

Analysis of the Perception of Professionals in Municipalities of Dammam Metropolitan Area Towards Introducing E-Participation in Saudi Urban Planning

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ABSTRACT

The aim of the study is to investigate the e-participation in urban planning in Saudi Arabia (KSA). It further investigates the perception of the employed professionals in the municipalities of Dammam Metropolitan Area (DMA) towards introducing e-participation. The study adopts a quantitative research method. The data is collected through a structured self-administrated survey. The sample for survey is drawn from the municipalities in DMA, KSA. The target population of the study is defined as professionals working in municipalities in DMA. The findings of the study indicate that the professionals in municipalities have optimistic attitudes toward e-participation in urban planning. They believe that e-participation in urban planning will contribute in having high representation of public, positive contribution, and speeding up the decision making. The findings also show that there is almost complete agreement in the views regarding the e-participation feasibility in planning process during crises (such as COVID-19).

KEYWORDS

E-Participation, E-Planning, Kingdom of Saudi Arabia, Metropolitan Area, Municipalities of Dammam, Population, Public Participation, Urban Planning

INTRODUCTION

Public engagement can improve policy-making, bring diversified views and voices to policy decisions made. It can lead to better-informed programs and policies which are in accordance with the needs of the citizens. The public engagement process also strengthens the transparency and accountability to establish civic capacity (Katsonis, 2019). Planners have traditionally worked for the public interest (Sager, 2012). That is why most of a planner's time is spent on talking and interacting with people. This means that dialogue has the potential to change situations. It also means that communication between planners and the public can lead to shared information that, in turn, can be embedded in the planning process (Innes, 1998). As modern society is undergoing a participatory revolution, there is a need to identify new public participation methods, which means that there should be new ways of collaboration and interaction for joint learning (Bobbio, 2019). Local knowledge is critical in not only deciding plans but also implementing them fairly on ground. Public interaction is a dialogue between the government and the public as well as a dialogue between the various members of the public. The idea of participation should be understood as an act of thriving creativity rather than

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just one-way communication. This also promotes society as a living organism rather than a machine (Booher & Innes, 2005).

Given the above, evolution in ways public is engaged important. The information society in which we live today has information-based objects that are convenient and do more than what they are supposed to do (Innes, 1998). However, planners should focus on the assumptions behind these new ways before they are implemented, as these assumptions can hinder or facilitate public participation.

There is a potential to engage the public and develop lasting relationships through informal public engagement processes; people who fear speaking out or reservations about attending formal events can express their opinions more freely about the issues (Leong, Forester, & Decker, 2009). The planning authorities in municipalities pay attention to how to plan, develop and then provide services that meet the need of the communities. Planners engage themselves in all areas of city development and come with solutions for many problems like the rapid growth of urbanization and population (Krog, 2019). Planning authorities play an essential role in providing meaningful public engagement. Therefore, various approaches of participation were introduced for urban planning to enhance meaningful public engagement.

Public participation research in the community planning process mainly focuses on the design of participation activities and tensions there (Clark, 2020). The process inherent in accommodating such rapid urbanization raises the importance of employing sophisticated tools to engage the public in the decision-making on a variety of issues in urban planning.

Instead of telling the citizens what to do, citizens should be allowed to plan the future of the places they choose to inhabit (DCLG, 2011). In previous years, the world witnessed the emergence of SARS, Zika, and Ebola (Gadhi, 2020). In 2020, another unwelcome guest hit nations, known globally as the novel coronavirus disease, COVID-19. It caused a severe disruption worldwide (Allain-Dupré, Chatry, Michalun, & Moisiso, 2020). The COVID-19 pandemic has a vast impact on municipal governments, and it caused great harm to the inhabitants, services, employment, economics, and governmental institutions.

This matter paralyzed the world and the system (Allain-Dupré et al., 2020). The COVID-19 crisis introduced digital government as a need to manage government institutions' activities and services (Mishra, 2020). Therefore, a municipality with the capability and expertise in ICT should affect the management of the planning process. This allows the governmental institutions to conduct and manage the work without stopping/freezing the activities during the crises. This raises the importance of employing ICT in the planning process to manage urban planning issues during emergencies. Intelligent technologies help increase civic engagement and trust in municipal officials (Campisi, Akgün, Ticali & Tesoriere, 2020). This tool can foster more people (Koekoek & van Lammeren, 2008), manage populated urban areas, and lessen vast distances or even large amounts of time that people face. In fact, ICT has no fixed place or time (Gajendra, Xi, & Wang, 2012). In general, ICT is a necessary tool in all aspects of city development. In Saudi Arabia, cities are rapidly developing and being transformed in response to the continuous economic reform that moves the cities towards change and progress, showing a strong need now for effective urban planning processes across the country. With high urban population growth (Abou-Korin & Al-Shihri, 2015; Abubakar & Aina, 2018) and for citizens who are not living in urban areas, municipalities must make efforts to engage communities and stakeholders in the urban planning process through e-participation in the local level planning process at municipalities. Based on the importance of public participation and creating new ways, this paper studies e-participation in urban planning in Saudi Arabia. It engages the professionals in the municipalities in Dammam Metropolitan Area (DMA), Saudi Arabia, as stakeholders in facilitating the planning process and aims to investigate their opinions towards e-participation and employ it as an additional administrative tool. Therefore, the study aims to examine the e-participation in urban planning in Saudi Arabia (KSA). It further investigates the perception of the employed professionals in the Dammam Metropolitan Area (DMA) municipalities towards introducing e-participation.

The study is structured in the following way: the next section highlights the study's objective, followed by an extensive literature review section. After this comes the study's methodology followed by results, discussion, conclusion, limitation, and recommendations.

Study Objectives

The main aim is to investigate the perception of professionals in the municipalities of DMA towards e-participation. The Objective of the study is as follows:

- To explore the opinions of professionals in municipalities at Dammam Metropolitan Area (DMA) toward feasibility in urban planning during crises such as COVID-19.

Literature review

Public Participation Initiatives and Empower People in Saudi Arabia

A number of initiatives have been launched in Saudi Arabia to enhance the channels of public contact. In 1926, in the city of Mekkah, early initiatives were introduced by King Abdul Aziz when he established the "Shura" consultation system (Alshihri, Bouregh, & Al-Harigi, 2014; Mandeli, 2016). The Shura Council initially had no females within it. The body of the council is all-male who drafts laws, debates on significant issues, and provides advice to the ruling King. By 2012 last quarter, the Shura Council appointed women, which consist of twenty percent of the total members of the council. The total number of members is 180. National dialogue (Hiwar) is another initiative and progressive development of democracy and legislation. It allows the individuals and social groups to engage in positive participation in an open climate concerning local issues such as political, social, economic, cultural, educational, and many other societal issues. The King Abdul Aziz Center was established to conduct the National Dialogue (KANCED, 2004; Thompson, 2012). The Saudi government introduced a Voting system in 2005 for selecting the municipal representatives, which gives Saudi citizens the right to choose their representatives in municipal councils (Alshihri et al., 2014; Mandeli, 2016). Thus, half of the representatives of the municipal council were chosen through official election by vote casting. Citizens take part in this election and vote for municipal council representatives across all villages and cities. (Anthony, 2005).

In Saudi Arabia, the 2015 election was the first election where women were allowed to vote and run for office (Mandeli, 2016). The Saudi government has set ambitious goals for its information society revolution (CCIT, 2004). Thus, Saudi Arabia started the implementation of its e-government project in 2005 (Yesser, 2016). This e-government transformation involves mediating the relationships between three-sphere of governance that are administrative, civil, political with ICT (Grönlund & Horan, 2005). When it comes to ICT in Saudi Arabia, it is clear that the technological phenomena are increasing exponentially. ICT widespread access not only caused a profound impact on the society of Saudi Arabia but has also motivated urban culture and growth. ICT appearance has a connection with a number of factors such as technological development, economic and information evolution (Alshihri et al., 2014). The urban planning process needs public participation. The general population values and visions may enhance the future of urban plans. The idea of allowing public involvement in urban planning for developing urban strategies and other issues was supported by Polat (2009). In addition, public participation is important morally. It is based on the recognition of the rights of individuals who are impacted by a decision. As a result, they should have a say in decision-making (Moote, McClaran, & Chickering, 1997). Authorities in charge of urban planning may need to devise new ways to use ICT to communicate successfully with the public. E-government-enabled improvements are, for example, in terms of better service to the citizen, responsiveness, effectiveness, efficiency, cost-reduction, transparency, and collaboration in the delivery of public services (Bannister & Connolly, 2014; Karkin & Janssen, 2014).

E-Participation

Non-traditional mechanisms of engagement are a form of innovative communication. This method of participation arose from first experiments on citizen participation via electronic media (at that time termed “tele-democracy” via TV and telephone) in the 1970s, the advent of the internet in the 1990s gave new impetus to the concept of e-participation” (Albrecht et al., 2008, 35). With the advancement of ICT, there is a tendency to adopt innovative communications to enhance public participation. Kubicek et al. (2008) see that citizens have the opportunity to not only inspect all the planning documents of the urban plan on the internet and to submit formal applications and requests online, but also to send questions concerning the planning tool to planning authorities. Despite the few countries that adopt innovative communication in public participation, many countries are eager to do so (Calista, Melitski, Holzer, & Manoharan, 2010). However, it is essential for local planning authorities to understand the essence and benefits of incorporating ICT in urban planning. It should not be seen only by its capacity to implement new systems and infrastructure but also by the benefits obtained at the administrative level (Walsh, 2009). Further, the absence of legislation raises some concerns about information security during e-participation in urban planning. Hamner and Al-Qahtani (2009) stressed the need for security measures in transferring information during public participation (Hamner & Al-Qahtani, 2009).

In the United Kingdom, there is a growing number of national projects involving electronic means for participation. New East Manchester has used electronic means, which is developed as a part of IntelCities1. The website has been used as one of the tools for public engagement (Kingston, 2007). Most of the UK cities developed consultation portals that allow getting involved in various areas of Council work, including preparation of the Local Development Framework (LDF), which is an important area of work as it will help shape the future of the cities. Electronic means participation has the capability to enhance information flow and produce participation by citizens (Nuojuua & Kuutti, 2008).

Around 24 percent of planning authorities in the United Kingdom claimed to have active websites for public participation (Townsend & Tully, 2004). About 32 percent of all planning authorities’ websites offer online forums (Pratchett, Wingfield, & Polat, 2005). Another consultation portal is developed in Waverly and Tunbridge. The consultation portal of Waverly gives the opportunity to the public to get involved in various areas of Council work, including the preparation of the Local Development Framework (LDF). It helps in shaping the future of Waverley. Tunbridge portal is intended for a local target group in the Borough of Kent. It is developed for Consultations and the creation of a “Community Plan.” Consultations take the form of documents, questionnaires/surveys, or forums on a given topic. This portal provides the opportunity to get involved in various areas. Citizens can comment on and discuss specific points contained over the webpage topics.

The webpage provides options to search for comments, consultants and agents by clicking on ‘Who Said What?’ It shows the status of the topics closed or open for comments. In the USA, traditional and non-traditional means of public participation were used in urban planning. The federal government has embraced web-based technology as a means of improving the public participation process. Electronic means have generated considerable interest among policymakers and scholars due to their potential to facilitate efficient and more deliberative interaction between citizens and government (Yao, 2006). The City of Austin uses “Speak Up Austin,” which provides several different citizen participation opportunities. The Sixth Street redesign project is one of the posted projects on Speak Up Austin to elicit specific feedback. The website allows the participants to vote for the redesign that they prefer. In addition, the participants can fill a survey about the redesign, join a discussion or give their ideas on improving Sixth Street (Stoltzfus, 2013).

In Germany, various examples of using electronic means in public participation and websites were developed to support the involvement. These sites are “Kultur forum.com” and “wachsende-stadt.hamburg.com.”

Kulturforum.com is a website intended for the Berlin area. It is provided by the Berlin Senate Department for Urban Development, Division for City Planning and Projects. The goal is to achieve public discussion of development over the internet and establish a transparent decision-making process. In development projects, participation via electronic means was used to discuss the “concept plan” in 2004 and the “master plan” in 2005. Another website, “wachsende-stadt.hamburg.com,” is intended for the citizens of Hamburg. The internet is used for the project “Expanding City” by the city of Hamburg. The project aims to cooperate with the citizens of Hamburg to develop as many ideas as possible about the issue of urban development (British Council Germany, 2006). Varieties of studies indicate that e-participation is employed for engaging the public in planning and improving public participation. A survey conducted by Koekoek et al. (2008) provides guidelines for organizations considering using a Participatory Planning Support Systems PPSS. Three planning processes were evaluated to investigate the importance of these obstacles.

The study stressed the importance of using Geographical Information System (GIS), which is essential for success in the participatory process. Bouzguenda, Alalouch & Fava (2019) emphasize the role of ICT in citizen participation processes and its significant contribution to social sustainability and the creation of more than smart human cities. A survey on understanding citizen-government interaction in open government arenas by investigating why citizens are willing to participate in citizen sourcing platforms concluded that citizens who had experienced enjoyment when engaged in citizen sourcing show a higher activity level. It also showed that citizens who previously reported via traditional channels are significantly more active in online reporting (Schmidhuber, Hilgers, Gegenhuber & Etzelstorfer, 2017). A study carried out by Granberg and Astrom in 2010 revealed that 94 percent of the planners support e-participation in planning (Granberg, M., & Åström, 2010). This means that planners have a positive attitude toward increased citizen participation via information and communication technologies. The literature shows that there are several studies considering public involvement worldwide. There is reasonable scope for exploring electronic public participation in urban planning in Saudi Arabia, which is the focus of the current study. In the Saudi context, there is no study that focuses on electronic public participation in urban planning.

Methodology

There are a number of research methods available for research, namely: descriptive method, experimental method, and historical method (Al-assaf, 2003). In the present research, a quantitative experimental research method is used. The selection is based on the research goal and objective. The method is suitable to tackle the current research problems.

Study Population

In this study, the sample for the survey was drawn from the municipalities in Dammam metropolitan area (DMA), Saudi Arabia. Further, the target population was selected according to the aim of the study. The target population is defined as professionals working in municipalities in DMA, which consists of cities in Dammam, Khobar, and Dhahran. Professionals in municipalities include the mayor, heads of the municipalities, vice head of the municipalities, managers of the architectural administration, head of departments, and urban and regional planners/engineers. The sample consists of 39 professionals working in the municipalities. Table 1 shows the recommended targeted group and the final sample size attained for each municipality.

Table 1 Demographic Details

#	No. of Targeted Group	Final Sample Size	Municipality
1	16	12	“Amana” Head quarter
2	7	4	East Dammam branch
3	7	4	West Dammam branch
4	8	5	Middle Dammam branch
5	8	7	Khobar
6	8	7	Dhahran
	Total	39	

Data Collection

Secondary data were collected by conducting an intensive literature review of previous relevant studies on the research subject. The primary data were collected through questionnaires. The primary data collection instrument used in this study was self-administered questionnaires, which were distributed to the sampled target population. These questionnaires were used to collect information regarding personal data, the current situation, attitudes and opinions.

Questionnaire Development

Questions were related to participation in urban planning via internet. In order to capture full range of information related to the research subject, the questionnaire was designed to contain a number of sections, namely: the presence of technical and information technology Capability in the municipality, professionals in municipalities views on the e-participation, the e-participation feasibility during the crises, the availability of communication tools, legal and regulation framework, and personal data and characteristics. (See Appendix 1)

Data Analysis

This section is aimed at analyzing the data collected through the questionnaire. The backgrounds of the respondents presented show age, gender, and education level. The availability of technical and information technology in the municipalities is also presented. The professionals’ views in municipalities about e-participation in urban plan making were analyzed. The availability of the tools and means were analyzed showing the respondents’ views about chat rooms, geographical information system, interactive photos of the site of the topic of discussion, etc. Of the 39 pre-coded questionnaires served and returned, 36 were found suitable for data analysis. The data were entered into the computer for analysis. The data collected from the survey on perception of professionals in municipalities on e-participation in urban planning were analyzed using statistical and descriptive methods. A statistical computer program (SPSS) was employed for analysis of data. Frequency distribution was used for analyzing the nominal data and ordinal rank data. A 5-point Likert scale was employed to obtain impact scores. The following equation was used to calculate response average scores. $[(\text{Very large} * 5) + (\text{large} * 4) + (\text{average} * 3) + (\text{a simple} * 2) + (\text{no impact} * 1)]/5$. A 5-point Likert scale is reduced to two columns (impact, no impact) through a calculation. The impact is calculated by adding up (very large, large, average, and simple), while no impact figures are taken as they are.

Study Limitation

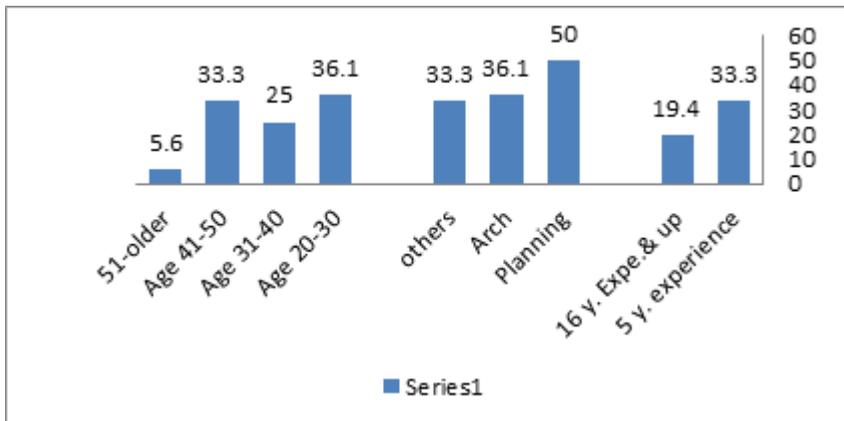
The study sample was restricted to the municipalities in Dammam metropolitan area (DMA), Saudi Arabia. Moreover, the target population included only professionals working in municipalities in DMA and there is no perceptions of community regarding the effectiveness of e-participation.

Results

Demographic Details

Responses show that 36.1% of the respondents were in the age group of 20-30 years. One-third (33.3%) of the respondents were in the age group of 41-50 years. 25% of the respondents were in the age bracket of 31-40 years. 5.6% of the respondents were 51 years old or older. The data shows that the respondents varied in age; however, the majority of respondents were young. Concerning the educational attainments, the data shows that 94.4% of the respondents indicated that they had attained a bachelor's degree (university degree). It is the highest proportion of the respondents in the study sample. 2.8% had a master's degree, a minor proportion of the respondents' group. It is evident from the data that there is a mix of education levels among the respondents. Regarding the degree of specialization, it was found that respondents in the field of Urban and Regional Planning represent the most significant proportion of the respondents with 50%. Respondents in the field of Architecture are ranked second with 36.1%. Next are a variety of disciplines. Regarding years of experience, the data show that one-third (33.3%) of the respondents have five years of experience or less, compared with just 19.4% of respondents who have 16 years of experience and more. Generally, from the data mentioned above, it is clear that the respondents vary in educational backgrounds, age, and length of experiences within the municipalities in the DMA (Figure 4).

Figure 1. Respondents' characteristics



The Presence of IT

Data shows that 86% of the respondents in the municipalities reported the presence of a technical unit and information technology, and 83.3% of the respondents also noted that the municipalities have Internet connections. When professionals in the municipalities were asked about the availability of a website for the municipality on the Internet, 100% of the respondents responded in affirmation. Regarding the tools available on the website, 75% said e-mail service is available, 55.6% said information on urban planning is available, 47.2% said geographical information system is available, and 5.6% said a discussion forum is available.

The Views of Professionals in Municipalities on Participation

The respondents were asked to identify the stakeholders who are expected to have a high level of participation in planning. The result shows that 31% of the respondents stated the public, compared with just 25% of respondents who said governmental organizations. The educational institutions came in third (24%). From the analysis, it appears that both governmental organizations and educational institutions are equally important in supporting public participation in urban plan making. Regarding the municipalities' obstacles to employing e-participation in urban planning, "non-readiness of the municipalities" was reported by 30% of the respondents. It is followed by the "inability of the current website providing the service" (23%).

Regarding the contribution of e-participation in public involvement, data shows that half of the respondents (50%) indicated average representation, compared with just 38.9% of the respondents who indicated a high representation. It is noted from the respondents' responses that both commitment and trust/confidence of the public in the municipality are needed for e-participation in urban planning. They attained 37% and 36%, respectively. On the other hand, it is noted that 47.2% of respondents preferred to have limited participation in a number of stages, compared with just 33.3% of respondents who have preferred participation in all stages of the planning process. Concerning ways of decreasing the impact of obstacles to e-participation in urban planning, 25.5% of respondents selected a sophisticated technical information unit to reduce the impact, followed by providing a specialized unit for participation (23.75%) and then simplifying the participation procedures (21.5%). In comparison, diffusion of a participatory culture among members of the society has the lowest, 19.25%.

The Availability of Tools and Means

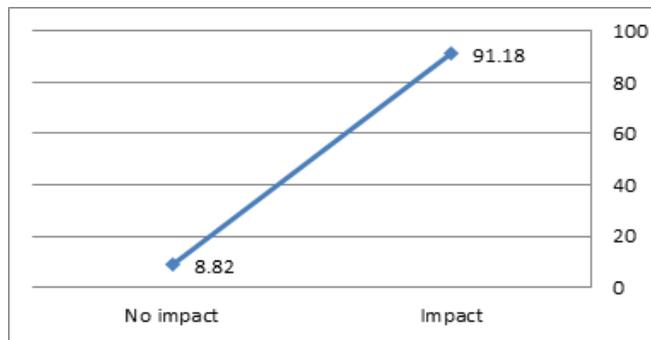
The respondents were asked about the impact of the communication tools (such as chat room, geographical information system, etc.) on e-participation in urban plan making. The question read "to what extent the impact of e-participation in decision-making in urban plan making on the availability of the communication tools (such as chat room, geographical information system, etc.)?" Table 2 shows that the average score is the highest for Geographical Information Systems (84.82%), followed by the photos of the site of the topic of discussion in urban plan making (81.1), while the lowest score is for chat room (66.62%). Data shows that there is conformity among the views of professionals in municipalities on the importance of the availability of geographic information systems for e-participation in urban plan making. High percentage of responses for Geographic Information Systems came as a result of the importance of this tool in providing information and images that assist the decision-making in plan preparation for urban areas. Data shows that there is also a clear consensus among the professionals in municipalities concerning the importance of availability of communication tools for e-participation in urban plan making. These communication tools include: photographs of the site of the topic of discussion in urban plan making, interactive images on the site of the topic of discussion, newsletters, information on the issues of urban planning under discussion. In contrast, a small percentage of responses indicate that there is no impact of the tools' availability on e-participation in urban plan making. This confirms the importance of these tools for decision-making in urban plan making (Figure 2).

Table 2. Responses concerning the impact of the availability of the communication tools on a decision-making in e-participation

Communication tools	Impact	No impact	Average*
	%	%	
Chat room	72.2	27.7	66.62
Geographical information systems	97.2	2.8	84.82
Photos of the site on the topic of discussion in urban plan making	97.2	2.8	81.1
Interactive Photos for the site on the topic of discussion in urban plan making	100.00	0.0	80.64
Newsletter	86.1	13.9	68.34
Information on issues of urban plan making under discussion	94.4	5.6	74.44

*Average is calculated by adding all the responses based on 5-point Likert scale divided by the number of responses.

Figure 2. The impact of the availability of the communication tools



Skill of Municipality Staff in Dealing with Computer and Internet

Data shown in Table 3 reveals that there is almost complete agreement in the views regarding the importance of the skill of municipality staff in using computers, namely: typing, browsing the internet, opening e-mail, sending and receiving e-mail, knowledge of the use of geographic information systems (GIS), knowledge of typing and communicating in English. Table 3 shows that “Browse the Internet” got the highest score (82.3), followed by “Send and receive e-mail” (79.94), while “Knowledge of communicating in English” attained the lowest score (58.86). It also appears that the scores for send and receive e-mail (79.94), Open e-mail (78.34), and Knowledge of the use of geographical information systems (77.26), are very close, which imply that both are equally important. This means that there is a positive impact of the skill of municipality staff in using computers on e-participation in urban plan making.

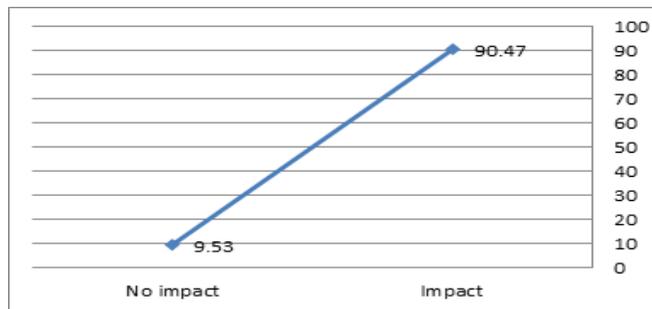
Table 3. Responses concerning skill of municipality staff in dealing with computer tools (the Internet)

Computer tools	Impact	No impact	Average*
	%	%	
Knowledge typing on the comp. keyboard	97.2	2.8	75.54
Browse the Internet	97.3	2.8	82.3
Open e-mail	88.9	11.1	78.34
Send and receive e-mail	91.6	8.3	79.94
Knowledge of the use of geographical information systems	91.7	8.4	77.26
Knowledge of communicating in English	69.4	30.6	58.86
Knowledge of typing in Arabic	97.2	2.8	78.32

*Average is calculated by adding all the responses based on 5-point Likert scale divided by the number of responses.

In contrast, a small percentage of responses indicate that there is no impact of the skill of municipality staff in using computers on e-participation in urban plan making (Figure 3). This confirms the importance of skill of the municipality staff in computer for e-participation in urban planning.

Figure 3. Skill of municipality staff in computer



Legal Framework

Respondents were asked to indicate their level of agreement to a number of statements concerning legal framework in participation. Ranking of the responses according to the scores shows that the statement “E-participation requires laws that protect the participatory process” attained a high score (92.76), followed by the sentence “Amendment of regulations and legislation should be in harmony with e-participation” (82.22), and the statement “The absence of legislation causes losing the confidentiality on the Internet” (77.24), while the sentence “Current regulations and current legislation encourages the use of Internet applications” scored the lowest (62.84). (See Table 4).

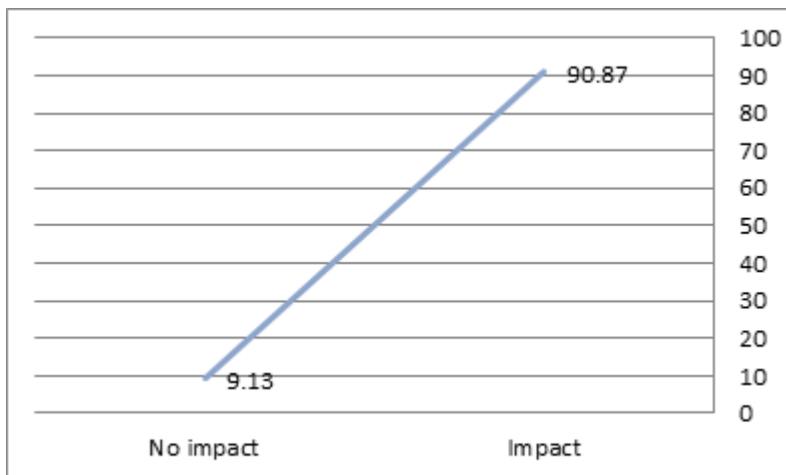
It is clear from Figure 6 that there is almost complete agreement in the views regarding the impact of legal framework in participation. However, the absence of legislation raises some concerns about information security during e-participation in urban plan making. The respondents stressed on the importance of regulation and laws in the e-participation process.

Table 4. Responses concerning regulations and laws

Legal framework	Impact	No impact	Average*
	%	%	
e-participation requires laws that protect the participatory process.	97.2	2.8	92.76
The absence of legislation on e-participation will lead to a decline in number of the participants.	100	0.0	77.22
The absence of legislation causes losing the confidentiality on the Internet.	88.9	11.1	77.24
The absence of legislation for ensuring the security of transfer the information on the Internet.	88.8	11.1	72.8
Amendment of regulations and legislation should be in harmony with the e-participation.	100	0.0	82.22
Current regulations and legislation encourage the use of Internet applications.	72.3	27.8	62.84
Current regulations and legislation limit the citizen's views and opinions.	88.9	11.1	76.1

*Average is calculated by adding all the responses based on 5-point Likert scale divided by the number of responses.

Figure 4. Impact of legal framework in participation



The e-Participation Feasibility in e-Participation in Planning Process During Crisis Such as COVID-19

Respondents were asked to indicate their level of agreement to a number of statements concerning the feasibility of e-participation in planning process during crisis such as COVID-19. Ranking of the responses according to the scores shows that the statement " E-participation offers uninterrupted engagement between planning authorities and public during crisis such as "COVID-19" attained a high score (86.82), followed by the sentence " E-participation contributes in having high representation of public" (82.00), and the statement " E-participation supports urban plan making decision" (81.1), (Table 5). The data from table 5 shows that there is almost complete agreement in the views regarding

the feasibility of e-participation in planning process during the crises. This imply that there is a positive impact of e-participation in the planning process.

Table 5. Responses concerning the impact of e-participation in planning process during crisis such COVID-19 pandemic

Communication tools	Agree	No agree	Average*
	%	%	
Uninterrupted engagement (planning authorities and public)	97.2	2.8	86.82
Managing urban planning issues	94.4	5.6	74.44
High representation of public	88.00	12.00	82.00
Positive contribution	95.0	5.0	80.64
Decision-making	97.2	2.8	81.1

*Average is calculated by adding all the responses based on 5-point Likert scale divided by the number of responses.

Discussion

This study aimed to investigate e-participation in urban planning in KSA. It further examined the perception of the employed professionals in the municipalities of DMA towards introducing e-participation. This study’s findings indicate that the municipalities’ professionals have optimistic attitudes toward e-participation in urban planning. Such optimistic attitudes and acceptance are because the ICT can provide the professionals in municipalities with communication alternatives other than face-to-face conversation. Further, they believe that e-participation in urban planning will offer uninterrupted engagement between planning authorities and the public for deciding normal conditions or crises. This research has found that the regulations and laws are necessary for the e-participation process.

Regarding the availability of communication tools in decision-making in urban planning, the data shows that chat rooms have the lowest impact among the tools. It appears that very close scores were registered for the chat rooms and newsletter, which implies that they have an equal impact. It is also clear that Geographical Information Systems (GIS) have an average score meaning that this tool has substantial implications on e-participation in urban planning. This demonstrates the importance of this tool for e-participation. Regarding the skill of municipality staff in using computers, the data shows that “knowledge of typing and communicating in English” has the lowest impact on the e-participation. On the other hand, it was noted that both “Browsing the Internet” and “send and receive an e-mail” obtained a high score compared to the rest of the statements.

Concerning the regulations and laws in e-participation, data reveals conformity among the municipalities’ professionals about the importance of these variables. However, both the statements “E-participation requires laws that protect the participatory process” and “Renewal of regulations and legislation should be in harmony with the e-participation” achieved high scores.

The statement “Current legislation encourages using the Internet” attained the lowest score. Despite that, it is considered average, meaning that the skill of the municipality staff is important for e-participation in urban plan making. This also reinforces the idea that there is a need for skilled staff to use computers and the internet. Professionals in municipalities are in favor of providing regulations and laws to keep e-participation secure. The absence of legislation raises some concerns about information security during e-participation in urban planning. Therefore, legislating a law that protects the participatory process and provides the right for the public to access government information is an important prerequisite for implementing e-participation. Such laws would give participants more

authority and will allow them to participate without barriers. Findings show that involvement and engagement support urban planning decision-making and that geographical information systems are important tools supporting e-participation in urban planning.

The findings of this study comply with the reviewed literature that supports using IT at public participation (Granberg, M., & Åström, 2010; Koekoek & van Lammeren, 2008). The present study results are consistent with the study by Koekoek et al. (2008), which indicated that the use of Geographical Information System (GIS) is essential for success in the participatory process. It shows that the study respondents were willing to use participation with stress on using information technology. The current study points to the importance of laws and legislation to protect participation in the urban planning process.

Conclusion

The study's overall findings show that professionals' responses in the municipalities of DMA have been optimistic towards e-participation in urban planning. They believe that e-participation in urban planning will contribute to high representation of the public, promote their positive contribution, and speed up decision making. It shows that municipalities are aware of the importance of e-participation in resolving many problems in urban planning. The study suggests that it will assist in managing urban planning issues efficiently and effectively. The study's findings show that there is a positive vision of the professionals in municipalities, and they are in favor of it.

In conclusion, e-participation is important in the urban planning process, and it must be promoted for active public participation in the process of urban planning. Planning authorities in municipalities fully understand the importance of e-participation in solving and managing plan-making efficiently and effectively. Furthermore, a municipality with capability and expertise in ICT should affect the planning process management without stopping/ freezing the planning activities during crises and disasters (such as the COVID-19 pandemic).

Rapid urbanization and crises raise the importance of employing ICT in the planning process for managing urban planning issues, either during normal cases or emergencies and disasters. Future studies can be conducted by extending the sample size and including public views in e-participation urban planning.

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APPENDIX A – PARTICIPANT SURVEY

Analysis of the Perception of Professionals in Municipalities of Dammam Metropolitan Area Towards Introducing E-Participation in Saudi Urban Planning Process

Dear participant,

Thank you for participating in the survey.

I am pleased to put in your hands this questionnaire as a tool to collect data on the scientific study entitled ” Analysis of the Perception of Professionals in Municipalities of Dammam Metropolitan Area Towards Introducing E-Participation in Saudi Urban Planning Process.”

The main aim is to investigate the perception of professionals in the municipalities of DMA towards e-participation. The objective of the study is as follows:

To explore the opinions of professionals in municipalities at Dammam Metropolitan Area (DMA) toward feasibility in urban planning during a crisis such as COVID-19.

The questionnaire includes 50 questions divided between six sections. It should take you less than 30 minutes to complete.

You have been asked to participate because of your vast experience in this area, so I hope you will answer all the paragraphs. Please note that these answers will be confidential and will only be used for scientific research purposes.

Once again, thank you for participating in this survey.

Questionnaire

First: The presence of technical and information technology in the municipality

1-Is the municipalities have an information technology unit?

Yes () No () (1)

2-Is the municipality have Internet connections?

Yes () No () (2)

3-What are the tools available on the municipality website?

Table 6. Questionnaire table 1

Tools available on the municipality’s website	yes	No	
	%	%	
e-mail service			(3)
Geographical information system			(4)
Information on urban planning			(5)
Discussion forum			(6)

Second: Professionals in municipalities view the e-participation

1-Kindly identify the stakeholders who are expected to have a high level of participation in planning.

Table 7. Questionnaire table 2

Stakeholders	Highly Agree	Agree	Not sure	Disagree	Highly Disagree	
	%	%	%	%	%	
Public						(7)
Private sector						(8)
Governmental organizations						(9)
The educational institutions						(10)

2-Kindly identify the municipalities' obstacles to employing e-participation in urban planning

Table 8. Questionnaire table 3

The municipalities' obstacles	Highly Agree	Agree	Not sure	Disagree	Highly Disagree	
	%	%	%	%	%	
weaknesses in the technical information available						(11)
the inability of the current website to provide the service						(12)
non-readiness of the municipalities						(13)
Non-readiness of the public						(14)
Absence of a law/legislation to allow it						(15)

3-Kindly identify the contribution of e-participation in public involvement:

Table 9. Questionnaire table 4

Public involvement	Highly Agree	Agree	Not sure	Disagree	Highly Disagree	
	%	%	%	%	%	
Low representation						(16)
Average representation						(17)
High representation						(18)

4-Kindly identify your participation preference in the planning stages

Table 10. Questionnaire table 5

Participation	Highly Agree	Agree	Not sure	Disagree	Highly Disagree	
	%	%	%	%	%	
Participate in all stages of the planning process						(19)
Participate in a limited number of stages						(20)
Limited participation (1)						(21)

5-Kindly identify a way of decreasing the impact of obstacles to e-participation in urban planning

Table 11. Questionnaire table 6

Way of decreasing the impact of obstacles	Highly Agree	Agree	Not sure	Disagree	Highly Disagree	
	%	%	%	%	%	
Diffusion of a participatory culture among members of the society						(22)
Providing a specialized unit for participation						(23)
Simplify the participation procedures						(24)
Provision of a sophisticated technical information unit						(25)

Third: The e-participation feasibility during the crises

Kindly indicate the level of agreement to some statements concerning the feasibility of e-participation in the planning process during an emergency such as COVID-19.

Table 12. Questionnaire table 7

Communication tools	Highly Agree	Agree	Not sure	Disagree	Highly Disagree	
	%	%	%	%	%	
Uninterrupted engagement (planning authorities and public)						(26)
Managing urban planning issues						(27)
The high representation of public						(28)
Positive contribution						(29)
Decision-making						(30)

Fourth: The availability of communication tools

1-Kindly indicate the impact of the availability of the communication tools on decision-making in e-participation

Table 13. Questionnaire table 8

Communication tools	Very large	Large	Average	Simple	No impact	
	%	%	%	%	%	
Chat room						(31)
Geographical information systems						(32)
Photos of the site on the topic of discussion in urban plan-making						(33)
Interactive Photos for the site on the topic of discussion in urban plan-making						(34)
Newsletter						(35)
Information on issues of urban plan making under discussion						(36)

Fifth: Legal and regulation framework,

1-Kindly indicate the level of agreement to some statements concerning legal framework in participation

Table 14. Questionnaire table 9

Legal framework	Highly Agree	Agree	Not sure	Disagree	Highly Disagree	
	%	%	%	%	%	
e-participation requires laws that protect the participatory process.						(37)
The absence of legislation on e-participation will lead to a decline in the number of participants.						(38)
The absence of legislation causes losing the confidentiality on the internet.						(39)
The absence of legislation for ensuring the secure transfer of information on the internet.						(40)
Amendment of regulations and legislation should be in harmony with the e-participation.						(41)
Current regulations and legislation encourage the use of Internet applications.						(42)
Current regulations and legislation limit the citizen's views and opinions.						(43)

Sixth: Personal data and characteristics.

Table 15. Questionnaire table 10

<p>1. Sex (44) <i>Table 16. Questionnaire table 11</i> 1 Male 2 Female</p>	<p>2. Age (45) <i>Table 17. Questionnaire table 12</i> 1 20-30 years 2 31-40 years 3 41-50 years 4 51 years old or older</p>
<p>3. Education (46) <i>Table 18. Questionnaire table 13</i> 1 Below Bachelor 2 Bachelor 3 high diploma 4 Master 5 Doctor 6 Other, please specify _____</p>	<p>4. The degree of specialization (47) <i>Table 19. Questionnaire table 14</i> 1 Architecture 2 Urban Planning 3 Interior Architecture 4 Landscape Other, please specify _____ 6 Trade</p>
<p>5. The Organization that I work in on a permanent basis (48) <i>Table 20. Questionnaire table 15</i> 1 Dammam 2 AL-Khobar 3 Daharan</p>	<p>6. Experience (49) <i>Table 21. Questionnaire table 16</i> 1 5 years and less 2 6 to 10 years 3 11 to 15 years 4 16 years and more</p>
<p>7-Nationality (50) <i>Table 22. Questionnaire table 17</i> 1 Saudi 2 Non-Saudi, please specify _____</p>	