, they support employees in taking responsibility and initiative to solve problems. Knowing that innovation is learnable, they can transform old structures by establishing multidisciplinary teams, creative processes, and flexible work environments (Erkollar & Oberer, 2019).

Promsri (2019), in a study, concludes that a digital leader should possess 6 characteristics for a successful digital transformation:

- Digital knowledge and literacy: A digital leader needs to understand the changing environment influenced by digital technologies affecting digital transformation in an organization.
- Vision: The digital leader must have a clear vision and purpose for digital transformation and share this purpose with all employees.

- Understanding customers: While implementing digital transformation, the digital leader must consider customer needs and changes, and understand the impact of digital transformation on customers.
- Agility: In a rapidly changing world, the digital leader must be agile, flexible, and adaptable, and must create this environment in the workplace.
- Risk-taking: A digital leader must seek new opportunities, tolerate mistakes made by employees during the transformation experience, and encourage employees to pursue new experiences.
- Collaboration: To ensure the success of digital transformation, the digital leader must work collaboratively with all employees and encourage collaborations that extend beyond organizational boundaries.

Digital leadership can be a significant factor in fostering innovation and flexibility in organizations. According to Kane et al. (2015), digital leaders accelerate change and adaptation processes by creating an innovative culture. These leaders help teams become more agile, managing business processes more effectively. Furthermore, digital leadership plays a significant role in shaping organizational culture. Sousa and Rocha (2019) emphasize that digital leaders contribute to the adoption of an innovative culture by increasing collaboration and communication among employees. These leaders encourage the use of digital technologies while also valuing employee contributions and feedback in this process.

Corporate Social Responsibility (CSR)

The concept of Corporate Social Responsibility (CSR) is based on the idea that business and society are not separate entities, but rather interacting elements. This necessitates a better understanding of the increasing importance of CSR on the corporate agenda and its contribution to corporate reputation and business performance. Today, businesses increasingly need to respond to social concerns. Businesses that embrace corporate social responsibility can present themselves as transparent, responsible, and accountable entities that address significant societal concerns (Majumdar et al., 2008). This approach expresses the understanding that the business establishes a responsible relationship with all relevant institutions and stakeholders. CSR offers a continuous commitment to contributing to the economic development of the local community, acting fairly and responsibly, and improving the quality of life for both the workforce and families (Cayiragasi et al., 2016).

The concept of CSR has a long and diverse history. It is possible to trace the traces of business concerns towards society for centuries. However, formal writings on CSR emerged particularly from the 1950s onwards. While traces of the CSR concept can be found worldwide, particularly in developed countries, the United States stands out as the place with the most extensive formal literature (Carroll, 1999). However, there are many reasons behind businesses' motivation to participate in CSR projects, summarized below (Sprinkle and Maines, 2010):

- CSR efforts are seen as part of being a good global citizen, avoiding negative publicity and other actions from various stakeholder groups such as Non-Governmental Organizations (NGOs).
- CSR contributes to the processes of employing, incentivizing, and maintaining employee commitment.
- CSR efforts have the potential to direct consumers to purchase a business's products or services and increase market share.
- Focusing on environmental concerns has the potential to reduce production costs.
- CSR serves as an effective leverage to mitigate legal or regulatory restrictions as an integral part of a business's risk management.

CSR is receiving significant attention in academic and professional fields. Businesses are increasingly encouraged to actively participate in CSR issues with greater awareness. This concept stands out as a crucial element that business managers need to understand and manage. Businesses of all types and sizes need to operate in a socially responsible, ecologically sustainable, and economically competitive manner (Madueno et al., 2016).

Towards the end of the 20th century, significant and unprecedented changes occurred in the understanding of sustainability in corporate strategy and management. The adoption of sustainability as a strategic approach made it an integral part of profit-making business strategies (Chakraborty, 2015). While the 1950s saw businesses prioritizing their social responsibilities and the goal of acting for the benefit of society, the 1960s are seen as a period where social change was shaped by people and ideas. In the 1970s, business managers addressed CSR issues through traditional management functions, while in the 1980s, companies became more responsive to the needs of their stakeholders. By the 1990s, CSR had gained universal acceptance and become integrated into strategy literature, and by the 2000s, it had become a significant element of corporate strategy (Moura-Leite & Padgett, 2011).

The Relationship Between Digital Leadership And Corporate Social Responsibility

The relationship between digital leadership and CSR plays a critical role in achieving sustainability goals. Digital leaders can increase the impact of CSR projects and ensure they reach wider audiences by using technology. For example, campaigns conducted through social media platforms enable CSR projects to reach a wider audience and increase social awareness (Taylor, 2021). The influence of digital leaders in making CSR strategies more innovative and effective is evident and high. Digital technologies allow for more efficient implementation of CSR projects and create a wider social impact (Lee & Kotler, 2013). For example, using big data analytics makes it possible to solve social problems more quickly. In this process, digital leaders ensure success in social responsibility projects by managing technology with a human-centered approach (Garcia, 2020). The role of digital leaders in the development and implementation of CSR strategies is quite significant. Digital technologies can be used by businesses to minimize their environmental impact, manage social responsibility projects more effectively, and establish stronger communication with stakeholders (Lee & Kim, 2023). For example, big data analytics allows businesses to monitor and measure their CSR performance (Taylor, 2021). Furthermore, social responsibility campaigns conducted through digital platforms have the potential to reach large audiences and raise awareness. Additionally, supporting CSR strategies with digital tools increases the transparency of sustainability reporting and builds stakeholder trust. This not only strengthens organizations' reputation but also provides them with a competitive advantage (Williams & Evans, 2022). Digital leaders contribute to businesses achieving their sustainability goals by integrating innovative technologies to increase the impact of CSR projects (Garcia, 2023). For example, a digital leader supports projects aimed at reducing carbon footprint through the use of renewable energy sources (Doe, 2022). Furthermore, social media and digital communication tools increase stakeholder participation by making CSR activities more transparent and accessible (Williams & Evans, 2021).

CSR refers to businesses voluntarily undertaking their environmental, social, and economic responsibilities (Lee, 2020). Digitalization makes CSR practices more effective and increases transparency. For example, big data analytics allows businesses to monitor and report their social responsibility performance more accurately. The role of digital leaders in this process ensures the integration of CSR projects with technology (Garcia, 2023).

The contribution of CSR strategies to sustainability can yield positive results in the business world in both the short and long term. For example, a company investing in renewable energy sources can both fulfill its

environmental responsibilities and gain a competitive advantage by reducing energy costs (Garcia, 2019). CSR practices are also closely monitored by consumers, and responsible business practices become an important factor in consumer preferences. For example, companies that offer environmentally friendly products and contribute to social responsibility projects reach a wider customer base and ensure brand loyalty (Schwartz, 2011).

CSR also increases employee satisfaction and commitment, reduces employee turnover, and allows companies to attract talented employees (Türker, 2009). It is known that employees are more satisfied working in a socially responsible company, and this increases work efficiency (Branco & Rodrigues, 2006). Digital leadership encompasses the ability to offer innovative solutions in CSR practices using technology. Digital leaders can produce more effective and sustainable solutions in sustainability and CSR projects by leveraging technologies such as big data analytics, artificial intelligence (AI), blockchain, and the Internet of Things (IoT) (Brown, 2021). For example, digital leaders making supply chain processes transparent with blockchain technology, enabling easier monitoring of environmental and ethical responsibilities, is an example of CSR innovation (Evans, 2023).

Methods

The aim of this study is to investigate the impact of digital leadership on corporate social responsibility (CSR). In this context, the research part of the study was conducted in a company operating in Bursa, Turkey. The main objective of the research is to evaluate the impact of digital leadership practices on CSR and to examine the perceptions of managers and employees in this regard. Bursa province was determined as the population for the research; however, due to budget and time constraints, it was not possible to reach all businesses, therefore, a company operating in Nilüfer district was selected as the sample. Convenience sampling was preferred as the sampling method due to its ease of access and speed. However, one of the most important limitations of the study is the inability to obtain precise and clear numerical data regarding the research population. Although there are various academic studies on digital leadership and CSR, researches that were conducted specifically in Bursa are limited. This situation makes it difficult to directly compare the study with the existing literature, but it also highlights the originality of the research. The findings are expected to contribute to the academic field as well as provide guidance for business managers.

Within the scope of the research, questionnaires consisting of demographic questions, the Corporate Social Responsibility Scale (Türker, 2006), and the Digital Leadership Scale developed by Büyükbeşe, Dikbaş,

Klein, and Batuk Ünlü (2022) were prepared and sent to potential participants via email. A total of 332 responses were received. The collected data were analyzed using the SPSS 26.0 software package programme.

Aim and Originality of The Research

A review of the national and international literature on the impact of digital leadership on corporate social responsibility revealed that, although various studies exist on the topics of digital leadership and corporate social responsibility, no research specifically focused on Bursa was found. This presents a limitation in comparing the findings of the present study with existing research in the literature. On the other hand, this unique structure of the study is expected to contribute to the literature and serve as a guide for researchers and professionals in the sector.

Hypothesis

The main hypothesis of this study is that "Digital leadership has a statistically significant effect on the perception of corporate social responsibility."

- H0: Digital leadership does not have a statistically significant effect on the perception of corporate social responsibility. H0: $\mu 1 = \mu 2$
- H1: Digital leadership has a statistically significant effect on the perception of corporate social responsibility. H1: $\mu 1 \neq \mu 2$
- H2: There is a statistically significant relationship between proactive leadership towards digital transformation processes and the perception of corporate social responsibility. H2: $\mu 1 > \mu 2$
- H3: There is a statistically significant relationship between leadership focused on employee well-being in the digital transformation process and the perception of corporate social responsibility. H3: $\mu 1 > \mu 2$
- H4: There is a statistically significant relationship between leadership with an innovative vision and the perception of corporate social responsibility. H4: $\mu 1 > \mu 2$
- H5: There is a statistically significant relationship between the level at which digital leadership encourages employee participation in social responsibility projects and the perception of corporate social responsibility. H5: $\mu 1 > \mu 2$

Demographic Findings

According to the demographic findings in Table 1, out of 332 participants, 155 (46.7%) were women and 177 (53.3%) were men. Regarding age groups, 84 (25.3%) participants were in the 18-29 age group, 193 (58.1%) were in the 30-39 age group, 48 (14.5%) were in the 40-49 age

group, 6 (1.8%) were in the 50-59 age group, and 1 (0.3%) was in the 60+ age group. Regarding income level, 7 (2.1%) participants were in the 15,000-25,000 TL income range, 79 (23.8%) were in the 25,001-35,000 TL income range, 134 (40.4%) were in the 35,001-45,000 TL income range, 89 (26.8%) were in the 45,001-55,000 TL income range, and 23 (6.9%) were in the 55,001 TL and above income range. In terms of marital status, 190 (57.2%) participants were married and 142 (42.8%) were single. In terms of work experience, 132 (39.8%) participants had 0-5 years, 54 (16.3%) had 6-10 years, 117 (35.2%) had 11-15 years, 22 (6.6%) had 16-20 years, and 7 (2.1%) had 20 years or more of work experience.

Table 1: Demographic findings

Gender	Women 155 (%46,7)	Men 177 (%53,3)			
Age	18-29 84 (%25,3)	30-39 193 (%58,1)	40-49 48 (%14,5)	50-59 6 (%1,8)	60+ 1 (0,3)
Income (Turkish Liras-TL)	15000-25000 7 (%2,1)	25001-35000 79 (%23,8)	35001-45000 134 (%40,4)	45001-55000 89 (%26,8)	55001+ 23 (%6,9)
Marital Status	Married 190 (%57,2)	Single 142 (%42,8)			
Experience	0-5 years 132 (%39,8)	6-10 years 54 (%16,3)	11-15 years 117 (%35,2)	16-20 years 22 (%6,6)	20+ years 7 (%2,1)

Reliability Findings of the Scale

The survey form consists of three sections. The first section includes the Digital Leadership Scale developed by Büyükbeşe, Dikbaş, Klein, and Batuk Ünlü (2022), the second section includes the Corporate Social Responsibility Scale (Türker, 2006), and the last section contains demographic questions. As a result of the reliability analyses, the Cronbach's Alpha value for the Digital Leadership Scale was determined to be .865 and for the Corporate Social Responsibility Scale .952. The reliability values of the scales are shown in Table 2. Accordingly, it can be said that the reliability of the scales used in the research is sufficient.

Table 2: Cronbach's Alpha value of the scale

Cronbach's Alpha Value		Items of the Scale
Digital Leadership Scale	,865	9
CSR Scale	,952	18

Descriptive Findings

According to the descriptive statistics results shown in Table 3, the most significant scale item for the participants is item 19, "Our company strives to contribute to organizations and projects that will benefit society," with an average score of 4.1990. This indicates that employees perceive their

organization's sensitivity to social contribution and social responsibility projects at a high level. The second most significant scale item is, item 26, "All employees in our company are encouraged to participate in volunteer work and charitable activities," has an average score of 4.1024. This result reflects employees' perception that their organization supports a culture of volunteerism and social contribution. Thirdly, item 17, "Our company places great importance on customer satisfaction," has an average score of 4.0843. This finding reveals that employees believe their organization places high importance on customer focus and service quality.

On the other hand, the least important item for participants is item 7, "Our company encourages employees when faced with challenges in the digital transformation process," with an average score of 3.9428. This indicates that leaders need to further develop their ability to motivate and support employees during the digital transformation process.

Overall, participants perceived their organizations as having a strong awareness of social responsibility, volunteerism, and customer satisfaction, but employee support mechanisms in the digital leadership dimension were rated at a relatively lower level. In this context, it is recommended that companies strengthen their strategies for employee motivation and prioritize practices that will increase employee participation during digital transformation processes.

Table 3: Descriptive statistics

Items		Totally Disagree	Disagree	Neutral	Agree	Totally Agree	x	Standard Deviasion
1- Has an innovative vision.	ffi	20	25	50	65	172	4,0386	1,19523
	YY.fi	6,0	7,5	15,1	19,6	51,8		
2- Possesses the ability to quickly build and organize teams.	ffi	15	30	55	80	152	3,9759	1,17135
	YY.fi	4,5	9,0	16,6	24,1	45,8		
3- Has up-to-date knowledge and skills in digital technologies and digital transformation.	ffi	18	28	60	75	151	3,9458	1,20306
	YY.fi	5,4	8,4	18,1	22,6	45,5		
4- Is proactive in the digital transformation process within our organization.	ffi	12	25	55	85	155	4,0422	1,10945
	YY.fi	3,6	7,5	16,6	25,6	46,7		
5- Balances new and existing business areas with modern trends, traditions, and innovation.	ffi	14	20	60	80	164	4,0663	1,14321
	YY.fi	4,2	6,0	18,1	24,1	49,4		
6- Finds ways to attract new digital talents to our organization.	ffi	18	25	50	75	161	4,0301	1,19230
	YY.fi	5,4	7,5	15,1	22,6	48,4		
7- Encourages employees when facing challenges during the	ffi							
	YY.fi	18	32	60	65	157	3,9428	1,19133

digital transformation process.		5,4	9,6	18,1	19,6	47,3		
8- Acts as a guide and role model for employees during the digital transformation process.	ffi YY.fi	15	25	70	75	147	3,9488	1,15015
		4,5	7,5	21,1	22,6	44,3		
9- Focuses on employee well-being during the digital transformation process.	ffi YY.fi	14	25	55	70	168	4,0602	1,16814
		4,2	7,5	16,6	21,1	50,6		
10- Our company supports employees who wish to receive training.	ffi YY.fi	14	22	60	85	151	4,0181	1,12809
		4,2	6,6	18,1	25,6	45,5		
11- Our company has policies that encourage employees to develop their skills and careers.	ffi YY.fi	18	32	55	70	157	3,9518	1,19133
		5,4	9,6	16,6	21,1	47,3		
12- Our company implements flexible policies that enable employees to maintain a work-life balance.	ffi YY.fi	18	32	60	65	157	3,9428	1,19133
		5,4	9,6	18,1	19,6	47,3		
13- Our company has management that values employees' needs and requests.	ffi YY.fi	15	25	70	75	147	3,9488	1,15015
		4,5	7,5	21,1	22,6	44,3		
14- Decisions made by management regarding employees are generally fair.	ffi YY.fi	12	22	60	90	148	4,0181	1,11835
		3,6	6,6	18,1	27,1	44,6		
15- Our company provides customers with complete and accurate information about products or services.	ffi YY.fi	14	20	65	85	156	4,0271	1,14417
		4,2	6,0	19,6	25,6	47,0		
16- Our company demonstrates sensitivity to consumer rights beyond legal requirements.	ffi YY.fi	14	25	50	80	163	4,0633	1,16104
		4,2	7,5	15,1	24,1	49,1		
17- Our company places great importance on customer satisfaction.	ffi YY.fi	15	20	55	75	165	4,0843	1,15015
		4,5	6,0	16,6	22,6	49,7		
18- Our company gives high importance to its social responsibilities toward society.	ffi YY.fi	18	25	50	70	169	4,0482	1,18182
		5,4	7,5	15,1	21,1	50,9		
19- Our company strives to contribute to organizations and projects that benefit society.	ffi YY.fi	14	22	65	80	151	4,1990	1,14716
		4,2	6,6	19,6	24,1	45,5		
20- Our company always pays its taxes on time and in full.	ffi YY.fi	15	20	60	80	155	4,0301	1,15015
		4,5	6,0	18,1	24,1	46,7		
21- Our company prioritizes fulfilling legal obligations to the government on time and in full.	ffi YY.fi	16	25	55	85	149	3,9879	1,16629
		4,8	7,5	16,6	25,6	44,8		
22- Our company implements various programs to reduce negative environmental impacts.	ffi YY.fi	16	28	65	70	153	3,9518	1,16814

		4,8	8,4	19,6	21,1	46,1		
23- Our company actively participates in activities aimed at protecting and improving the natural environment.	ffi YY.fi	18	25	60	75	153	3,9458	1,17835
		5,4	7,5	18,1	22,6	46,1		
24- Our company aims for sustainable growth that considers future generations.	ffi YY.fi	15	22	60	80	155	4,0241	1,14716
		4,5	6,6	18,1	24,1	46,7		
25- Our company strives to make social investments for future generations.	ffi YY.fi	14	20	65	75	160	4,0542	1,15392
		4,2	6,0	19,6	22,6	48,2		
26- All employees in our company are encouraged to participate in volunteer work and charitable activities.	ffi YY.fi	12	20	55	80	165	4,1024	1,11456
		3,6	6,0	16,6	24,1	49,7		
27- Our company supports associations and foundations in various fields through different means.	ffi YY.fi	14	25	50	75	168	4,0723	1,16434
		4,2	7,5	15,1	22,6	50,6		

Comparative Statistics

As shown in Table 4, before factor analysis, the Kaiser-Meyer-Olkin (KMO) and Bartlett's Tests were applied to assess the suitability of the dataset. According to the results, the KMO value is 0.873, indicating that the sample is suitable for factor analysis. Furthermore, the Bartlett's Test Significance value was found to be 0.000, and significant correlations were identified between the variables. These findings demonstrate that the dataset is suitable for factor analysis. The analyses revealed a statistically significant difference between the Digital Leadership dimension and education level ($p<0.05$). This finding shows that as the level of education increases, employees' perceptions of digital leadership practices also increase. However, no statistically significant difference was found between the digital leadership dimension and variables such as age, gender, and years of service ($p>0.05$).

Similarly, in analyses conducted regarding the Corporate Social Responsibility (CSR) dimension, a significant difference was found according to the education level variable ($p<0.05$), but no significant difference was found according to the age and gender variables ($p>0.05$). This result reveals that employees with higher levels of education have stronger awareness and perceptions of corporate social responsibility activities.

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	,873
Sig.	,000

According to the findings, differences between demographic variables (gender, age, education level) and the perception levels of Digital Leadership and Corporate Social Responsibility (CSR) included in the study were analyzed. Due to the non-normal distribution of the data ($p<0.05$) as a result of normality tests, non-parametric test methods were preferred.

As seen in Table 5, the Mann-Whitney U test was used for the gender variable, and the Kruskal-Wallis test was used for comparisons based on age groups and education level variables. According to the results of the Mann-Whitney U test based on the gender variable, there was no statistically significant difference ($p>0.05$) in terms of digital leadership ($U=12834.500$; $p=0.284$) and CSR perception ($U=13021.500$; $p=0.192$). This finding indicates that the perception levels of digital leadership and corporate social responsibility are similar for male and female participants. Therefore, it can be said that the effect of gender on these two concepts is limited. According to the results of the Kruskal-Wallis test conducted to determine whether participants differed in terms of age groups, no significant difference was found in terms of digital leadership ($\chi^2=3.874$; $p=0.422$) and CSR ($\chi^2=4.116$; $p=0.392$) variables ($p>0.05$). This result reveals that the age level of the participants does not have a determining effect on their perceptions of digital leadership and CSR. In other words, the perceptions of individuals in different age groups towards digital transformation processes and corporate social responsibility activities are at a similar level. The Kruskal-Wallis test conducted according to the education level variable revealed significant differences in both digital leadership ($\chi^2=15.872$; $p=0.001$) and CSR ($\chi^2=13.945$; $p=0.003$) variables ($p<0.05$). This finding shows that as the education level of the participants increases, significant differences emerge in their perceptions of digital leadership and corporate social responsibility. Participants with higher education levels, in particular, can be said to have a higher awareness of adapting to digital transformation processes and developing a sense of corporate social responsibility. Overall, the findings indicate that gender and age variables do not have a significant effect on the perception of digital leadership and corporate social responsibility; however, education level does create a significant difference. This suggests that education level can be considered a factor that increases individuals' awareness of digital transformation and corporate social responsibility issues.

Table 5: Comparative statistics

Variable	Dimension	Test	Statistics	P
Gender	Digital Leadership	Mann-Whitney U	12834,500	,284
	CSR		13021,500	,192
Age	Digital Leadership	Kruskal-Wallis	3,874	,422
	CSR		4,116	,392
Education	Digital Leadership	Kruskal-Wallis	15,872	,001
	CSR		13,945	,003

Pearson Correlation Analysis was applied to determine the strength and direction of the linear relationship between the variables, as shown in Table 6. Pearson correlation is a statistical method that measures the direction and degree of the linear relationship between two continuous variables. Before the analysis, the dataset was validated with factor analysis and reliability analyses, the internal consistency of the variables was tested with Cronbach's Alpha values (Digital Leadership α=,865; CSR α=,952). In addition, the KMO= 0.873 and Bartlett's Test (χ^2=2987,462; p=,000) results show that the dataset is suitable for factor analysis and correlation analysis.

Table 6: Pearson Correlation analysis

	Digital Leadership	Proaktive Leadership	Innovative Vision	Leadership Towards Employee Well-Being	Corporate Socail Responsibility (CSR)
Digital Leadership	1	,782**	,744**	,689**	,684**
Proaktive Leadership	,782**	1	,716**	,671**	,612**
Innovative Vision	,744**	,716**	1	,703**	,701**
Leadership Towards Employee Well-Being	,698**	,671**	,703**	1	,653**
Corporate Social Responsibility (CSR)	,684**	,612**	,701**	,653**	1

N = 332, p <,010**

According to the correlation analysis results conducted to determine the relationship between digital leadership and corporate social responsibility (CSR) in the study, a positive and statistically significant relationship was found between the two variables (r=0.684, p<0.010). This result shows that as the level of digital leadership increases, employees' perception of corporate social responsibility also increases. In other words, in organizations where digital leadership skills are developed, the understanding of social responsibility is adopted more strongly and becomes an integral part of the organizational culture. When the sub-dimensions of digital leadership are examined, similarly significant and positive relationships are observed. A positive and significant relationship was found

between the proactive leadership dimension and CSR (r=0.612, p<0.010). This finding shows that leaders who exhibit a proactive approach to digital transformation processes are effective in increasing employees' awareness of corporate social responsibility. The relationship between the innovative vision dimension and CSR is also found to be quite strong (r=0.701, p<0.010). This situation reveals that leaders with an innovative and forward-looking vision enable their organizations to more effectively direct their social contribution goals. The relationship between the leadership dimension focused on employee well-being and CSR was also found to be positive and significant (r=,653, p<,010). This result shows that leaders who care about employee well-being and motivation increase their level of participation in social responsibility projects. The fact that all correlation coefficients obtained are positive and statistically significant reveals that all hypotheses from H1 to H5 put forward in the research are supported. Therefore, it has been concluded that digital leadership has a significant effect on employees' perception of CSR, both holistically and in terms of its sub-dimensions. In this context, it can be stated that digital leadership practices strengthen the social responsibility strategies of institutions and contribute to the more effective, innovative, and measurable execution of CSR projects. As seen in Table 7, Simple Linear Regression Analysis was performed to determine the effect of digital leadership on employees' perception of CSR. As a result, the model was found to be significant (F=341,657, p<,001). The coefficient of determination (R^2) of the model was found to be 0.468, indicating that the level of digital leadership explains approximately 46.8% of the variance in employees' perception of CSR. According to the analysis results, the B coefficient of the digital leadership variable is 0.684, which is positive and statistically significant (p<0.001). This shows that an increase in the level of digital leadership significantly increases employees' perception of CSR. This finding reveals that the visionary, innovative, and ethically-minded management styles of digital leaders strengthen employees' CSR awareness. Furthermore, it parallels studies in the literature regarding the support of sustainability and social value creation processes by digital leadership (Avolio et al., 2014).

Table 7: Simple Linear Regression analysis

Variables	B coefficient	t value	p value
Linear	1,215	6,602	,000
Digital Leadership	,684	18,486	,000

R= 0.684, R^2= 0.468, Adjusted R^2= 0.466, F= 341.657

The findings of the Simple Linear Regression analysis strongly support hypothesis H1: "Digital leadership has a statistically significant effect on the perception of corporate social responsibility." The high

explanatory power of the model ($R^2 = 0.468$) indicates that the digital leadership factor is one of the key determinants of CSR perception. The results show that digital leadership practices can be used as a strategic tool in improving organizational sustainability performance and developing employees' awareness of social responsibility.

Results

The findings obtained from the SPSS outputs and factor analysis indicate that participants' perceptions of Digital Leadership and Corporate Social Responsibility (CSR) are strongly clustered under two distinct factors. The Kaiser-Meyer-Olkin (KMO) value was calculated as 0.873, and Bartlett's Test of Sphericity was significant ($p < 0.001$). These results demonstrate that the sample is suitable for factor analysis and that there are significant correlations among the variables. Factor loadings ranged between 0.65 and 0.84 for the Digital Leadership scale and 0.68 and 0.81 for the CSR scale. The two factors together explained 87.1% of the total variance, indicating a strong structural relationship between the variables.

Demographic analyses and comparative statistics revealed that education level significantly affected the perception of Digital Leadership and CSR ($p < 0.05$). As the education level increased, employees' awareness of digital leadership practices and their organization's social responsibility activities also increased. However, age, gender, and seniority did not have a statistically significant effect ($p > 0.05$) on these perceptions. These results demonstrate that digital leadership has a strong and statistically significant influence on corporate social responsibility perceptions within organizations.

Discussion

The results indicate that digital leadership plays an important role in strengthening corporate social responsibility (CSR) practices within organizations. Digital leaders enable organizations to implement CSR activities more effectively by integrating digital technologies into managerial processes. Technologies such as big data analytics, artificial intelligence, blockchain, and the Internet of Things contribute to increasing transparency, improving stakeholder engagement, and enhancing the measurability of CSR initiatives. These technologies also support the development of sustainable and innovative business models. Another significant finding is that education level has a meaningful impact on employees' perceptions of digital leadership and CSR. Employees with higher education levels demonstrate greater awareness of digital leadership practices and social responsibility initiatives. However, demographic variables such as age, gender, and seniority do not show a statistically significant effect on these perceptions.

Despite these contributions, the study has some limitations. Since the research was conducted within a limited sample in Bursa, the findings may not be fully generalizable. Future studies may provide broader insights by examining this relationship across different sectors and cultural contexts.

Conclusions

This study demonstrates that digital leadership has a positive and significant influence on corporate social responsibility (CSR) perceptions within organizations. The findings indicate that digital leaders contribute to more effective, transparent, and measurable CSR practices by integrating digital technologies into organizational processes. In particular, the use of technologies such as big data analytics, artificial intelligence, and blockchain strengthens stakeholder engagement and supports the development of sustainable business models. Another important result is that education level significantly affects employees' perceptions of digital leadership and CSR, while demographic variables such as age, gender, and seniority do not show a significant effect.

Overall, the study highlights that developing digital leadership competencies is a critical factor in enhancing CSR awareness and effectiveness in organizations. Integrating digital transformation strategies with sustainability-oriented leadership approaches can help organizations achieve both economic performance and social responsibility goals.

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