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Presenting the Role-Playing Model of Municipalities in Dealing with Infectious Diseases Based on Digital Developments

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Abstract

The purpose of this study was to present a role-playing model for municipalities in dealing with infectious diseases based on digital developments. The content analysis method has been used to identify the adaptation indicators of the role-playing model of municipalities about infectious diseases. The statistical population in this study includes professors and universities, municipal managers, physicians, and ordinary people. In this study, 11 members of the population were interviewed based on systematic sampling. Semi-structured interviews were used to collect data. The collected interviews were analyzed using ATLASTI software and the content network was reached based on 6-step coding. The components of information and research are: Information and publicization of information, education, and research .The components of law and policy-making are: Policy-making, inter-organizational cooperation, licensing, culture-building, and prohibition, and the limitations of the components of participation and transparency are: Participation and collection of executive information. These include government-sponsored and political

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factors, information and education, weak laws, and managerial factors. The components of servicing and equipment are the disinfection of public centers, organizational services, and optimization of services. According to the results, the prevalence of this disease has accelerated the process of digital transformation in cities. The city and municipality of Amol are no exception to this, and in this regard, it has strengthened its online services and involved data collection and cross-sectoral cooperation with other institutions involved.

Keywords: Municipal Role-Playing, Infectious Diseases, Digital Developments.

Introduction

The United Nations has concluded that cities are at the forefront of fighting the epidemic and its lasting effects (Carico et al, 2020). In all over the world, COVID-19 threatens cities and communities and endangers not only public health but also the economic texture of society. Humans have historically sought to develop cities and urban areas, for social interaction, economic interests, and relationship requirements (Mangnus et al, 2022). This current phenomenon continues in the use of technology to track the tangible and intangible transformation of cities, make them "smarter" and increase their "wealth" (Baker et al, 2020).

The global outbreak of the new coronavirus as a pandemic disease posed one of the most critical conditions challenging the public service delivery system (Toquero, 2020). The difficulty of managing this crisis, especially with the specific conditions of Iran and the unknown disease and lack of sufficient experience, has narrowed the field for planning and determining solutions (Ghasemi, 2021). If the experiences and studies are done regularly and coherently and the results can be generalized, we can safely say that valuable reserves will be provided to the system of services and related institutions, including municipalities, but neglecting this importance will lead to a waste of capital. Technological advances have thwarted the efforts of capitalist power, which is devising new ways of monitoring and managing human beings and their activities and values (Cao et al, 2018). As a result, with the advent of the digital revolution, cities have experienced transformations or sub-revolutions characterized by changes in digital technology innovation (Lund et al, 2019, especially with the advent of the Internet, where cities are one of the main beneficiaries of these developments (Johnston et al, 2018).

Benefits include increased communication capabilities in different contexts and increased developments in manufacturing industries where data usage has increased (MacNeill & Johnston, 2013). Even the current stage of Covid-19 leads to another sub-revolution that forces many human activities into digital transformation and forces many digital illiterates to experience reform in their own cultures and social relationships. (Zhu et al, 2019).

Corona has challenged social stratification at the macro-level (Usak et al, 2020). Many planners and managers have paid little attention to the challenges posed by the epidemic, but now they know

that if it affects the community, the environment will be infected with more viruses, the pressure on the health care system will increase, and they will be at risk (Lee & Trimi, 2021). Paying attention to the application of health guidelines is far easier and less costly than the costs of treatment and related matters (WHO, 2020).

It should be borne in mind that unprincipled practices and tastes against diseases such as coronary heart disease will disrupt social and public order and will cause irreversible damage to the local and national levels in the country. (Van Belle et al, 2020). Then it is impossible to solve the problem. Public institutions in general and the municipality, in particular, are responsible for continuous action in the environment and in case of crises they must formulate and implement various programs, projects, and activities (In the fields of social, cultural, health, etc.) (Abdollahi, 2018).

Planning and, more importantly, action on an urban scale communicates directly with the target audience and the target community involved in case crises (Buheji & Ahmed, 2020).

Against this background, this research presents future perspectives, issues, and debates related to the use and application of digital age technologies in cities around the world (Lee, 2018), and outlines some future research challenges and suggestions. To achieve this goal, this article examines how technology and digital developments and the actions of municipalities in the smart city ecosystem work, and provide insights into the perceived potential impacts on urban economies, noting that, with new technologies in the digital age, some cases have been covered (Kenis et al, 2019). The interaction between the health crisis and technology development has been significant because the use of digital resources to better prevent and manage the effects of the epidemic has been significant. From vaccine research efforts to telemedicine enhancement and the use of additives - not to mention controversial contact tracking programs - digital technology has shown its capacity to help reduce and combat the epidemic (Rana et al, 2019).

Paying attention to the need for action on a neighborhood scale has become one of the policies of the Fifth Islamic Council of Shahr-e Amol, to the extent that allocating funds to advance neighborhood plans and paying attention to pedestrian strategies in the open court of the parliament and at the national level and its operational steps have been taken. However, with the onset of the coronavirus crisis in Amol,

regional-scale urban management measures, and in principle, the city council and municipality, have played a minor role in the policy-making of the provincial headquarters against coronavirus, and emerging local institutions such as councilors or older predecessors. Neighborhoods have not been effective in dealing with and managing neighborhood crises. At present, prioritizing, determining executive models, and planning to maximize the application of health instructions in coronary heart disease (city-based and neighborhood-based) depends on creating enthusiasm and motivation in citizens and the existence of incentives by the tastes and motivations of citizens and providing models for The role of municipalities in dealing with infectious diseases (sample study of Covid 19 in Amol). What is the Role-Playing Model of Municipalities in Dealing with Infectious Diseases Based on Digital Developments?

Method
In the present study, the content analysis method was used to analyze qualitative data. The content analysis method has been used to identify the adaptation indicators of the role-playing model of municipalities about infectious diseases. Snowbal technique was used for sampling. The statistical population in this study includes professors and universities, municipal managers, physicians, and ordinary people. In this study, 11 members of the community were interviewed based on systematic sampling. Of these, 3 were faculty members, 1 was a member of the city council, 3 were municipal managers, 2 were physicians, 1 was a public ward and one was hospitalized. Semi-structured interviews were used to collect data. Each interview lasted 40 to 70 minutes. The collected interviews were analyzed using ATLASTI software and the content network was reached based on 6-step coding.

Findings
First, the collected interviews were typed regularly and entered into ATLA TI software. Figure 1 shows an encoded example of the interview in the software.

Figure 1: Example of coding in the software

The following are some of the interviews:

Table1. Examples of interviews

Interview number	Interview sentences	Concepts
M1	Our awareness of this story improved and the market for rumors and related topics became smaller day by day. The basis of the researchers' research and the experience was that the decisions and scenarios that were made for this work varied according to the situation. The decisions that were made at the national or provincial level were the basis of the situation in which we are. We gradually came up with initiatives that enabled us to implement those initiatives based on the changes that took place in the field of crisis, for example, the colors from red to black or from orange to red or yellow to orange and from blue to yellow and white. Blue was based on changing conditions and patterns that created the rules and subject matter of change.	-Increasing awareness -Reduce more information - Decision optimization - innovation

Interview number	Interview sentences	Concepts
M1	A friend at the headquarters pointed out that masking is something that should not be applied to the nose only if it was later determined that the mask is one of the priorities of the disease so that if both sides wear masks, up to 95% of the transmission of the disease will be prevented.	Use a mask
M1	The changes that were made were the floating or fluid policies that we adopted. For example, I remember since the discussion of coronary artery disease was discussed, we used electronic software to manage this. Well, the discussion of coronary heart disease is often related to social issues.	- Floating policies -Electronic systems
M1	For those who caused a lot of problems and did not pay attention, there were restrictions, for example, those who did not comply were arrested, and the policies that were adopted in this area were from the judiciary, from the protocols that had to be followed by the guilds. Some strata and classes were laid	- Payment of fines -Limitations -Social distance -Job Restrictions
M1	In the field of education, for example, we see that the policy of education was to introduce some extra courses and to teach only a few books through cyberspace.	e-learning
M1	The issues of conferences, the number of annual meetings, the missions, the visits that had to be done were all done according to specific protocols.	Health protocols
M3	Internal factors were that decisions were not based on each person's policies, for example, a single policy pursued by the previous governor, followed by the next governor or the previous governor, and the next governor pursued those issues because people were unaware of the virus. It was a mistake that had already been made that they were not crisis managers in a crisis situation and the presence of crisis managers, in this case, could help intelligently. Unfortunately, we did not have this issue in the province and some of our managers did not really see the crisis and were involved in the crisis. And their decisions created a crisis of their own.	-Change policies -Wrong appointments -Lack of awareness of people

Finally, based on the content analysis and the comprehensive theme of the role model of municipalities concerning infectious diseases, based

on digital developments, the classification of codes has been tabulated as follows:

Table 2: Identification of themes related to the model

| Constructive theme	Basic theme	Extracted open source samples
Laws and policies	policy	Deployment of a group of specialists from the Center for Infectious Diseases Control
		Establishment of the National Committee covid-19
		Establishment of provincial committees covid-19
		Strengthen our campaign We will defeat Corona
		Strengthen my campaign I get vaccinated
		Review of national guidelines for the prevention and control of covid-19 disease
		Form some working groups, such as the Financial and Budget Evaluation Group to the National Committee on covid-19
	Inter-organizational cooperation	Establishment of covid-19 health headquarters with the help of the armed forces
		Concluding a Memorandum of Understanding between the Food and Drug Administration and the Ministry of Defense for the supply of covid-19 equipment
		Disposal of hospital waste related to COVID-19 patients by scientific and safe methods, with separate safe rooms and delivery to special municipal systems
		Creating a spiritual bedrock to encourage people to follow safety protocols
		Concluding a memorandum with the traffic police to control traffic
		The burial process has been announced under the supervision of environmental health units in each province
		Preparedness of Armed Forces hospitals for emergency admission of COVID-19 patients
		National and International Non-Governmental Organizations (NGOs) Ready to Assist in Controlling COVID-19 in Iran
		Announce readiness of law enforcement to cooperate in the fight against coronavirus
	Culture building	Media advertising for public participation

Constructive theme	Basic theme	Extracted open source samples
		Media advertising for inter-institutional partnership
		Creating a culture and creating a sense of social responsibility in people
		Media advertising to emphasize social distancing
		Media advertising to emphasize the use of masks
		Implementation of a cultural strategy instead of a grammatical strategy
	License	Quarantine permits
		Reducing regulations for the municipality by allowing the recruitment of new staff, circumventing some cumbersome rules
	Prohibition and restrictions	Collaboration on banning traffic during the red era of the virus
		Prohibition of entering the municipality and related organs without observing health and safety protocols
		Cancellation of all public gatherings, including cinemas, concerts, theaters, sports olympiads, conferences, seminars, camps, concerts, etc. by the Ministry of Culture and Islamic Guidance, as well as the cancellation and postponement of weddings, parties, funerals and All meetings until further notice
		Prohibition of smoking hookah in public places (parks, etc.)
		Closure of schools, universities and educational centers
		Reviewing of general spacing rules
		Penalty policy for unnecessary traffic
Service and equipping	Service optimization	Staff screening
		Smart cities
		Localization of services
		Increasing e-government efficiency
		Reduce unnecessary administrative processes
		Utilizing the capacity of volunteer forces
	Organizational services	Equipping organizations to prevent the entry of COVID-19 patients
		Explaining in detail how employees enter and leave
		Establishment of psychological contact

Constructive theme	Basic theme	Extracted open source samples
		centers
		Consistency in assisting staff with vaccinations
	Disinfection of public centers	Disinfection of public places such as shopping malls
		Disinfection of city streets and surfaces
		Providing conditions for disinfection of people in public vehicles
		Providing sufficient amount of disinfectants
Information and research	Informing and generalizing information	Establishment of information and public education working groups in the stages of prevention and treatment
		Installation of advertising billboards to increase public awareness about the corona virus by the municipalities of many cities
		Creating municipal-specific information through software and applications
		Creating crisis management and stress management teams
		Evaluation of individual and collective safety protocols
		Establishment of telephone and internet information centers
	researches	Allocation of funds for COVID-19 disease research
		Establishment and equipping of extensive research centers in the field of COVID-19
		Interaction with the WHO and the development of research on COVID-19
	Education	Manpower training
		Virtual training of officials
		Use of educational webinars
		Increasing the salaries and benefits of those involved in the Corona Crisis Plan
		Appreciation of expert staff
		Determining the replacement force and the correct timing of the candidates
		Creating a culture of appreciation and respect for those contributing to the COVID-19 crisis
Executive barriers	Management factors	Lack of expertise and awareness of officials and managers
		Authoritarian management style instead of critical management

Constructive theme	Basic theme	Extracted open source samples
		Inexperience of managers
		Lack of proper decision making and planning
		Delay in timely decision
		Lack of proper organization of volunteers, nurses
		Lack of organization of charitable donations
		Lack of proper planning for the supply of medicine and equipment
	Information and training	Lack of awareness of the prevalence of the disease
		Lack of accurate information about the disease process
		Lack of awareness of the side effects of the disease
		Spreading rumors in cyberspace
		Vague news and information on the number of patients
		Vague information on the number of deaths
		Weak technology and technology of vaccine preparation in the country
	Weak rules	Weak rules and regulations
		Cumbersome administration
		Lack of convergence of rules
		Insular operation of institutions and weak inter-institutional cooperation
		Parallel work on responsible devices
	Government and political factors	Lack of government support for the affected strata
		Non-alignment of government policies with the Ministry of Health
		Politicization of the Ministry of Health
		Implementing floating and fluid policies
		International sanctions
		Lack of government responsibility for providing the required resources
		Failure to provide and allocate the required funds for the crisis in the annual budget plan
		Lack of unit command and poor crisis management structure
		Weak crisis management of the government
Participation and transparency	Data collection	Recording reports and information
		Information transparency
		Sharing information with organizations

Constructive theme	Basic theme	Extracted open source samples
		Increasing people's access to information
	Participation	Pivotal neighborhood
		people's participation
		People-centered attitude
		Call for participation in the vaccination plan
		Encouragement of volunteers to get vaccinated

According to the table above, the research model consisted of a comprehensive theme, 5 organizing themes and 17 basic themes. Finally, based on the final categories, the research model is presented:
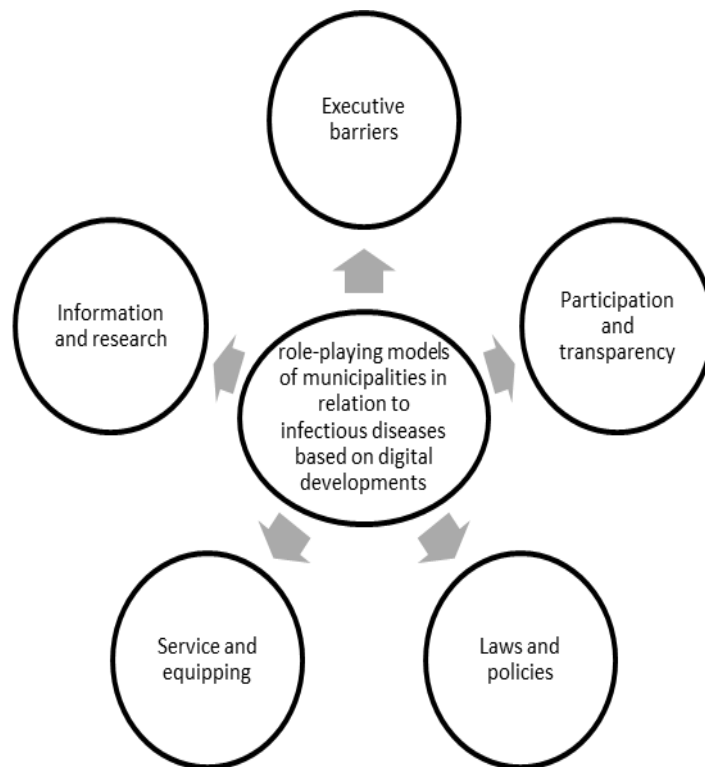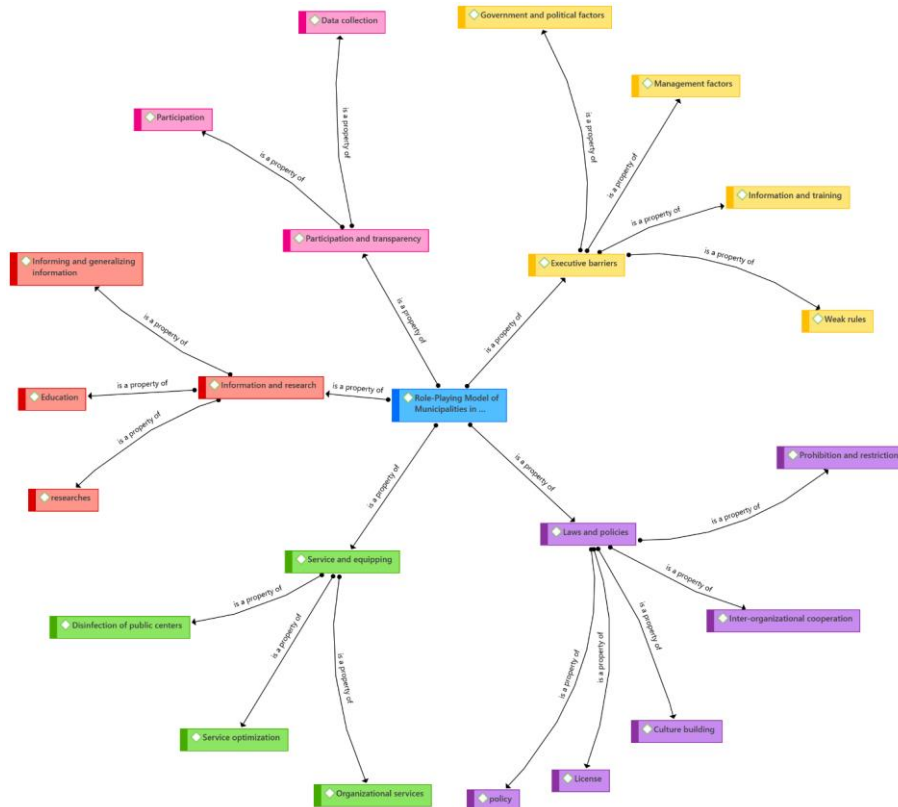
Figure 2. Thematic network of role-playing models of municipalities in relation to infectious diseases based on digital developments

As mentioned in figure 2, the components of information and research are: Information and publicization of information, education, and research. The components of law and policy-making are: Policy-making, inter-organizational cooperation, licensing, culture-building and prohibition, and the limitations of the components of participation and transparency are: Participation and collection of executive information. These include government-based and political factors, information and education, weak laws, and managerial factors. The components of servicing and equipment are the disinfection of public centers, organizational services, and optimization of services.

The correlation of the experts' point of view with the calculation of the Holstie coefficient (PAO) or "percentage of observed agreement" is 0.830, which is a significant amount. According to the drawbacks of the Holstie method, the P-Scott index has also been

calculated, the amount of which is 0.73. The fourth indicator for assessing the validity of qualitative research is the Kappa Cohen index. Kappa Cohen index in this study is 0.73. Finally, Kerpindroff alpha has been used and its amount in this study is estimated to be 0.88.

Discussion and conclusion

It is clear that unforeseen events, depending on the size, number, and density of the population, turn into small or large catastrophes, a situation whose reinstatement proves most difficult. Despite the negative effects of the corona outbreak, this period can be considered from a positive perspective due to the digital transformation and smartening in business and lifestyle. Municipalities also used the digital transformation created as the main institution of municipal services, and the realization of digital transformation in this part of the service institutions has been faster. Municipalities have shifted to making the best use of their infrastructure and capabilities to reduce human interaction, create social distancing, and reduce unnecessary traffic.

A review of global experience at the time of the outbreak of coronation shows that cities that have managed to control the outbreak of coronary disease by using intelligent technologies in their workplace have been successful in controlling it. Another effect of the prevalence of coronation in urban institutions has been a change of attitude in the policy-making and governance sectors. Pressure from the prevalence and prevalence of this disease has led to the role of intelligent governance and legislation in creating appropriate conditions in order to provide services in a smart city and provide services and its services in an electronic manner. Ensuring its observance is set by strict rules (Zanganeh and Payvand, 2022). Municipalities have a lot of power to communicate directly with citizens, which is not possible in institutions or agencies that are even administratively superior to the municipality. City managers are in touch with the daily lives of citizens. Facilitating information, smartening, and the use of small-scale technology by municipalities has greatly improved the Corona crisis.

The type of planning and actions adopted by crisis managers, to deal with crises, refers to the type of view and attitude towards the crisis, and based on the type of attitude, the crisis management

approach is different (Javanmardi and Karimi, 2021). The occurrence and pandemic of coronavirus was unique in terms of geographical extent and range of effects and posed a serious threat to the safety and health of human society. Zhanwei et al (2021), achieved consistent results. Due to the contagion and prevalence of coronavirus, the digital platform is the best way to control the spread of coronavirus.

Sensitivity of coronary heart disease at the beginning of its global outbreak, lack of clear, accurate, and timely information by officials in the country, lack of unit management, lack of coordination between departments and responsible organizations, lack of medical facilities such as masks and raw materials, false news Virtual social media, distrust of the authorities, all caused the spread of untruth and concern and misinformation among the people. Rahimi Klor and Mahmoudi Pachal (2022), achieved consistent results

Studies show that the countries that were able to effectively manage the prevention, identification, and treatment of the new coronavirus pandemic all used digital tools (Rush et al, 2021). Prompt action and understanding of the critical situation also helped them to reduce casualties and financial losses. Efficient management and the use of digital platforms in some countries have proven that geographical boundaries and population density are less important than the right decision. Therefore, government control and coordination between organizations in government factors are important. Big data entry, rapid dissemination of information based on social media, and monitoring of managers and decision-makers through webinars, are all benefits of digital developments to control the corona crisis.

Certainly, the spread of the coronavirus has been one of the challenges of global destruction in the contemporary century.Ansell et al (2021), achieved consistent results. Given that the virus has become a threat to the World Cup, it needs timely, appropriate, and cost-effective policies and measures to curb and mitigate its deadly consequences. Coronavirus crisis management planning requires the right strategy, policy, and action (Banerjee et al, 2020). In Iran, since the outbreak of the disease, many plans have been made for early diagnosis, treatment, hospitalization, and recovery of patients, including the formation of a crisis team, preparation of guidelines and protocols, and screening of all households through the health system design and apple system upgrade. Is. So far, more than 70% of the

households registered on the health site have been followed up by the health team daily (Rahimi Klor and Mahmoudi Pachal, 2022).

Crisis management is vital in determining effective solutions to go through this period and the post-crisis period. Therefore, the purpose of this study was to determine how to manage the Covid-19 disease crisis in Iran and the world and to use the experiences of other countries, especially countries that are culturally, socially, and economically similar to Iran, to move the chain as quickly as possible and to improve the situation in the country. One of the effective measures in controlling the disease and reducing the complications caused by this disease is to share the experiences of other countries based on digital tools.

The study of the experience of different cities showed that the cities that provide better solutions to deal with this disease based on sharing and analyzing the collected urban data are better and more efficient. From this perspective, the prevalence of this disease has accelerated the process of digital transformation in cities. The city and municipality of Amol are no exception to this, and in this regard, it has strengthened its online services and involved data collection and cross-sectoral cooperation with other institutions involved. Covid virus 19 also highlights the importance of intelligent resource allocation in cities. For example, the development and acquisition of services by Samet, given its rapidly expanding infrastructure, requires the presence of the government in the intelligent allocation of resources. Due to the change of approach in the policy sector and the faster movement in the path of digital transformation, municipalities have concluded to deal with many of their internal problems and challenges. For this reason, cooperation with private institutions and even citizen participation in the provision of services has been used, and this has led to the establishment of partnership structures in the provision of services.

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