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E-Municipality and Public Relations in Digitalized Cities: An Interpretive Content Analysis on TR42 Region Municipalities

Dijitalleşen Kentlerde e-Belediyecilik ve Halkla İlişkiler: TR42 Bölgesi Belediyeleri Üzerine Yorumlayıcı Bir İçerik Analizi

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ABSTRACT

In an age where the understanding of non-urbanization has moved to the digital level, the need to benefit from digital tools for effective governance in municipalities brings the phenomenon of e-municipality to the agenda. The primary purpose of this research is to investigate the multifaceted interaction between e-municipality and Public Relations in digitalizing cities and examine how technology-oriented urban governance shapes public relations dynamics. The sample of this study, designed with the hermeneutic content analysis method, consists of Bolu, Düzce, Sakarya, Kocaeli, and Yalova, which are classified as the TR42 region. The websites of the municipalities in question in the research were analyzed with interpretive content analysis techniques regarding Security/Privacy, Citizen and Social Interaction, and operational-formal informational and Strategic Skill variables, and various suggestions were made. Research results show that e-municipality redefines traditional public relations concepts in digitalizing cities. Findings show that e-municipality offers essential opportunities to facilitate access to information, strengthen local democracy, enable citizens' participation in decision-making processes, and promote transparency and accountability. E-municipality platforms are a powerful public relations tool in that they provide essential opportunities for citizen-municipality interaction and encourage community participation. Integrating e-municipality and public relations in digitalizing cities points to a transformative change in urban governance. In this process, effective public relations strategies emphasize communication and active citizen participation, increasing the importance of adapting to this dynamic environment. From this point of view, the volume of policymakers and local governments to take measures to eliminate digital literacy inequalities increases.

Keywords: E-government, E-municipality, Public Relations, Digital Governance, E-service.

ÖZ

Kentleşmeme anlayışının dijital düzleme taşındığı bir çağda, belediyelerde etkin yönetişim için dijital araçlardan yararlanma ihtiyacı e-belediyecilik olgusunu gündeme getirmektedir. Bu araştırmanın temel amacı, dijitalleşen kentlerde e-Belediye ve Halkla İlişkiler arasındaki çok yönlü etkileşimi araştırmak ve teknoloji odaklı kentsel yönetişimin halkla ilişkiler dinamiklerini nasıl şekillendirdiğini incelemektedir. Yorumsamacı içerik analizi yöntemi ile kurgulanan bu çalışmanın örneklemini, TR42 bölgesi olarak sınıflandırılan Bolu, Düzce, Sakarya, Kocaeli ve Yalova oluşturmaktadır. Araştırmada söz konusu belediyelerin web siteleri; Güvenlik/Gizlilik, Yurttaş ve Sosyal Etkileşim ile Operasyonel-Formal-Enformasyonel ve Stratejik Beceri değişkenleri açısından yorumlayıcı içerik analizi tekniği ile analiz edilerek çeşitli önerilerde bulunulmuştur. Araştırma sonuçları, e-Belediyenin dijitalleşen şehirlerde geleneksel halkla ilişkiler kavramlarını yeniden tanımladığını göstermektedir. Bulgular, bilgiye erişimi kolaylaştırmak, yerel demokrasiyi güçlendirmek, vatandaşların karar alma süreçlerine katılımını mümkün kılmak, şeffaflık ve hesap verebilirlik bakımından e-belediyecilik önemli fırsatlar sunmaktadır. E-Belediyecilik platformları, vatandaş-belediye etkileşimi için önemli fırsatlar sunduğu ve topluluk katılımı duygusunu teşvik etmesi bakımından güçlü bir halkla ilişkiler aracı olduğu anlaşılmaktadır. Dijitalleşen şehirlerde e-Belediyecilik ve halkla ilişkilerin entegrasyonu, kentsel yönetişimde dönüştürücü bir değişime işaret etmektedir. Bu süreçte etkili halkla ilişkiler stratejileri, yalnızca iletişimi değil, aynı zamanda aktif vatandaş katılımını da vurgulayarak bu dinamik ortama uyum sağlamanın önemi artmaktadır. Buradan hareketle politika yapıcıların ve yerel yönetimlerin dijital okuryazarlık eşitsizliklerini ortadan kaldırmaya yönelik tedbirler almalarının önemi artmaktadır.

Anahtar Kelimeler: E-Devlet, E-Belediye, Halkla Ilişkiler, Dijital Yönetişim, E-Hizmet.

Introduction

In the 21st century, unprecedented urbanization and technological progress reshaping the structure of cities is reshaping the understanding of urbanization. In this process, the concept of digitalized cities has emerged as a defining paradigm for the future of urban governance and citizen participation. Two important forces are central to this transformation: e-municipality and Public Relations (PR) constitute the dynamic interaction shaping modern urban centers' communication, transparency, and accountability. Digitalization, which refers to the spread of information and communication technologies and their use in management processes, paved the way for the emergence of e-Municipality (Barns et al., 2017; Leon & Rosen, 2021; Lucas, 2019; Tutar & Parlak, 2023) E-municipality is about streamlining governance, digitizing public services, and enabling citizens to participate in governance processes to an extent unimaginable just a few decades ago. E-municipality requires a wide range of digital tools, platforms, and strategies to be considered together. In this process, e-municipality represents a bold departure from traditional bureaucratic processes and promotes a vision of data-driven and citizen-centered urban governance.

Within digitalization and e-municipalism, Public Relations has become an essential aspect of urban governance. Public relations professionals in digitalizing cities are tasked with managing local governments' image and reputation, facilitating transparent communication, soliciting citizen feedback, and ensuring digitalization's benefits are accessible to all residents (Dastan, 2015, p. 104; Elkhan, 2020). Within the framework of e-municipalities, public relations contribute to including citizens' wishes and concerns in decision-making processes and strengthening local democracy. Thanks to digitalization and e-municipality practices, Public Relations is transforming into a multifaceted role that includes digital media management, crisis communication, and citizen engagement, transcending the boundaries of the traditional institution-public communication function. E-municipality platforms provide citizens with new access to information services and contribute to developing a new field called digital governance by enabling citizens to participate in governance (Nikolina, 2022; Staykova, 2023; Van Kalken & Stamhuis, 2020, p. 384). Digital Governance creates a sense of shared ownership and collaboration. While this process promises efficiency and transparency, it also brings challenges related to data security, privacy, and digital inclusion.

E-Municipality, which refers to the use of digital technologies in local government activities, refers to all digital-based applications that expand the possibilities of communication and even interaction between the municipality and its residents. Digital Public Relations (PR) is vital in managing communication and interaction by effectively communicating the city's digital initiatives to the public. PR professionals can use various digital channels such as social media, websites, and email newsletters to disseminate information about e-municipality services, updates, and initiatives. These channels increase the interaction between the public and the municipality and expand the public's control over local governments (Bulantseva, 2022; Erdemir, 2015; Huang et al., 2017). This makes it possible for local will to be reflected in the municipal administration, strengthening local democracy through e-Municipality applications. Digitalized cities can generally strive for more transparency and accountability in their activities. E-municipality tools can provide more data and information on city services, budgets, and decision-making processes, and local democracy is strengthened to the extent that these data are accessible to the public (Nikolina, 2022; Galindo & Foronda, 2018; Staykova, 2023). Local democracy is maintained, so municipal governments use e-municipality platforms to interact with residents and collect feedback. Through digital channels, it is possible to collect data from city residents, receive feedback, and contribute to policy and strategy formulation in line with the needs and preferences of the public.

In digitalized cities, the intersection of e-municipality and public relations is the nexus of social change. As the world moves towards further digitalization, the effectiveness of e-municipalism and public relations is becoming increasingly important in shaping the livability, sustainability, and resilience of urban environments (Dastan, 2015, p. 104; Elkhan, 2020; Tutar et al., 2023). The primary purpose of this research is to examine the multifaceted interaction between e-Municipality and Public Relations in digitalizing cities. The study aims to develop a shared understanding between municipalities, public relations, and stakeholders. This research's findings and new insights will contribute to policymakers, municipal managers, public relations experts, and citizens' readiness for a digital society and intelligent cities. The research is expected to improve service delivery, enhance data security, and promote inclusive governance for policymakers, urban planners, and all those who exercise will in city governance. From this point of view, the research's central question is: How are the e-municipalities that constitute the sample in terms of e-municipality criteria?

Conceptual Framework

The Symbiotic Nature of e-Municipality and Public Relations

Symbiotic relationships in e-municipality and public relations refer to mutually beneficial partnerships or interactions between municipalities and the public facilitated by digital technology and electronic communication. These relationships are essential for promoting transparency, efficiency, accountability, and citizen participation in local governance. Symbiotic relationships in e-municipality and public relations primarily develop around transparency and accountability. E-municipality platforms give citizens easy access to government information, budgets, and decision-making processes. This transparency increases trust between the municipality and the public. It contributes to a symbiotic relationship with the city in which citizens are better informed—on the other side of this symbiotic relationship, the opportunity for citizen participation in governance increases, creating the possibility of moving from classical management to governance (Lyon, 2015; Ozturan et al., 2017; Raguvanshi ve Shrivastava, 2017, p. 138). E-municipality platforms, including websites, social media, and mobile applications, provide interaction and communication channels for citizens to engage with their local government. This engagement is reinforced through feedback, surveys, or online forums and discussions.

E-municipality provides various conveniences in delivering public services through digital channels such as online forms, appointment scheduling, and e-payment systems. While citizens benefit from the comfort of these services, central governments can also streamline their operations. Local governments use e-municipality platforms to disseminate news and receive information about policies and activities. Effective communication helps build the municipality's positive image, fostering goodwill and trust among citizens. Moreover, e-municipality platforms can facilitate feedback from citizens on various aspects of local governance. This feedback loop allows local authorities to make data-driven decisions, address community concerns, and develop better policies and strategies to serve the community. This also serves an essential function in strengthening local democracy (Boiang & Bwando, 2018, p. 86; Prabhakaran et al., 2018; Tutar & Akar, 2023). Through e-municipality platforms, governments can encourage citizens to engage in community development projects through e-municipality initiatives. This interaction and symbiotic relationship provide significant opportunities for local government, ranging from participatory budgeting to crowd-sourcing ideas for urban planning and development. It can be argued that to the extent that e-municipality platforms are designed with a wide range of accessibility possibilities, their functionality will increase to the extent that disabled citizens and crisis communication allow online interaction.

Data security must be ensured for the functionality of e-municipality activities. To protect citizens' data and build trust, it is essential to protect

secure and privacy-conscious e-municipality systems that respect personal privacy. Mutual trust can be established only through transparent and secure data protection practices, and the symbiotic relationship can be sustained. For the symbiotic relationship between the municipality and the local community to continue, the citizen's ability to use digital tools, in short, digital literacy competence and awareness, should be high (Ghorbani et al., 2016, p. 139; Prabhakaran et al., 2018; Elkhan, 2020). For symbiotic relations between the municipality and the public to continue healthily, the municipality's digital platforms must be adequate, and the public's digital literacy level must be high. Digital literacy effectively finds, evaluates, uses, and creates information using digital technology and online resources. In today's increasingly digitalized and technology-oriented world, digital literacy has become a critical skill for individuals of all ages (Phuapan et al., 2016, p. 24; Hauck, 2019; Churchill, 2020). Digital literacy requires professional-level knowledge or skills, from navigating the Internet to performing tasks such as file management, functionally using search engines, and presenting various products or services via computer or mobile devices. Digital literacy is also a level of competence towards reducing the digital divide. The digital divide refers to the gap between those who can benefit from the digital age and those who cannot. People who do not have access to the Internet and other information and communication technologies will be disadvantaged as they cannot obtain digital information, shop online, participate democratically, or learn and deliver skills. Programs that provide computers and related services have been made available to people who do not have this access (Van Dijk, 2017; Van Dijk & Hacker, 2003). Digital literacy also includes critically evaluating online information for accuracy and reliability. The capacity to learn how to protect personal information from online threats, how to troubleshoot common digital problems, and how to learn new digital tools and software is also related to digital literacy.

Citizens' ability to access a wealth of information and resources online and use many business and educational programs requires digital literacy skills. Effective communication through email, video conferencing, and social media is also a requirement of digital literacy. Digital literacy is also related to the ability of individuals to distinguish reliable information from misinformation or fakes. Local governments can use various digital literacy tools to promote digital literacy. Digital education workshops are one of them. These workshops are environments with digital infrastructure designed as hands-on workshops and training sessions to build digital skills (Zahorec et al., 2019; Ochoa & Nonnecke, 2019; Buchert et al., 2023). Furthermore, digital literacy courses accessible through online courses broaden the possibility of sustaining these symbiotic relationships. Local community centers can also provide computer access and training to residents. On the other hand, gamified digital skills training to benefit from all local services offered by the e-municipality platform can also contribute significantly to strengthening the symbiotic relationship. Another aspect is ensuring digital literacy for all, ensuring digital equality, and avoiding the digital divide (Bergström, 2017; Lorente et al., 2022, p. 180; Torres & Maeöts, 2019; Van Dijk, 2017). In this way, inequalities in access to technology and digital skills can be prevented from leading to social and economic disparities and the digital divide. However, it should not be forgotten that digital literacy is not a one-time success but an ongoing process. As digital technology evolves, it is only possible for individuals to stay up to date on new tools and platforms through continuous education. This is also valid for all institutions and organizations. Especially for the efficient use of e-municipality applications, the digital literacy levels of all citizens must be increased.

E-municipality works as an interaction network built on three pillars. One pillar is e-municipality services and service platforms, the other is local people/residents with digital literacy competence, and the other is internal and external stakeholders. Municipalities can collaborate with other stakeholders, such as businesses, non-profit organizations, and civil society organizations,

through e-Municipality platforms to address shared goals and challenges and strengthen social ties. The relationship and collaboration between internal stakeholders (employees and officials in the municipal government) and external stakeholders (citizens, businesses, non-profit organizations, and other organizations outside the municipal government) in e-municipality requires effective governance and successful implementation of digital initiatives (Bakardijeva, 2019, p. 19; Dastan, 2015, p. 104; Nelsanders & Malomane, 2022, p. 11). Municipal governments' e-municipality practices can be effective to the extent of the competence of their IT staff, i.e., internal stakeholders, and the digital literacy of citizens. The ability of internal stakeholders to adapt to new technologies, processes, and digital workflows is of great importance in terms of municipal efficiency and employee performance.

External stakeholders in e-municipality are citizens who benefit from e-municipality platforms, all institutions and organizations that receive e-services from the municipality, and non-governmental organizations. Like citizens, external stakeholders can also provide feedback, access information, and contribute to local governance by participating in decision-making processes through digital channels. Internal and external stakeholders play a role in defining digital governance policies and standards, including data security, privacy, and accessibility. These policies contribute to the ethical and secure conduct of digital initiatives (Prabhakaran et al., 2018; Sayed, 2020; Tutar et al., 2023). Municipalities can expand the application area of e-municipality through training and capacity-building programs to improve the digital literacy and skills of citizens and internal and external stakeholders. E-municipality can increase the possibility of digital governance by enabling external stakeholders to influence municipal services and management from different platforms. E-municipality can increase the likelihood of accountability and local democracy by facilitating access to information and transparency through online platforms (Perez et al., 2023; Reisdorf & Rhinesmith, 2020, p. 135; Wiig, 2016). Municipalities can strengthen this symbiotic relationship by collaborating with external stakeholders, often businesses and non-profit organizations, to implement e-municipality projects. The robustness of these relationships expands the possibilities for digital inclusion.

The relationship between e-municipality and PR is intertwined in today's digitalized cities. While e-municipal technologies provide the tools and platforms for digitalization, PR professionals play an essential role in facilitating effective communication, building trust, and ensuring that the benefits of digitalization are understood and embraced by the public. Regular feedback mechanisms and a commitment to improvement are essential for maintaining a positive and mutually beneficial partnership. It thrives on open communication, collaboration, and a shared commitment to community prosperity and well-being. Adopting e-municipality initiatives requires citizens and governments to work effectively together to raise the municipality's and its residents' standard of living (Raguyanshi & Shriyastava, 2017; Lyon, 2015; Ozturan et al., 2017; Tutar et al., 2023). In this process, PR professionals can help shape this image by showcasing successful e-municipality projects, highlighting innovation, and demonstrating how digitalization improves the lives of residents. As e-Municipality services evolve, PR professionals can educate residents on the benefits and use of these services. This can include creating educational materials, organizing workshops, and using digital platforms to raise awareness of new digital tools and services. PR can serve as a more effective feedback loop between residents and municipal authorities, expanding the possibility for local democracy and participatory governance (Galindo et al., 2018; Staykova, 2023; Vankalken & Stamhuis, 2020, p. 384; Nikolina, 2022). By monitoring online discussions and sentiment on social media and other digital platforms, public relations professionals can identify emerging concerns or issues with e-municipality and ensure that they are addressed promptly.

Methodology

Research Design

This study is carried out within the scope of TUBITAK project number 122G157. The working population of the project is the municipalities in the TR42 region (Kocaeli, Sakarya, Yalova, Düzce, Bolu). The study examined the services offered by TR42 region municipalities over the Internet using interpretive content analysis. The research is designed according to the interpretive content analysis technique. Content analysis aims to reach concepts and relationships that will help explain the collected data. In interpreting the content, the text is interpreted both inductively and deductively. Interpretive content analysis, which is preferred in this research, is a research technique that combines both quantitative and qualitative approaches in the same research. It is an analysis technique in which various themes, topics, and phenomena are determined and interpreted based on data (Banks, 2001; Drisko & Maschi, 2015; Giarelli &

Table 1

Content Characteristics Analysis of Websites of Municipalities.

Category	Bolu	Düzce	Sakarya	Kocaeli	Yalova	Total
General information about the municipality is included.	+	+	+	+	+	5
The mission of the municipality is included.	+	+	+	+	+	5
The municipality's vision is included.	+	+	+	+	+	5
Municipality's values are included.	+	-	+	+	-	3
The history of the municipality is included.	+	-	+	-	-	2
The objectives of the municipality are included.	-	+	+	+	+	4
Municipality's working areas are included.	+	+	+	+	+	5
The organizational chart of the municipality is included.	+	+	+	+	+	5
Municipality's bylaws are included.	+	+	+	+	+	5
The budget and financial reports of the municipality are included.	+	+	+	+	+	5
Information about the municipal assembly, commissions, and council is given.	+	+	+	+	+	5
Municipal council decisions are included.	+	+	+	+	+	5
Live broadcast of the municipal council's meetings and decisions in administrative areas such as tenders, etc.	+	+	-	+	+	4
Strategic reports of the municipality are available.	+	+	+	+	+	5
Information on the strategic planning of the municipality.	+	+	+	+	+	5
Information about the mayor is given.	+	+	+	+	+	5
Statements made by the mayor are included.	+	+	+	+	+	5
Municipalities' corporate publications (magazines, brochures, articles, reports) are included.	+	+	+	+	+	5
Multimedia content such as photos, videos, and audio files are included on the web page.	+	+	+	+	+	5
Events organized by the Municipality are included.	+	+	+	+	+	5
The municipality's press archive is included.	-	-	-	-	-	0
The municipality's event calendar is included.	+	+	+	+	+	5
Municipality's event announcements are included.	+	+	+	+	+	5
Introductory information about the province/district is included.	+	+	+	+	+	5
Links to the municipality's social media accounts are provided.	+	+	+	±	+	5
Current contact information of the Municipality is provided.	+	+	+	+	+	5
Downloadable documents related to the municipality's reports, publications, etc. are included.	+	+	+	+	+	5
27 Service context variables	**25**	**24**	**26**	**24**	**24**	

Tulman, 2003). The primary purpose of interpretive content analysis is to identify themes that have not yet been defined and to make them defined (Ahuvia, 2001; Giarelli & Tulman, 2003; Mayring, 2000). In interpretive content analysis, numbers and words with high frequencies are analyzed and subjected to various interpretations (Ghaffari et al., 2019; Krippendorff, 2013; Neuendorf, 2002). In interpretive content analysis, the quantitative part of the research focuses on specific research questions, while the qualitative part focuses on developing new, deeper understandings (Lisanti et al., 2017; Pouralizadeh et al., 2017; Ghaedi et al., 2015). In content analysis, content has a "text/message" value, such as newspaper news texts, television programs, movies, radio programs, websites, and social media pages. In this study, the "Digital Governance in World Municipalities" scale and the "Digital Skills Classification" scale developed by Van Dijk and Van Deursen (2014, p. 11) were used to collect data (Sayimer et al., 2019). Through interpretive content analysis, the characteristics of the websites of TR42 Region municipalities, usability features, service/service features, citizen and social interaction features, operational adequacy of the website, formal adequacy of the website, informational adequacy of the website, strategic adequacy of the website and e-governance adequacy. The coding units of the research were created, analyzed, and interpreted as "present, sufficient (+)," present, inadequate (±), "absent (-)," and "unclear (?)," and various suggestions were made.

The municipalities' websites were analyzed regarding content features covering 27 variables, such as general information about the city (vision, mission, values), corporate reports/publications, contact information, and access to public documents, reports, publications, and

Table 2

Usability Characteristics Analysis of Web Sites of Municipalities

Category	Bolu	Düzce	Sakarya	Kocaeli	Yalova	Total
The municipality's corporate colors are included.	+	+	+	+	+	5
The background color is simple and understandable.	+	+	+	+	+	5
It is suitable for the use of Turkish characters.	+	+	+	+	+	5
The font and size used are suitable for reading.	+	+	±	+	+	5
Page length is optimal.	+	+	-	-	-	2
Page margins are optimal.	+	-	-	-	-	1
The website is easy to access.	+	+	+	+	+	5
The link to the web page and the municipality's name are linked.	+	+	+	+	+	5
The web page loads in a short time/fast.	+	+	+	+	+	5
There is a site map on the web page.	-	-	-	+	-	1
There is a search engine on the web page.	+	+	-	+	+	4
The links on the web page can be accessed quickly.	+	-	+	+	+	4
The desired information can be accessed with the three-click rule.	+	+	+	+	+	5
There are no problems such as slippage, complexity of characters, and visual elements on the web page.	+	+	+	+	+	5
The page has a structure suitable for printing.	+	+	+	+	+	5
There is a language selection option on the web page.	-	-	-	-	-	0
The web page is suitable for loading from mobile devices.	+	+	+	+	+	4
There are online forms on the web page.	+	+	+	+	+	5
The online forms on the web page are easy to fill in.	+	+	+	+	+	5
The information on the web page is regularly updated.	+	+	+	+	+	5
There is a navigation service on the web page.	+	-	+	+	-	3
The web page is suitable for disabled access.	-	-	-	-	-	0
22 Usability Variables	**19**	**16**	**16**	**18**	**16**	

multimedia materials. According to Table 1, Sakarya Metropolitan Municipality has the most information in terms of content features with 26 variables among the municipalities in the TR 42 region. Bolu Municipality has 25 variables, while Düzce Municipality, Kocaeli Metropolitan Municipality, and Yalova Municipality have 24 variables. As a result of the research, it is understood that the web pages of the municipalities in the TR 42 region contain information that will enable citizen access. Regarding Content Features of Municipal Websites, it is understood that Düzce and Yalova municipalities do not include municipal values. The cities that do not have the city's history are Düzce, Kocaeli, and Yalova. Sakarya Metropolitan Municipality is the only municipality not providing live broadcasts of the municipal council's meetings and decisions in administrative areas such as tenders. None of the cities in the sample included a press archive. Sakarya Metropolitan Municipality received the highest score (26) regarding content features. The total score of other municipalities (24) is equal.

The usability levels of the websites of the municipalities were analyzed in terms of 22 usability variables, including user-friendly formal features such as page length background color and functional features such as access to the web page, fast loading, and the presence of a search engine that enables search operations to be performed easily. According to Table 2, Bolu Municipality has the highest web page usability level among TR 42 region municipalities with 19 variables. With 18 variables, Kocaeli Metropolitan Municipality ranks second in usability, while Düzce, Sakarya, and Yalova Municipalities rank last with 16 variables on their web pages. Regarding usability variables, the point of attention is that no municipality includes disabled access on its website. Municipalities should include disabled access, adding alternative text to image files, adding links to links, headings should be systematic, subject to page refresh, layers should be used instead of tables, and tables should be constantly accessible.

Line length is essential in the design of web pages. Line length is the average number of characters per line. Font type, along with factors such as character size, line spacing, color, background, and space, are essential for the readability of a text. In very long lines or very narrow line spacing, the eye has difficulty finding the beginning of the line. It is stated that concise lines disrupt the reading rhythm and create tension in the reader. Character length and line height (line spacing) should be considered when deciding online length. The optimal line length is 9 or 10 words. Here, a word is 5.5 letters on average. Twenty-seven characters is the lower line length limit, 40 is optimal, and 70 is the upper limit (https://pitstop.com.tr). While Bolu and Düzce municipalities are at an average level in terms of optimal page length in terms of the usability indicator of the cities, it is understood that Sakarya, Kocaeli, and Yalova municipalities are not at optimum levels in terms of page length.

The appropriate page margin range for a document depends on several factors, including the document type, its purpose, and the preferences of the person or organization who created the document. However, the appropriate margin for different document types is top and bottom margins: 1 inch (2.54 cm), left and right margins: 1 inch (2.54 cm). The town with optimal page margins is only the Bolu municipality web page. Among the municipalities in the sample, only Kocaeli Metropolitan Municipality has a site map on its web page. It was determined that none of the cities in the model had a language selection option on the web page. The municipalities do not have navigation services on their web pages are the Düzce and Yalova municipalities. It is understood that none of the municipalities' web pages are compatible with disabled access. The municipality with the highest score in terms of usability features on the web pages of TR42 Region municipalities is Bolu Municipality, with 19 points, and Kocaeli Metropolitan Municipality, with 18 points. The scores of other cities (16) are at an equal level.

Table 3

Service Features Analysis of Web Sites of Municipalities.

Category	Bolu	Düzce	Sakarya	Kocaeli	Yalova	Total
There is an information request application page on the website.	+	+	+	+	+	5
There is a debt inquiry service on the website.	+	+	+	+	+	5
Permission applications for any service area can be made on the web page.	-	-	-	-	-	0
There is an online transaction tracking system on the web page.	+	+	+	+	+	5
An online complaint form on the web page can be filled in on any subject.	+	+	+	+	+	5
An online wish, request, and demand form can be filled in on any subject on the web page.	+	+	+	+	+	5
There is a system for online payment of fines and taxes on the web page.	+	+	+	+	+	5
There are e-municipality services for transportation services on the web page.	+	+	+	+	+	5
There are e-municipal services for culture and art services on the web page.	+	+	+	+	+	5
There are e-municipal services for vocational and skill acquisition on the website.	+	+	+	+	+	5
There are municipal services for water and sewerage services on the website.	+	-	+	+	+	4
There are e-municipal services for social services and assistance services on the web page.	-	+	-	-	-	1
There are e-municipal services for environmental services on the website.	-	+	+	+	+	4
There are e-municipal services for health and cleaning services on the website.	+	-	+	+	-	3
There are e-municipal services for search and rescue services on the website.	+	+	+	+	+	5
There are e-municipal services for tourism and promotion services on the website.	-	-	-	-	-	0
The web page has e-municipal services for housing, zoning, and acquisition services.	+	+	+	+	+	5
The web page has e-municipal services for geographical and urban information systems services.	+	+	+	+	+	5
There are e-municipal services for burial and cemetery services on the web page.	+	+	+	+	+	5
There are e-municipality services for fire brigade services on the website.	+	+	+	+	+	5
There are e-municipal services for employment and income services on the website.	+	+	+	+	+	5
There are e-municipal services for marriage services on the web page.	+	+	+	+	-	4
There are e-municipal services related to permits and licenses for natural and legal persons on the web page.	+	+	+	+	+	5
There are e-municipal services for sports services on the web page.	+	+	+	+	+	5
The web page has e-municipal services for other service areas for citizens.	-	-	-	+	-	1
25 Service Variables	**21**	**21**	**22**	**23**	**20**	

The websites of the municipalities were analyzed in terms of 25 service/service variables, including the services they offer to citizens and various stakeholders in terms of e-municipal services, such as applications for obtaining information, online transactions and payments, debt inquiry transactions, sports, tourism, marriage, housing, culture, and arts. According to Table 3, Kocaeli Metropolitan Municipality is the municipality that provides the highest number of services with 23 variables among the 42 TR region municipalities. Sakarya Metropolitan Municipality follows Kocaeli

Metropolitan Municipality with 22 variables and Bolu and Düzce Municipalities with 21 variables, while Yalova Municipality ranks last with 20 variables. In general, it is seen that municipalities' e-municipal services for sports, search and rescue, water and sewerage services, and permit applications in any service area are insufficient.

Among the TR42 Region municipalities in the sample, no city in the service/services category allows permit applications for any service area on its website. The only municipality that has e-municipal services for water and sewerage services on its web page is Düzce Municipality. It has been determined that no city has e-municipal benefits for search and rescue services on the web page of the cities forming the sample. In addition, it was determined that Kocaeli Municipality is the only municipality with e-municipal services for sports services on its web page. In the services category with 25 service types, it is understood that the municipality with the highest score is Kocaeli Municipality, with 23 services. In this category, Bolu and Düzce municipalities scored 21, Sakarya Metropolitan Municipality scored 22, and Yalova Municipality scored 20. According to the findings, the web pages/e-municipality service features of TR42 Region municipalities must be improved.

Security features on the websites of municipalities were analyzed through eight variables such as the existence of privacy policies, informing citizens about personal data sharing processes, enabling users to create a private profile and make transactions with tools such as password/digital signature, account recovery, and the existence of 3D security services in commerce. According to Table 4, Sakarya Metropolitan Municipality is the municipality that provides the most privacy/security features with seven variables. Bolu Municipality and Kocaeli Metropolitan Municipality follow Sakarya Metropolitan Municipality with six variables. Yalova Municipality ranks fourth with five variables, and Düzce Municipality ranks last with two variables. It has been determined that all analyzed municipalities can create a profile and make transactions on e-municipality pages and that 3D security service is provided. In terms of creating a profile with a digital signature, it was observed that no assistance was provided in any municipality.

It is understood that the only municipality in the sample that does not have information about privacy/security policy on its web page is Düzce Municipality. The municipalities do not have a button to approve the privacy/security policy

Table 4

Analysis of Security/Privacy Features of Web Pages of Municipalities.

Category	Bolu	Düzce	Sakarya	Kocaeli	Yalova	Total
The website contains information about the privacy/security policy.	+	-	+	+	+	1
The web page has a button to approve the privacy/security policy.	+	-	+	+	-	2
Information on the web page shows that sharing personal data with third parties is allowed.	+	-	+	+	+	2
The web page states that sharing personal data with third parties is prohibited.	-	-	+	-	-	1
A profile can be created, and transactions can be made with my username and password on the web page.	+	+	+	+	+	5
It is possible to create a profile and make transactions with the digital signature system on the website.	-	-	-	-	-	0
Account recovery and profile control can be performed with the security verification system on the website.	+	-	+	+	+	4
3D Secure (3D Security) service is available on the website.	+	+	+	+	+	5
Eight Security/Privacy Variables	**6**	**2**	**7**	**6**	**5**	

on their websites are the Düzce and Yalova municipalities. Düzce municipality is the only municipality that does not have information about permission to share personal data with third parties on its website. Sakarya Metropolitan Municipality is the only municipality with information on its website that states that personal data cannot be shared with third parties. In the privacy and security category, all municipalities can create a profile on their websites with a username and password. No municipality in the sample could create a profile and transact with a digital signature system on its website. Only Düzce municipality has no account recovery and profile control process with the security verification system on the web page. Sakarya Metropolitan Municipality received the highest score (7) in the privacy and security category with eight variables. Kocaeli Metropolitan Municipality follows this with seven points, Bolu Municipality with six points, and Yalova Municipality with five points. The municipality with the lowest score in this category is Düzce, with two points.

Citizen and social/interaction features on the web pages of municipalities were analyzed in all selected municipalities through four variables: access by e-mail, the suitability of the web page for online consultation, the presence of online voting on the city agenda, and the company of digital service evaluation surveys. According to Table 5, Bolu, Yalova, Sakarya, and Kocaeli Municipalities in the TR42 region are at the same level in one variable, while Düzce Municipality ranks last in this criterion. It has been observed that e-municipal services are inadequate regarding Citizen and Social Interaction features in all municipalities examined.

None of the web pages of the sampled municipalities provide e-mail access to municipal representatives. Bolu and Yalova municipalities have web pages that are suitable for online consultation. No municipalities' websites allow online voting on any issue related to the city agenda. Sakarya and Kocaeli metropolitan municipalities have online surveys on their websites that will enable evaluations of the services the municipalities provide. It can be argued that the web pages of the cities operating in the TR42 Region are insufficient regarding citizen and social interaction features.

Table 5

Citizen and Social Interaction Features of Municipal Web Pages.

Category	Bolu	Düzce	Sakarya	Kocaeli	Yalova	Total
The website is accessible by e-mail to all elected municipal representatives.	-	-	-	-	-	0
The website is suitable for online consultation.	+	-	-	-	+	2
The website allows online voting on any issue related to the city agenda.	-	-	-	-	-	0
Online questionnaires on the website allow for evaluating the services the municipalities provide.	-	-	+	±	-	2
Four Citizen and Social Interaction Variables	**1**	**0**	**1**	**1**	**1**	

The services provided by TR42 Region municipalities within the scope of e-municipality services were analyzed within the framework of operational competence, formal competence, informational competence, and strategic competence variables that measure the relationship between citizens' level of digital skills. In terms of functional competence, there are criteria such as the ability of citizens to download/multimedia content to the municipality's web page; in terms of formal competence, there are criteria such as the ability to open additional tabs related to the relevant subject on the municipality's web page and that the web page has a clear and straightforward structure that allows transactions; in terms of informational competence, there are criteria such as the ease of finding the desired information on the page. Municipalities received total points in terms of operational skills. In the formal skills category of the Citizens' Digital Skills section, only Düzce Municipality did not receive any issues regarding the simple and understandable structure of the web page where e-municipal services are provided.

The informational skills category determined that Sakarya and Kocaeli municipalities scored points in the variable that the desired information can be found on the web page where e-municipal services are provided without searching within the site. Bolu and Sakarya municipalities were found to offer sufficient opportunities in terms of the variable. The subject headings can be easily found on the web page where e-municipal services are provided and include keywords that will facilitate access to the desired information. In the strategic skills category, the municipality's e-municipal services web page has an application such as "frequently asked questions." Still, the municipality page needs to offer solutions to the problems citizens face. According to Table 6, Bolu, Sakarya, and Yalova Municipalities have a higher level of compliance with Citizens' Digital Competence level with six variables than other municipalities. Kocaeli Metropolitan Municipality follows five variables, while Düzce Municipality ranks last in digital skills competence. These findings show that the web pages of TR42 Region municipalities are at a medium level in terms of enabling local people with formal digital skills to use the carrier.

Discussion and Conclusion

In this study, the web pages of TR42 Region Municipalities were analyzed in terms of "content," "usability," "services/services," "privacy/security," "citizen and social interaction," and Citizens' Digital Skills. In a digital age characterized by rapid urbanization and the pervasive impact of digital technologies, cities are undergoing transformative changes. The digitalization of towns, their transformation into smart cities, and the integration of e-municipality platforms are reshaping the dynamics of public relations (Phuapan et al., 2016, p. 24; Hauck, 2019; Tutar et al., 2023). Effective public relations strategies require adapting to the digital paradigm by emphasizing transparency, responsiveness, and accessibility. Policymakers must address the digital divide to ensure inclusivity and equity in citizen engagement. They must also ensure digital trust and protect data privacy to increase citizen motivation to transact in digital environments. In this study, which aims to determine the symbiotic structure of e-municipality and Digital Public Relations, it can be argued that e-municipality platforms have significantly transformed the establishment of relations between citizens and local governments and that these relations even have a symbiotic feature. It is understood that digitalized cities allow for increased transparency through the dissemination of information and the emergence of a structure that strengthens the sense of civic participation among residents. Furthermore, it can be argued that e-municipality platforms facilitate effective service delivery and increase citizen satisfaction (Dastan, 2015; Elkhan, 2020; Hauck, 2019; Churchill, 2020). However, it can be argued that challenges related to digital literacy, privacy concerns, and inclusiveness remain. The integration of e-municipality initiatives continues to revolutionize public relations in the digitalizing cities of the Republic.

Digital technologies open up great possibilities to create a symbiotic relationship between e-municipality and public relations, a mutually beneficial partnership. These relationships should foster transparency, participation, and improved service delivery while strengthening community trust and cooperation. Effective e-municipality implementation requires building and maintaining symbiotic relationships by improving public relations. The proliferation of e-municipality platforms that leverage digital tools and data-driven strategies is a cornerstone of urban transformation (Lyon, 2015; Ozturan et al., 2017; Barns et al., 2017; Tutar et al., 2023). These platforms offer excellent opportunities to increase the efficiency of municipal services, promote transparency, expand the scope of governance practices, and contribute to local democracy by facilitating citizens' participation in decision-making processes. The symbiotic relationship between E-mobility and public relations means that public relations is an auxiliary function of governance and a key driver of democracy, accountability, civic participation, and quality of urban life. In an era of rapid technological developments, the smart city concept emerges as a transformative vision for urban life (Smith, 2015; Rodriguez & Gomez, 2018; Chen & Li, 2017). At the heart of this transformation is the growing importance of e-municipalities, a multifaceted approach that leverages digital tools and communication strategies to improve public service delivery, engage citizens, and promote effective governance. Therefore, today, the relationship between public relations and e-municipalities is not an alternative but a necessity that requires a symbiotic relationship.

Today, cities are physical spaces, living data, and communication ecosystems. The rise of e-municipalism, driven by advances in information and communication technologies, marks a fundamental shift in how citizens interact with their local governments. Traditional ways of participation, such as town hall meetings and bureaucratic procedures, are increasingly supported or replaced by digital platforms that offer real-time access to information, services, and decision-makers. The importance of effective public relations in digitalization cannot be overstated (Williams & Brown, 2019; Johnson & Davis, 2018). Classical public relations, primarily concerned with shaping public perceptions and maintaining a positive image, is now indispensable for e-municipal activities. It influences the strategies to disseminate information, receive feedback, and build trust in the digital environment. It plays a vital role in bridging the digital divide by ensuring that the benefits of e-municipality are accessible to all residents, regardless of their level of technological literacy or socioeconomic status (Norris, 2016; DiMaggio et al., 2016). Effective e-municipality strategies require various communication channels, including social media, e-mail, mobile applications, and websites. This multi-channel approach requires a symbiotic relationship between the municipality, the local community, and its internal and external stakeholders.

As a result, in this study, which examines the municipalities of the TR42 Region in terms of different variables, it is understood that the web pages of the cities that make up the sample are inadequate in terms of content features, the variables not including the history of the municipality, live broadcast of the municipal council's meetings and decisions in administrative areas such as tenders, etc., and the press archive of the city. In terms of usability features, municipal web pages have significant problems in terms of the optimality of page length and page margins, the lack of a site map on the web page, the lack of language selection and navigation on the web page, and the lack of disabled accessibility on the web pages. In terms of the service/service features variable, municipalities cannot apply for permits for any service area on their web pages, there are no e-municipal services for water and sewerage services on their web pages, there are no e-municipal services for search and rescue services on their web pages, and there are no e-municipal services for sports services on their web pages. In terms of the security/privacy variable of the municipalities' web pages, there are problems

such as the lack of information about the privacy/security policy, the lack of a button to approve the privacy/security policy on the web page, the lack of information on the web page that personal data is allowed to be shared with third parties, the lack of information on the web page that personal data is not allowed to be shared with third parties, and the inability to create a profile and perform transactions with the digital signature system on the web page.

In terms of Citizen and Social Interaction Characteristics, there are problems such as the fact that the web page of the municipalities is not suitable for e-mail access to all elected municipal representatives, the web page is not ideal for online consultation, the web page does not allow online voting on any issue related to the city agenda, and there are problems such as the lack of online surveys on the web page that would enable evaluation of the services provided by the municipalities. In terms of citizens' digital skills, in the category of informational skills, there are problems such as not being able to find the desired information on the web page where e-municipal services are provided, the topics can be easily found on the web page where e-municipal services are provided, and the lack of keywords that make it easier to access the desired information. In the category of strategic skills, there are problems such as the lack of a section such as "frequently asked questions" on the web page where e-municipal services are provided and the lack of a structure that includes solution suggestions for the problems experienced by citizens. It is understood that IT specialists and public relations specialists must work together to eliminate these problems.

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Genişletilmiş Özet

Giriş: Dijital teknolojilerin ortaya çıkışı, kamu yönetimi ve belediye hizmetlerinin görünümünü temelden değiştirmiştir. Belediye hizmetlerini sunmak için elektronik araçların kullanılmasını ifade eden bir kavram olan e-belediyecilik, bu dijital evrimin önemli bir bileşeni olarak ortaya çıkmıştır. Bu çalışma, Türkiye'nin Kocaeli, Sakarya, Düzce, Bolu ve Yalova illerinden oluşan TR42 bölgesinde e-belediye hizmetlerinin uygulanmasını ve etkinliğini incelemektedir. Araştırma, bu belediyelerin dijital platformları halkla ilişkiler (PR) ve hizmet sunumu için nasıl kullandıklarını değerlendirmek için yorumlayıcı bir içerik analizi kullanmaktadır.

Dünya genelinde belediyeler hizmet verimliliğini, şeffaflığı ve vatandaş katılımını artırmak için bilgi ve iletişim teknolojilerinden (BİT) giderek daha fazla yararlanmaktadır. E-belediyecilik, çevrimiçi fatura ödemeleri ve izin başvurularından sivil katılımı teşvik eden interaktif platformlara kadar geniş bir hizmet yelpazesini kapsamaktadır. Hızlı kentleşme ve endüstriyel büyüme ile karakterize edilen TR42 bölgesinde, e-belediye girişimlerinin benimsenmesi, çeşitli nüfusun karmaşık ihtiyaçlarının karşılanması için kritik öneme sahiptir.

Bu bağlamda halkla ilişkiler, belediyelerin seçmenleriyle iletişim kurmak ve onların ilgisini çekmek için kullandıkları strateji ve uygulamaları ifade eder. Etkili halkla ilişkiler uygulamaları, vatandaşların e-belediye hizmetleri hakkında bilgi sahibi olmalarını ve bu hizmetlerden etkin bir şekilde faydalanmalarını sağlamak açısından büyük önem taşımaktadır. Bu çalışma, TR42 bölgesindeki e-belediye hizmetleri ve halkla ilişkiler çabaları arasındaki etkileşimi anlamayı, en iyi uygulamalara ve iyileştirme alanlarına ışık tutmayı amaçlamaktadır.

***Yöntem*:** Bu araştırma, TR42 bölgesindeki belediyelerin dijital varlıklarını ve halkla ilişkiler faaliyetlerini incelemek için yorumlayıcı bir içerik analizi yaklaşımını benimsemektedir. Çalışma, belediye web sitelerinin, sosyal medya platformlarının ve diğer dijital iletişim kanallarının sistematik bir incelemesini içermektedir. İncelenen temel göstergeler arasında e-hizmetlerin mevcudiyeti ve erişilebilirliği, güncellemelerin sıklığı ve niteliği, vatandaş katılımı ölçütleri ve bilgilerin şeffaflığı yer almaktadır. Veriler, TR42 bölgesindeki beş il belediyesinin resmi web sitelerinden toplanmıştır. Belediyelerin halkla ilişkiler ve hizmet sunumu için dijital araçları nasıl kullandıklarına dair temaları ve kalıpları belirlemek amacıyla yorumlayıcı içerik analizine göre analiz edilmiştir.

Bulgular: Analiz, TR42 bölgesi genelinde e-belediye hizmetlerinin benimsenmesi ve yürütülmesinde önemli farklılıklar olduğunu ortaya koymuştur. En sanayileşmiş illerden biri olan *Kocaeli*, gelişmiş bir e-belediye altyapısına sahiptir. Belediyenin web sitesi, online vergi ödemeleri, ruhsat başvuruları ve gerçek zamanlı trafik güncellemeleri de dahil olmak üzere geniş bir hizmet yelpazesi sunmaktadır. Halkla ilişkiler stratejisi, sık güncellemeler ve sosyal medya platformlarında aktif katılım ile oldukça güçlü bir konumda olduğu anlaşılmaktadır. Diğer bir büyükşehir belediyesi olan Sakarya, belediye hizmetlerini dijitalleştirme konusunda kayda değer adımlar atmıştır. Belediye çeşitli e-hizmetler sunmaktadır, ancak bu hizmetler Kocaeli ile kıyaslandığında biraz daha sınırlıdır. Düzenli paylaşımlar ve sivil katılımı artırmayı

amaçlayan interaktif içeriklerle sosyal medya katılımı yüksektir. Düzce'de e-belediye hizmetleri henüz gelişme aşamasındadır. Belediyenin web sitesi temel bilgileri ve birkaç çevrimiçi hizmeti sunmaktadır, ancak genişleme için önemli bir alan vardır. Halkla ilişkiler çabaları, ara sıra yapılan güncellemeler ve vatandaş etkileşimleri ile orta düzeydedir. Belediye daha proaktif bir dijital strateji benimseyerek önemli ölçüde fayda sağlayabilir. Bolu: Bolu'nun e-belediye hizmetleri, çeşitli çevrimiçi hizmetler sunan kullanıcı dostu bir web sitesi ile nispeten iyi gelişmiştir. Belediye sosyal medyada aktiftir ve bu platformları halkın katılımı ve bilgi dağıtımı için etkin bir şekilde kullanmaktadır. Ayrıntılı raporlar ve mali bilgilerin halkın erişimine hazır olmasıyla şeffaflık konusuna kayda değer bir vurgu yapılmaktadır. Yalova'nın dijital belediye hizmetleri sınırlıdır ve öncelikli olarak interaktif hizmetlerden ziyade bilgi sağlamaya odaklanmaktadır. Belediyenin halkla ilişkiler faaliyetleri daha seyrektir ve vatandaş katılımı nispeten düşüktür. E-hizmetlerin çeşitliliğinin artırılması ve daha dinamik halkla ilişkiler stratejilerinin benimsenmesi Yalova'nın dijital girişimlerinin genel etkinliğini artırabilir.

Tartışma ve sonuç: Bulgular, TR42 bölgesindeki e-belediye hizmet sunumunun ve halkla ilişkiler uygulamalarının heterojen yapısını vurgulamaktadır. Kocaeli ve Bolu gibi bazı belediyeler kapsamlı dijital altyapılar kurarken, Düzce ve Yalova gibi diğer belediyeler bunun gerisinde kalmıştır. Etkili halkla ilişkiler stratejileri, mevcut hizmetlerin daha fazla bilinmesini ve kullanılmasını kolaylaştırdığı için e-belediye girişimlerinin başarısının ayrılmaz bir parçasıdır. Sosyal medya ve diğer dijital platformlar aracılığıyla vatandaşlarla aktif bir şekilde etkileşim kuran belediyelerin hizmet alım ve memnuniyet düzeyleri daha yüksektir. Buna karşılık, sınırlı dijital katılım, e-hizmetlerin yeterince kullanılmaması ve daha düşük vatandaş memnuniyeti ile ilişkilidir. Çalışma, her belediyenin kendine özgü demografik ve sosyo-ekonomik bağlamlarını göz önünde bulundurarak dijital dönüşüme özel bir yaklaşım ihtiyacının altını çizmektedir.

E-belediyecilik ve halkla ilişkiler uygulamaları, modern kentsel yönetişimin kritik bileşenleridir. TR42 bölgesi, dijital belediye hizmetleriyle ilgili daha geniş çaplı zorlukların ve fırsatların bir mikrokozmosunu sunmaktadır. TR42 bölgesindeki belediyeler, önde gelen belediyelerin en iyi uygulamalarını benimseyerek ve seçmenlerinin özel ihtiyaçlarını ele alarak hizmet sunumunu geliştirebilir, daha fazla sivil katılımı teşvik edebilir ve daha şeffaf ve duyarlı yerel yönetimler oluşturabilir. Gelecekte yapılacak araştırmalar, yapay zeka ve blok zinciri gibi yeni teknolojilerin e-belediye hizmetleri üzerindeki etkisini araştırmalıdır. Ayrıca, diğer bölgeleri de içeren karşılaştırmalı çalışmalar, belediye yönetişiminde başarılı dijital dönüşümü sağlayan faktörler hakkında daha derin bilgiler sağlayabilir.

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