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Transforming the Libraries: Helping Turkey to Create Smart Cities

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Abstract:

The rise of the knowledge society has allowed humans to transform information into knowledge, and brought innovation of information and communication technology. With digital transformation, libraries not only offer space for learning, working and socializing, but also hold richer content and more advanced functionalities. Based on the services conducted by public libraries and e-municipal information services in Turkey, we want to investigate the digital collaboration services provided by libraries, 81 municipalities, and 30 metropolitan municipalities to show how the range of these services had been changed. In the 1146 public libraries run by the Turkish Ministry of Culture, there are 25.091.212 users during the year 2017– 2018. In this context, we identified that the Turkish Smart City Library System outlined five essential activities in this cyclical process: e-participation information services, e-democracy information services, social e-municipal information services, cultural e-municipal information services, innovative e-municipal information services. The purpose of this research is to contribute to the development of smart city libraries, information services, and their librarians' professional qualifications. The research carried out on the websites of metropolitan municipalities, public libraries and General Directorate of Libraries and Publications in Turkey. In smart cities, the individuals' rights and responsibilities, e-municipal information services and modern transformations have been found crucial in the development of public library services.

Keywords: Turkey, Smart cities, Transforming the libraries and librarians, Public libraries, E-municipal information services

Introduction

Especially after the Millennium, rapidly changing and evolving technology has affected every aspect of life, as well as directly affected the modern societies and urban life in which it emerged. Developments in information and communication technologies and rapid transformation have revealed various approaches to urban planning and expansion. The conceptual relatives of the smart city include digital city, intelligent city, virtual city, ubiquitous city, and information city (Born, Henkel and Mainka, 2018; Ishida, 2017). Although these definitions, which are conceptually described as “kindred”, differ from each other at certain points, they overlap with each other as the exit point and content. In particular, the digital city and smart city are intertwined despite their differences. Smart life refers to have a better quality of life within the scope of culture, health, housing, social life and security. Activities are being carried out to provide, maintain and measure this environment through information and communication technologies. While technology facilitates daily life, it increases the quality of life of urban residents in health, housing, social cohesion and tourism areas.

Technological, economic, social and cultural developments have led to the increase of the global data set. Again, due to the demographic density and technological infrastructure, cities are producing large-scale data. The collection, storage and analysis of big data produced through systems and sensors in urban areas cannot be carried out with traditional information and communication technologies. The combination of the enormous size of big data and the complexity of the analysis required to benefit from it has led to the development of new age technologies and tools to manage them. In fact, big data often describes both the type of managed data and the technology used to store and process it (Doğan and Arslantekin, 2016).

Smart city concept based on the digital data accurate, complete and open data, which means sharing with the community as a neutral, is one of the most important components of the smart city. Intelligent solutions for urban areas are being developed by making more rational analyses with numerical data obtained during the creation or management of smart cities. For this reason, it is important that public administrators, entrepreneurs and citizens have complete access to accurate and up-to-date data. The storage and access process is carried out via the internet. Helping with the cloud technology, space and time constraints were eliminated and the “stored big data” was instantly accessed from the desired location. Cloud technology, which offers more storage space and fast data transfer, also reduces storage costs. Digitized data generated in smart cities can be used from a single centre through cloud technology with fast access and low cost.

A library service cannot itself provide the conditions for smart living that the smart people expect, but it can do more to raise awareness of the lifestyle that the city offers (Johnson, 2012). This research reveals the structure of e-municipal information services that help to build smart cities in Turkey. In smart cities, the individuals’ rights and responsibilities, e-municipal information services and modern transformations have been found crucial in the development of public library services.

Libraries and Information Services for Smart Cities

The leaders and stakeholders of the multidisciplinary smart cities are: central government, regional and local governments; urban residents and non-governmental organizations; international associations and organizations; academic initiatives such as universities, research centres and libraries; large international companies and entrepreneurs; investors and financial institutions; interest groups and individuals. According to the European Union’s

definition of smart cities, represented as a means of sustainable structure and a better life, those six characteristics are: smart governance, smart economy, smart mobility, smart environment, smart people and smart living (European Parliament, 2014).

Smart cities, aiming to produce sustainable and efficient services in the fields of management, economy, environment, energy, transportation and social life for a busy population, benefit from various information and communication technologies as a tool. Those tools include: internet, mobile devices, social media, large data, cloud technology, 3D technologies, driver-driven vehicle, drone, GSM technologies, geographic information systems, supervisor control and data acquisition, electronic traffic control and management systems, management information system, electronic payment systems.

A continuous and rapid change in technology has affected users' information behaviour, access to information, service expectations, and started to change in libraries. In this context, libraries have entered the process of restructuring their information recording environments, building, workflow, services, employees, managers, library concept and management-organization structure. Many library catalogues, collections and some information services have started to be carried to the network or to the cloud. The necessity of information management has become more frequent in all institutions and organizations. The public has increasingly begun to need more advanced information services, manage their own data, integrate the rich information they find from other sources with their own, and share that information with others. General features of libraries located in smart cities include:

- Libraries with and / or without books,
- Libraries supported by automation systems;
- Effective access to electronic databases;
- Digital lending service;
- No need for much silence as before;
- Green libraries (libraries that use renewable energy sources);
- Social libraries (libraries that organize social events and can be used as offices);
- Better equipped and active librarians.

Today and future libraries have the chance to be more efficient, to provide quality services, and with developing technology, innovations have emerged in the storage, arrangement and access of information, which has greatly affected libraries and especially librarians.

With developments in information and communication technologies, it is observed that information is stored, edited and accessible in environments other than libraries, archives and documentation centres. The smart city approach offers important opportunities here. In smart cities, all segments of society (young-old, disabled-healthy, male-female, poor-rich, educated-uneducated, etc.) by which information is accessed. public library services and e-municipality applications have made it easier to adapt to smart city life.

Providing Information Services for Smart City People in Turkey

Individuals acquire information about legal obligations, individual rights, education, professional issues, work environments, political issues, consumer rights, social relations, health, technology, investment, real estate, transportation, hobbies, religious issues, cultural life and many other topics, both from other individuals and from the institutions of the

society. Among the resources to acquire knowledge in life are individuals, institutions, non-governmental organizations, experts, media, social media and many media within their scope. In smart cities, individuals want access to whatever information they need for life.

E-Municipality means that the information about the city is organized through technology-supported works and information is produced for the benefit of the city and the community and presented to the public. It can also be described as taking the services provided by municipalities with the help of Internet technologies to the public while performing their duties.

Information communication technologies of e-municipalities within the scope of e-government in Turkey (Uzun, 2003); change in service offerings (Henden and Henden, 2005); functionality of websites (Aktel, 2009); overflow of services to the Internet (Guler, 2016); individual-oriented service understanding (Karataş, 2014); exercise of the right to information (Pektaş, 2011); the use of e-services in public relations (Tarhan, 2007) have been investigated. The realization of innovations in Information Communication Technologies and attaining smart city characteristics are the common subject of these researches.

As of December 2018, there are 1146 public libraries administered by the General Directorate for Libraries and Publications (Kütüphaneler ve Yayımlar Genel Müdürlüğü), as part of the Ministry of Culture and Tourism. Since there are 81 provinces in Turkey, there are 81 provincial public libraries and several district libraries as branches of the provincial libraries. There are 564 university libraries and 26,415 formal and non-formal educational institution libraries. (Anadolu Ajansı 2018).

Municipality library initiations are for sure remarkable work in Turkey. However, the municipality libraries also suffer from the baggage of short-term plans. As successful public library operates based on five fundamental components (budget, librarians, users, building and collection), supported by certain standards and legal protection which are unfortunately missing in some of these municipality library's operations. There is not clear coordination between the municipalities and other government organization on the management of growing number of libraries, quality of their services or documented standards. This is because many of the municipal public libraries are opened as part of a voluntary cultural and social services and not as an integrated part of the main services of the municipalities (Canata 2016).

There is not a record nationwide as to how many municipal public libraries have been operating in each province. However, if the coordination for instance under Marmara Belediyeler Birliği and Türkiye Belediyeler Birliği (Turkish Municipalities Union) organization is completed, there will be a successful example of municipal public library systems.

Purpose, Method and Scope

The purpose of this research is to contribute to the development of smart city libraries, information services, and their librarians' professional qualifications.

In order to realize the purpose of the research, what kind of e-municipal services were offered in general by 81 municipalities and 30 metropolitan municipalities between November 2017 and January 2019, what titles were used, what different services were offered and the services were analysed by content analysis.

Content analysis is a research technique used to collect text content and analyse it objectively, systematically and quantitatively. Content refers to words, meanings, images, symbols, thoughts, themes, or any message that can be transmitted. Text is a written, visual, or oral item of any type that sees a medium of communication (Neuman, 2013). The research was conducted for the universe.

The questions of the research carried out on the websites of metropolitan municipalities, public libraries and General Directorate of Libraries and Publications in Turkey are as follows:

1. What are the e-municipal information services that municipalities provided to become smart cities?
2. What are the librarians' professional qualifications, roles and responsibilities in smart cities to transform library services?
3. What are the collaborative sectors and organizations related with libraries?

Findings and Evaluations

The provision of public services to citizens through information technologies has revealed the concepts of e-government and e-citizen. Government works have started to be done electronically. In other words, e-government is the concept that enables both the state and the public to fulfill their obligations towards the state in electronic communication-transaction environments. The name of the e-government in the local dimension is e-municipal services. E-Municipality means that the city's information is organized through technology-supported works and information is produced for the benefit of the city, the community and presented to the public. It can also be described as taking the services provided by municipalities with the help of Internet technologies to the public while carrying out their duties. These services, known as e-municipal applications, enable effective and efficient use of resources, and fast and accurate decisions can be made in light of current and accurate information.

With the reflection of the e-government approach and practices on local government units, the e-Municipality approach emerged and was put into practice. E-municipality services are the provision of information and services provided by municipalities in electronic environment for the people of that region. It is noted as a platform where municipalities communicate electronically with local people (Alodali, Tuncer, Usta and Halis, 2012).

Corporate-individual relationships have been reshaped due to emerging information communication technologies and the expansion of Internet usage. Institutions and libraries have had the chance to provide remote services to individuals and to provide citizenship skills to more people, in a shorter time and in many different areas. Local authorities have moved their services to electronic media and these services are described as e-municipal services. These services, which are effective in gaining citizenship skills, prepare the environment for the development of smart cities, smart citizens, information services, and smart librarians.

The answers to our research questions are included in Table 1.

Table 1. Smart City Libraries and Smart City Librarians in Turkey

E-municipal Information Services (Answer for question 1)	Librarians' Professional Qualifications (Answer for question 2)	Collaborative Sectors / Organizations (Answer for question 3)
<p>1. E-Municipal Information Services on rights and responsibilities: Services that enable the community to understand, become a member of the society, recognize the rules, be conscious about payments, rights and responsibilities.</p>	<p>Manager Editor Leader Curator Educator Synthesizer Facilitator</p>	<p>Local Governments The Ministry of Environment and Urban Planning The Ministry of Culture and Tourism The Ministry of Interior The Ministry of National Education The Ministry of Labour, Social Services and Family The Ministry of Agriculture and Forestry</p>
<p>2. Social e-Municipal Information Services: Services aimed at recognizing life-related practices, monitoring outcomes, gaining information on human values and national identity.</p>	<p>Researcher Guide Information protector Futurist Friendly</p>	<p>The Ministry of Treasury and Finance The Presidency of Religious Affairs The Ministry of Youth and Sport The Ministry of Transport and Infrastructure Turkish Armed Forces</p>
<p>3. Cultural e-Municipal Information Services: Services to understand the cultural structure of society, to know its responsibilities and to be sensitive.</p>	<p>Innovator Collaborator</p>	<p>The Press and Broadcasting Agencies Turkish Consumer Rights Association The Council of Higher Education The Scientific and Technological Research Council of Turkey The Union of Chambers and Commodity Exchanges of Turkey</p>
<p>4. E-Municipal Information Services on initiatives and innovations: Services to develop skills, community integration and entrepreneurship.</p>	<p>Collaborator</p>	<p>Turkish Statistical Institute Republic of Turkey Social Security Institution</p>
<p>5. Other e-municipal information services: They are services that enhance social welfare by beautifying life.</p>		

Results and recommendations

The results of our research are:

- In Democratic administrations, while rights and obligations are important, citizens will have the opportunity to live in a better society with the positive contributions they make directly to the society in which they live.
- A total of 309 e-Municipal Information Services are offered in metropolitan municipalities. There are a total of 88 different services grouped in relation to library and information services within the scope of the research.
- Municipalities in Turkey mediate the provision of information services on their own web pages.
- Rights are ahead of obligations. Citizens will have the opportunity to live in a better society with the positive contributions they make directly to the society in which they live.
- Cultural E-Municipal Information Services are the most diverse and common type of service in every city and metropolitan cities.
- Within the scope of citizenship and e-citizenship, important duties fall to the state, institutions, sectors, municipalities. In this study, the e-municipal services offered by metropolitan municipalities appeared to be integrated with digital citizenship rights and obligations.
- The use of e-municipal services in Turkey is a positive factor in raising awareness of citizenship and digital citizenship of individuals.
- Effective and transforming library usage areas are needed. Today, the physical existence of libraries with the help of digitalization and electronic services is discussed. Maintaining the presence of libraries today and in the near future will further diversify innovative library services.
- Inter-library collaboration and lending has gained more importance than in the past.
- User-centric services have increased e-Information Services.
- Being a smart librarian requires continuing education.
- Any smart library requires smart librarians. The success of libraries depends largely on the success of librarians working in those libraries. As the shapers of the future, the greatest responsibility falls to librarians.

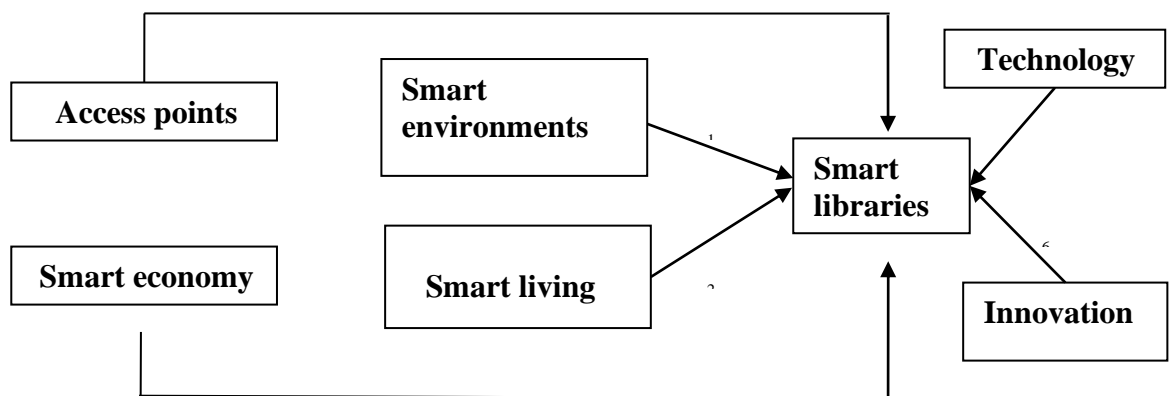
The recommendations developed in line with the results from the research are listed below:

- Recently, Turkey has experienced positive transformation trends which have been mainly based on the library and information services rearrangement of existing

resources. In order to have a robust and sustainable information services growth and to achieve smart library services, Turkey needs to create a flourishing innovation culture.

- E-library services should be developed within the scope of e-municipal services.
- The e-Municipal Information Services in the metropolitan municipalities should be gathered together and the clutter on the web pages should be prevented. In this way, it will be easy to find, access and benefit from the service sought.
- E-connections that do not work in municipal services should be checked and all connections should be checked.
- Municipalities should notify their citizens via SMS, e-mail and similar services from e-municipal services.
- Measuring the efficiency and effectiveness of smart city applications is of great importance in providing accurate presentation of investments made in the process of building smart cities to the citizens. In order to manage the process correctly and to shape it according to user satisfaction outputs, rational efficiency analyses are required.
- It is necessary to measure the effectiveness of smart city applications, to determine user satisfaction, and to shape what will be done according to the outputs.
- Entrepreneurs producing smart city solutions in Turkey should be supported and promotional activities should be carried out to enable international companies to carry out pilot projects in Turkey and certain facilities should be provided for these companies.
- The smart library model (Figure 1) we have developed for this presentation will provide libraries with numerous access points, the best use of the budget, a variety of environments and social services to help people meet their information needs.

Figure 1. The smart library model



Conclusions

While information services provide citizens with smart city awareness, they fundamentally improve their quality of life. Overcrowding of the population allows the emergence of information requirements of citizens on different issues. Smart library studies are conducted with a more technology and transformation focus. As a result of the technology age, individuals tend to meet their needs with e-services. In this context, e-municipal information services is noted as an important access point where municipalities connect with citizens. The e-municipal information services, public libraries and municipal libraries mentioned in this presentation are just a few access points in accessing information. Smart citizens are citizens who are aware of the e-services offered and who use them. Justice, science, innovation, human values will be protected, and it will be in the best interests of all humanity to make traditional services suitable for smart life.

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