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NATIONAL PARTICIPANT GEOSPATIAL INFORMATION SYSTEM IN URBAN PLANNING

Purpose. The title of air-space in the spatial part is not just a noun, but it is quite effective in determining its conditions. National Participant using new spatial information system including software, hardware in synchronous and asynchronous environments. Also, explaining the role of the National Collaborative Spatial Information System in the effectiveness of urban planning

Methods. Introducing the national software in the process of participation along with the spatial information system. Statistical analysis along with interpretations based on statistics, especially Spearman's correlation. Also Using all the criteria and factors that have been used so far to participate with GIS in a spatial and non-spatial way.

Results. There are short discussion related to the formation of the software, the formation of the environment and hardware and all the existing criteria, and then the evaluation process, proposed for the participation-oriented information system, continues. The methods are discussed and then the discussion related to the case study and evaluation of the usability of the participatory spatial information system and requirements engineering as a support tool for participatory planning in the municipality was discussed. In the end, statistical analysis along with interpretations based on statistics, especially Spearman's correlation, are discussed and demonstrated. The reason for the topic of decision-making is based on statistical analysis, not just comparing decision-making with analysis, because sudden decisions like early humans are usually made in natural events and away from dangers and the like. This issue has not been seen in any dispute so far. In the following, we realized that the time factor and then being on time are the most important factors along with the economic criterion. Although planners were expected to be decisive, the results showed otherwise. In practice, it was proved that the basis of software, mathematical and statistical analysis decisions of the groups is the reason for the rise of the economic standard, along with the time factors, which are very necessary in improving the participation with GIS. The role of the power and wealth layer is still colorful and unlike the priorities, the fastest and most dominant decisions are made by this. in this study Time is a decisive factor.

Conclusions. Based on the results obtained and due to the misleading nature of the time issue, it cannot be managed, and people should not worry about time management, because they lose their focus. Therefore, they should manage their concentration and be focused in the moment. It is only in this way that one can use the time effectively and continue the desired activity. Finally, by programming and creating collaborative decision-making in asynchronous and synchronous environments, NPGIS is introduced in an organizational form.

KEYWORDS: urban planning, NPGIS, air-space, time-place, innovation

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Introduction

Remote sensing studies have a decisive role in place and space, Especially in new innovations and current technologies. Humans are in a time when technology is progressing instantaneously. The topics of the third generation of the Internet, artificial intelligence in all fields, the world of metaverse and virtual cities can be expressed from these emerging technologies. Therefore, these processes should not be neglected and should be progressed in harmony with them. Accordingly, in this study, the National Participant Geospatial Information System or NPGIS for short has been introduced. The opinions of all sections of a society, including ordinary people, officials and decision-makers, owners of economic enterprises, have been taken into account. These comments can be registered both simultaneously and asynchronously and will be used in the new software environment. It should be noted that such processes have been carried out for the first time, which is unique in its kind. The issue of time plays an important role in this study.

Living in a world without a desk might be tough, but managing a world without time seems remarkably disastrous. The idea that time does not exist is inconceivable to many: time must exist. Almost every experience we have tells us this [1]. Time plays a key role in the Doctoral Dissertation from which this article is extracted, which is the basis for writing the thesis by the researcher. Therefore, the researcher thinks about the subject of time differently than any other person who has written a text on this topic so far. Decision-making and decision-making with public participation are important as important components in all processes. Also, this component in the conditions of synchronizing with the occurrence of events and being aware of projects from the beginning to the end is the basis for compiling and writing this article, is placed. Today, in the comprehensive planning and development of cities, important and complex decisions are mandatory for every community

and local government or municipality. In this regard, it should be said that making optimal decisions by integrating and combining a set of emerging phenomena such as geographic information system or GIS, which itself is a result of participation, has played a significant role in the flourishing of knowledge and information [2, 3]. In recent decades, "urbanization", "sustainable development" and "information and communication technology revolution", as the most important global trends, have played the greatest role in the life of human societies [4]. As a result of the urbanization of societies, today more than half of the world's population (54%) lives in cities and it is expected that this ratio will reach more than two-thirds (66%) by 2050 [5] [6]. Historically, the city and the modernization of societies are directly linked together, Ulrich Beck calls modernity (modernity or newness) the systematic process of social production of wealth and risks and considers modern societies as risky societies [7]. It can be said that the movement of cities towards sustainable development, as well as the increasing role of information and communication technology in decision-making and decisions related to urban management, has transformed the city administration system. If this discourse emphasized environmental, social and economic sustainability in the 1980s, in the 1990s, it emphasized the concept of a smart city, but today it has focused on sustainable smart cities [4]. In fact, open source urban governance is a new way to attract citizen participation. A participation that is referred to as electronic participation, remote democracy, information technology democracy, electronic consultation, web-based citizenship, online public administration, etc [8]. The main part of urban activities is focused on collaborative development for planning, designing and implementing urban services based on electronic infrastructure, E-services involve change in services as well socio-technological change and relate to change in forms of participation

[9]. Most of these disciplines are related to the geographic information system and the requirements of the expertise of using data and spatial information, which are important topics such as requirements management, usability, context and infrastructure-oriented models, decision-making processes with variables. different, participating in the exchange of information, discussions related to time-space and vice versa, creating discussion and inquiry forums, the occurrence of simultaneous events, real-time events, planning and cooperation in software design with the approach of participation at advanced levels at the local level and include the national The final result of the discussed rules is the effectiveness of activities and services in the field of management and efficient cooperation in planning.

Problem statement In recent years, the role of participatory geographic information system in urban planning has become very prominent in various economic, health, environmental, psychological, social and even security and industry aspects [10]. Because spatial information technology, like other elements of information and communication technology, has been transformed under the influence of the progress caused by the transition from WEB technology to WEB 2. Relying on collective intelligence, content generation by users or user- centered content generation, wide scope/long delay and interactivity are the main features of WEB 2 technology. In WEB 2 technology, as opposed to WEB, users are not mere passive consumers of produced content and are able to create, organize and adjust their desired content and share their information and assets with others, or criticize the produced content. others and change it [11]. Although, while writing the article, things have been seen and heard regarding the introduction of the third generation Internet WEB 3, but it has not been seriously considered yet, and according to the researcher, the world is bound to accept it one day. Unlike the usual process of generating spatial data by government organizations, in citizen-centered GIS, citizens (individuals/groups/society) play an important and increasing role in generating various types of spatial data and distributing them. People's participation in information production has been carried out in the framework of approaches such as geo web, collaborative geographic information system, voluntary geographic information, spatial crowd-

sourcing, user-oriented spatial content production, new geography, location-oriented citizen science, and coordinated collective intelligence with computer support. As a result, it can be said that the continuation of this process can provide a kind of participation-oriented electronic governance, which is also called urban open text governance [8, 12]. The three-digit telephone system 137 was first created as a communication bridge between the people and the beneficiaries and with the aim of receiving citizens' messages regarding urban issues in 2000 (1379 Solar Hijri) in the form of a voice mail box in Tehran Municipality, Iran.

Research literature review. When it comes to participation, Arnstein [13] elementary ladder and her previous topics are not forgotten. Despite the incredible evolution of GIS in recent decades, the understanding of spatial information has not changed over time, with different GIS approaches applied and considering geographic features (such as neighborhoods, cities, and regions) would be considered foreign territory. Currently, however, limiting the term "place" to an external realm is meaningless, as 80% of people's daily lives are spent indoors [14]. Also, the factor of time and other dimensions such as space-time and the like is an inseparable and main part of the current study, which has influenced the nature of the treatise as a whole and formed its framework. PGIS can be defined as a system that brings the academic practices of GIS and mapping to the local level in order to promote knowledge and information. Here are two points of view that are currently being discussed based on the use of PGIS. This system is linked to other knowledge such as critical mapping, collaborative methods, development-oriented and ideal cities, optimal urban planning, civil governance, community development, resource management, environmental and natural hazards, reaching a smart city, etc. This approach, in addition to the need for civil and political interaction and participation, requires the ability of spatial information system specialists to guide its operation toward the main issues of local management, such as optimal service delivery, spatial justice, etc. [15, 16]. This desire provides the grounds for the use of extraordinary capacities that are the result of combining the capabilities of the geographic information system with innovations in the field of information and communication technology

and new approaches based on electronic and online participation [17]. A notable example in 2017 was the initiative in Chicago, Illinois, USA, a joint project led by the Field Museum, the Chicago Park District, and several community-based organizations with funding from the City of Chicago and co- sponsors such as Boeing Company has been [18, 19]. Just as planning precedes all functions, it is also preferred over the hierarchical levels of management, and it is also effective in raising related questions and consulting with the organization's employees. It is only through planning that the manager decides what to do, when, and who will do it. Planning and control go together and it is not possible to predict what is not planned [20]. In a 2017 study in a developing country, participants were able to match place values and place preferences with current land uses, suggesting that a non-expert in Malaysia can interpret digital maps and effectively. It is interesting to establish local knowledge about the place to bridge the knowledge gap with experts. The newness of PGIS as a participatory method can help stimulate public participation, but developing a stronger culture of participation in Malaysia for land use planning requires continuous effort over time [21].

Research methodology

Destructive background. In a 2019 study, Indrajit and his colleagues evaluated the type and quality of participatory spatial information that can be used to support planning based on participatory geographic information system in a city of a developing country using the criteria of the country's development plan and its specialization. Collaborative spatial data in this study is applied in the form of location values and user preferences in the city, which utilizes experts and strangers to this collaborative system by creating a decision support system. This support in today's world should be based on the wisdom of the common people and properties that play an important role in good governance. In other words, according to the aforementioned issues, the prerequisites for achieving sustainable development in any country will be the optimal participation of an entire society, which itself must be effective, transparent, responsive, effective and efficient [22]. after about eleven years, which caused similar and even greater damages. The United States Geological Survey (USGS) announced that an earthquake with a magnitude of 7,2 on the Richter scale occurred off the coast of Port-au-Prince, the capital of Haiti. For many Haitians, this earthquake was a reminder of the 2010 magnitude 7 earthquake that killed more than 300,000 people. The earthquake 11 years ago made one million and 500 thousand people of Haiti homeless [23]. aid and rescue organizations, which alone has caused many problems. It should be mentioned that in the first step, the most important environmental problem in the earthquake-affected areas is gar bage, which unfortunately, if not properly managed and collected, will become a dangerous source in terms of health and will become a suitable place for insects to gather and spread all kinds of diseases. Also, burning waste also causes a lot of pollution. Such issues can have a joint effect on animals and humans and cause the spread of disease. We will not talk about other unpleasant events that have happened and it is not included in this area. Finally, regarding the collaborative geographic information system, it should be said that some authors use the abbreviation PPGIS in their studies and others use PGIS, but some researchers use these two terms together and instead of each other in different parts of a study, while there are some who differentiate between these two in nature. In confirmation of this issue, a study was conducted under the title of political rethinking, political rethinking after GIS or PGIS, which completely changes the nature of the discussion. Therefore, whether PGIS is correct or PPGIS just wastes its time and deals with a completely marginal matter, and we move away from the goal and make a system with this historical identity that was created to support the marginalized strata ineffective [15, 24].

Research models related to innovative literature with artificial intelligence approach. The research models that have been discussed are stated in parallel with the present study. It goes without saying that its content can be developed using open source programming languages such as JavaScript and Java application. The map component for open source maps such as map tool libraries relies

on Java under the open source API. You can use the optimized, up-to-date and powerful Python software, which is specific to Arc.GIS software, which is widely used even in very new and advanced technologies such as blockchain. The concept of blockchain, which means that blockchains can be used privately and for specific purposes in an institution or organization, which is also called organizational blockchain. So, with this definition, its main goal, which was to decentralize and separate from the traditional banking system, will go away. Blockchain was created in 2008 based on the ideas of an unknown person for the first time with the creation of a computer currency called Bitcoin, which is now considered the leader of digital currencies, which can be used to store information. related to the property of the users. It should also be briefly said about Bitcoin that it was the first digital currency that started the decentralization process in the post- Internet world, which is always considered the beginning of the art of planning in the digital world [25 – 27].

The emergence of the third generation internet and metaverse in harmony with transpersonal technologies. In fact, this decentralized system is a database that is maintained and updated by network participants based on the understanding mechanism and data architecture, and it is in a way the same cooperative system that currently a few cluster companies have the monopoly of setting up the Internet and providing have taken the services related to it. This type of internet, which relies on blockchain technology and artificial intelligence, so that with the benefit of these technologies, the internet, as it was said, will be freed from the monopoly of a few large companies in this field and will be available to ordinary people. There is no doubt that this idea can be very fruitful and will definitely be one of the most important features of utopias [28, 29]. What distinguishes Web 3 from previous versions of the Internet is its decentralization; Of course, this version of the Internet is considered interactive like Web2.0. In fact, Web3.0 is considered a decentralized version of Web1.0 and Web2.0. And it seems that Web3 has a very complex structure and potential for development [30, 31, 26].

Results of the research

The study area. The studied area is an example of the main topic. Considering the newness of the participation-oriented spatial information system, the context and mechanisms of this system are explained in the case of Sari city, the capital of Mazandaran province, which has this potential. It is certain that in this presentation process, the capacity of the participation-oriented spatial system, pathology of the existing structure, process and function of the 137 system and people's capacities to establish a new system are considered. Finally, it seems that the possibility of creativity and innovation is available in these fields. Sari is one of the most populous cities in the north and the former capital of Iran (before Tehran), the capital of Mazandaran province and Sari city. Sari is also one of the oldest and historical cities in Iran, more than 6000 thousand years old, and is located at the coordinates of 36°33'48" north latitude and 53°03'36" east longitude and whose population is 347/402 people [32, 33]. Figure 1 shows the location of Sari city in the country and in Mazandaran province and in Iran.

Study process in software and programming environment. One of the main parts of maintaining the privacy of the original author is to create a software environment, programming and computer coding. For this reason, only a part of it will be shown in this article. This study challenged the mind of people along with considering all the influencing factors and reviewed solutions. The basic challenge of this study has been precisely that the minds are big and come out of passive behavior and help to change the transpersonal identity along with the experiences to participate at a high level. This can lead to the improvement of the identity and structure of people in a society, the shape of cities and almost everything. It brings with it that it can be considered a positive thing. Conducting localization studies based on the type of applied method and the characteristics of the localization target includes different steps [34, 35].

In general, usability in any type of planning process directly refers to two points: first, accessibility and second, reliability. It means planned projects and unplanned projects. In
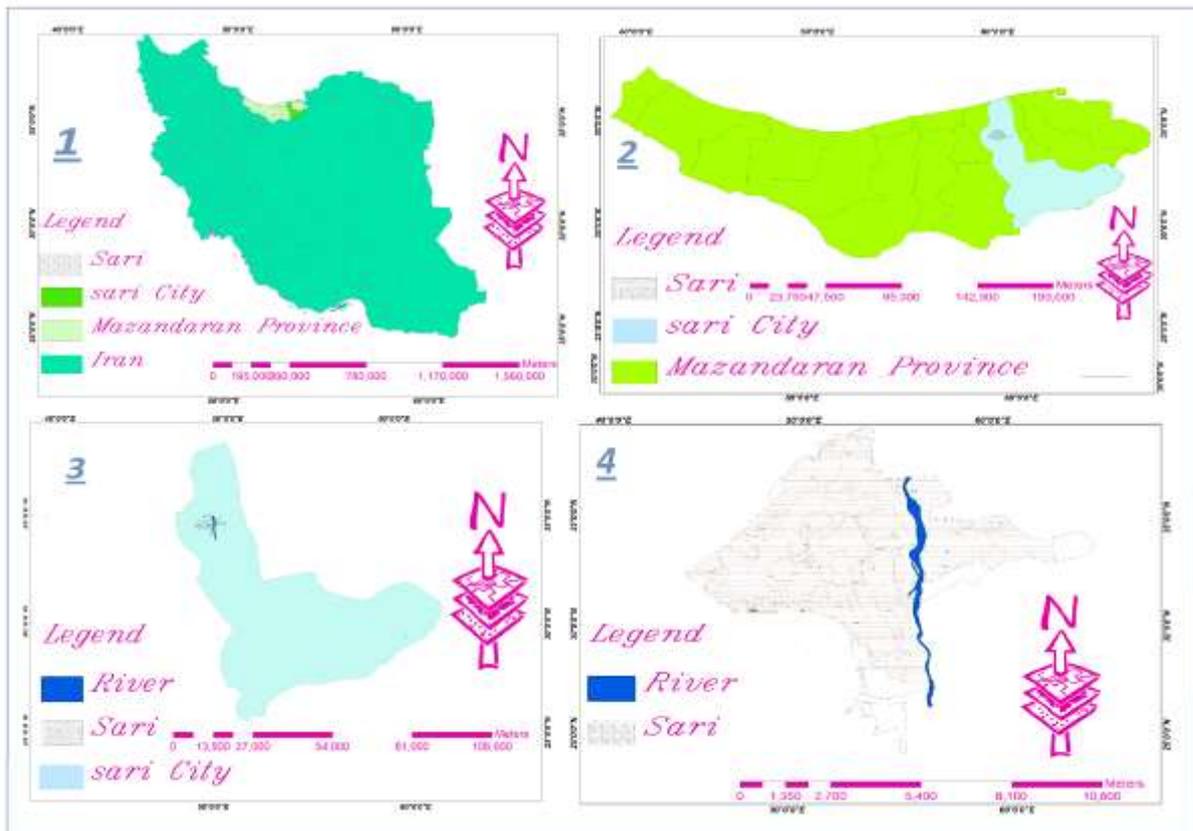
Fig. 1 – The picture of the location of the Sari town, in the country of Iran, Mazandaran province and Sari city

scheduled projects, it can be scheduled time in routine activities or other scheduled operational activities, such as resizing projects, which means that equipment is not available [36 - 40]. Stoppages in unplanned projects are most likely due to unwanted incidents and can also be due to unplanned interruptions in work. The downtime caused by equipment failure is related to both the reliability of the equipment or the number of equipment failures and the time required to restore the equipment. In the Part second which the role of the client and server is clearly evident in fig. 2 observed. Services and components in the spatial information system of national participation in a streaming manner is shown in fig. 3. Traditional engagement processes and synchronizing with web-based engagement (fig. 4) Workflow processes and service capabilities therein can be seen in Figure 5. The lack of systematicity of the urban system, especially some related organizations such as the municipality, can be seen in this way. The

activity team initially starts with phone calls to solve the problem and finally leads to the archive, which is the biggest problem that remains unanswered in the dispute-oriented system. Which is very surprising (fig. 6).

Allocation of weights with tables in statistical forms and decision models. In this section, multi-criteria, network and hierarchical decision-making is used and reference is given for study [41]. If we look carefully from the beginning of the study, this part is one of the most important parts of the treatise. The number of criteria in this section:

1) Municipality 2) Citizens 3) Government 4) Business interests 5) Other agencies 6) Non- governmental organizations with the aim of: the e-government framework based on these criteria is formed by hierarchical analysis or AHP. To analyze this part, Superdesign software is used. First, the model is drawn in the software, which is shown in Figure 7 and Table 1.

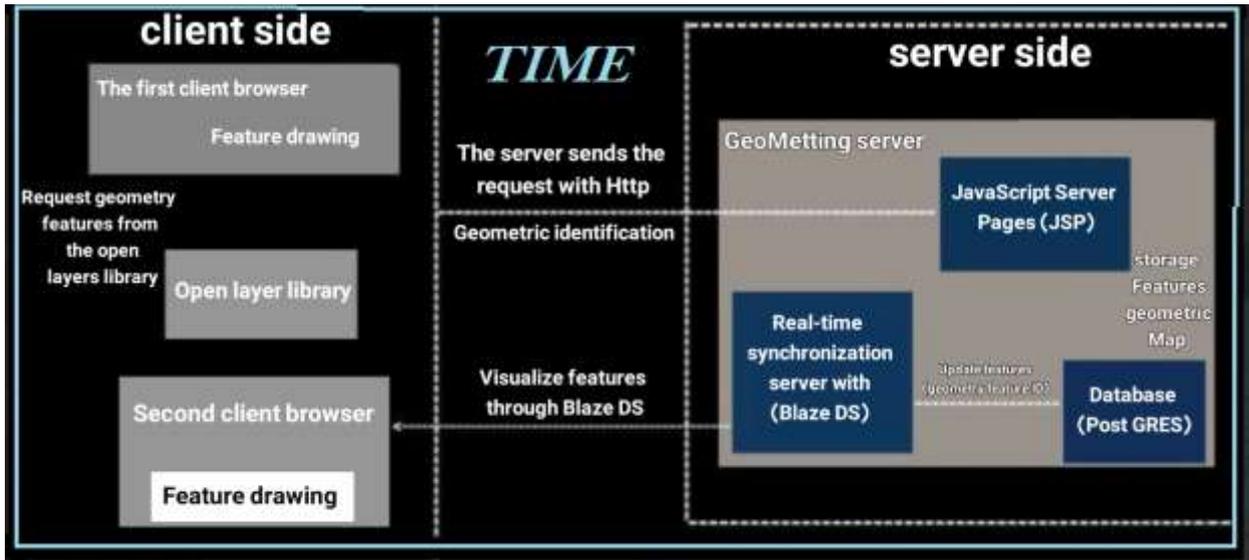In the next part and the municipal basketball, the opinions of the experts are ranked

Fig. 2 – An example of software programming to request the system at real time
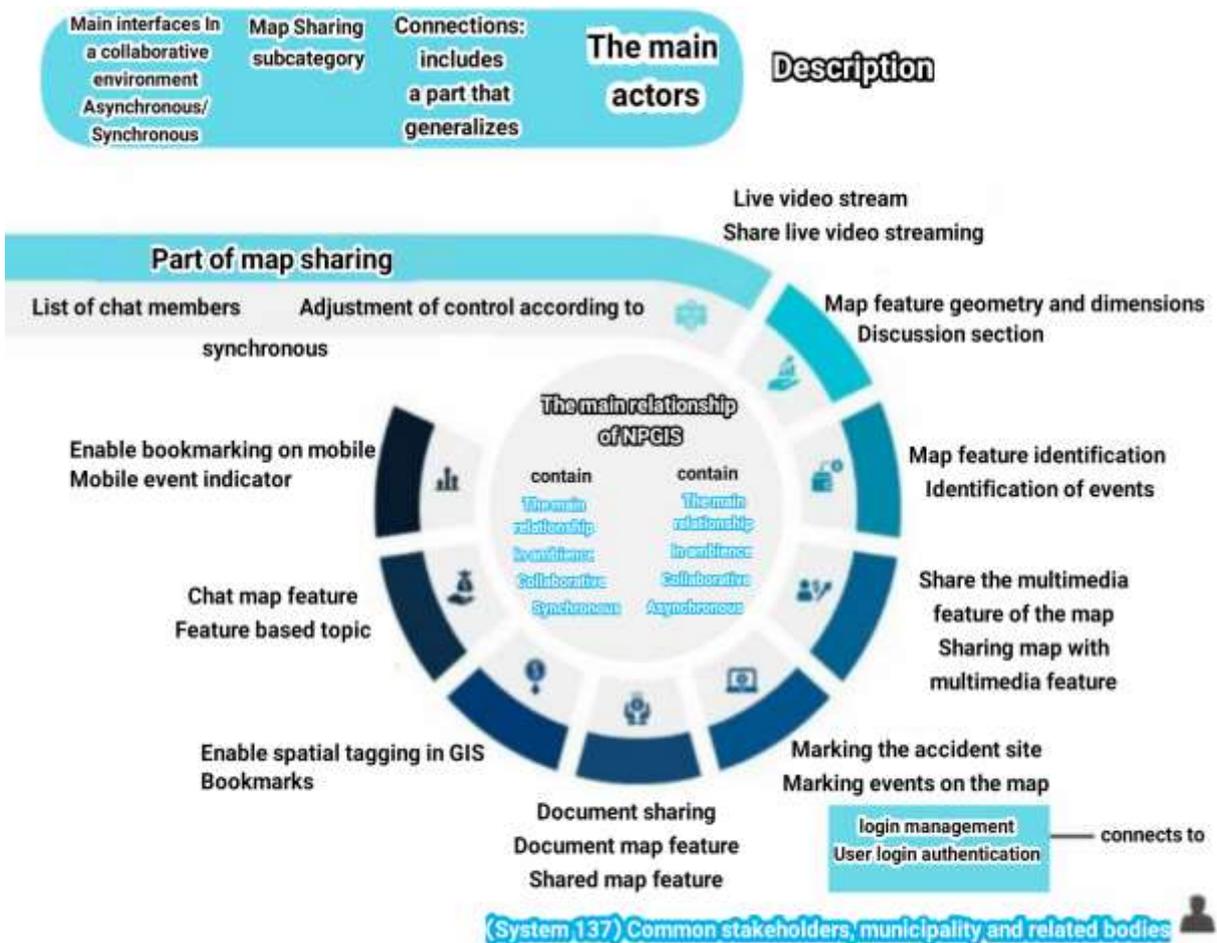

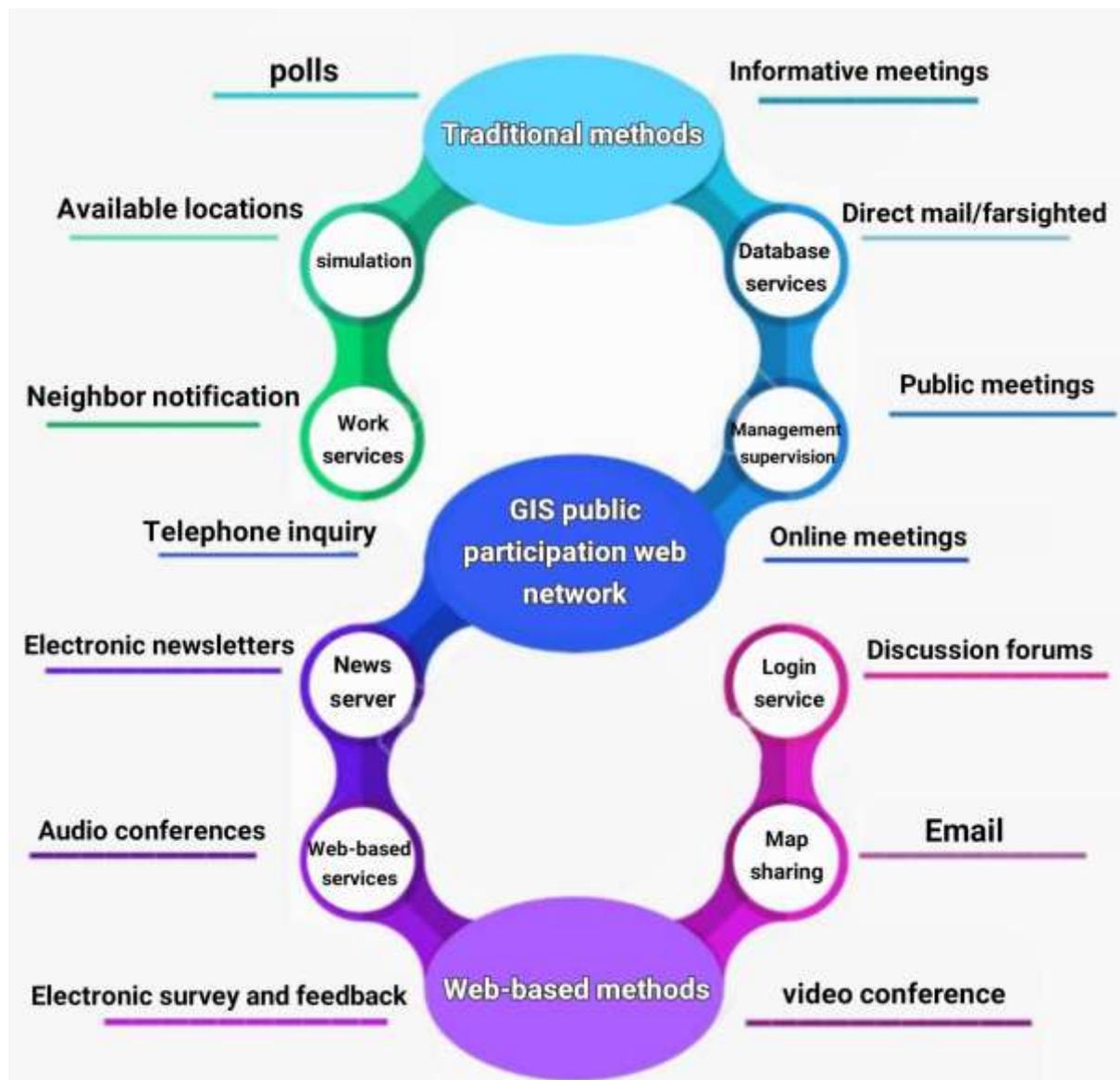**Fig. 3** – NPGIS services and components in streaming form
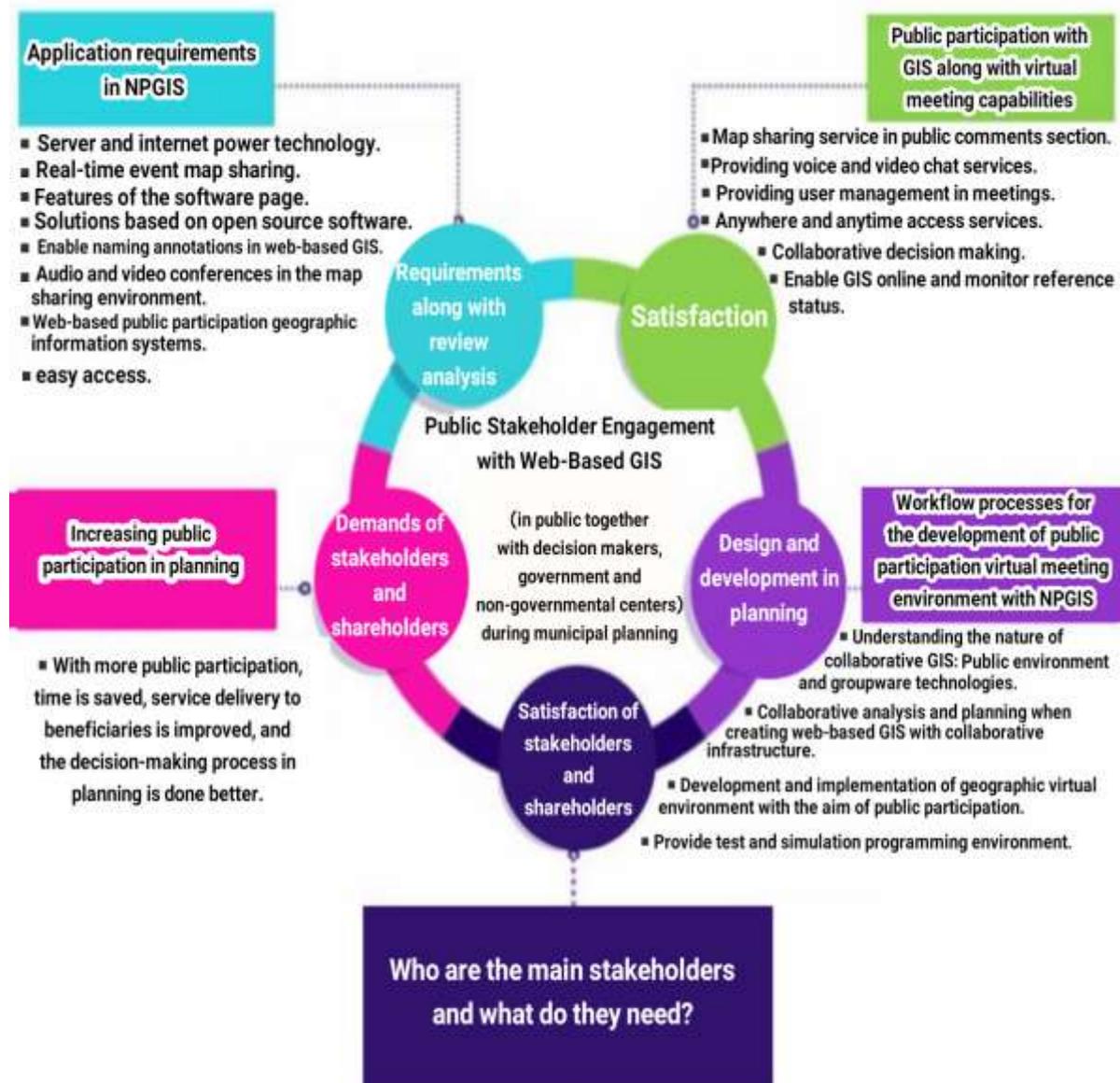
Fig. 4 – Synchronizing with web-based engagement

Application requirements in NPGIS

- Server and internet power technology.
- Real-time event map sharing.
- Features of the software page.
- Solutions based on open source software.
- Enable naming annotations in web-based GIS.
- Audio and video conferences in the map sharing environment.
- Web-based public participation geographic information systems.
- easy access.

Public participation with GIS along with virtual meeting capabilities

- Map sharing service in public comments section.
- Providing voice and video chat services.
- Providing user management in meetings.
- Anywhere and anytime access services.
  - Collaborative decision making.
  - Enable GIS online and monitor reference status.

Requirements along with review analysis

Satisfaction

Public Stakeholder Engagement with Web-Based GIS

(in public together with decision makers, government and non-governmental centers) during municipal planning

Increasing public participation in planning

- With more public participation, time is saved, service delivery to beneficiaries is improved, and the decision-making process in planning is done better.

Demands of stakeholders and shareholders

Design and development in planning

Satisfaction of stakeholders and shareholders

Workflow processes for the development of public participation virtual meeting environment with NPGIS

- Understanding the nature of collaborative GIS: Public environment and groupware technologies.
- Collaborative analysis and planning when creating web-based GIS with collaborative infrastructure.
- Development and implementation of geographic virtual environment with the aim of public participation.
- Provide test and simulation programming environment.

Who are the main stakeholders and what do they need?

Fig. 5 – Workflow processes and service capabilities therein

Fig. 6 – The incorrect cycle of urban management, system 137

Table 1

Pairwise comparison of criteria in AHP method

rank		Government	Non-governme	Other	municipality	Citizens	Commercial interests	Weight
1	Government	1	2	3	3	4	2	0/329
3	Non-governmental organizations	0/5	1	2	3	0/5	1	0/154
6	Other agencies	0/333	0/5	1	0/5	0/333	0/25	0/061
5	municipality	0/333	0/333	2	1	0/5	0/5	0/086
4	Citizens	0/25	2	3	2	1	0/333	0/151
2	Commercial interests	0/5	1	4	2	2	1	0/218
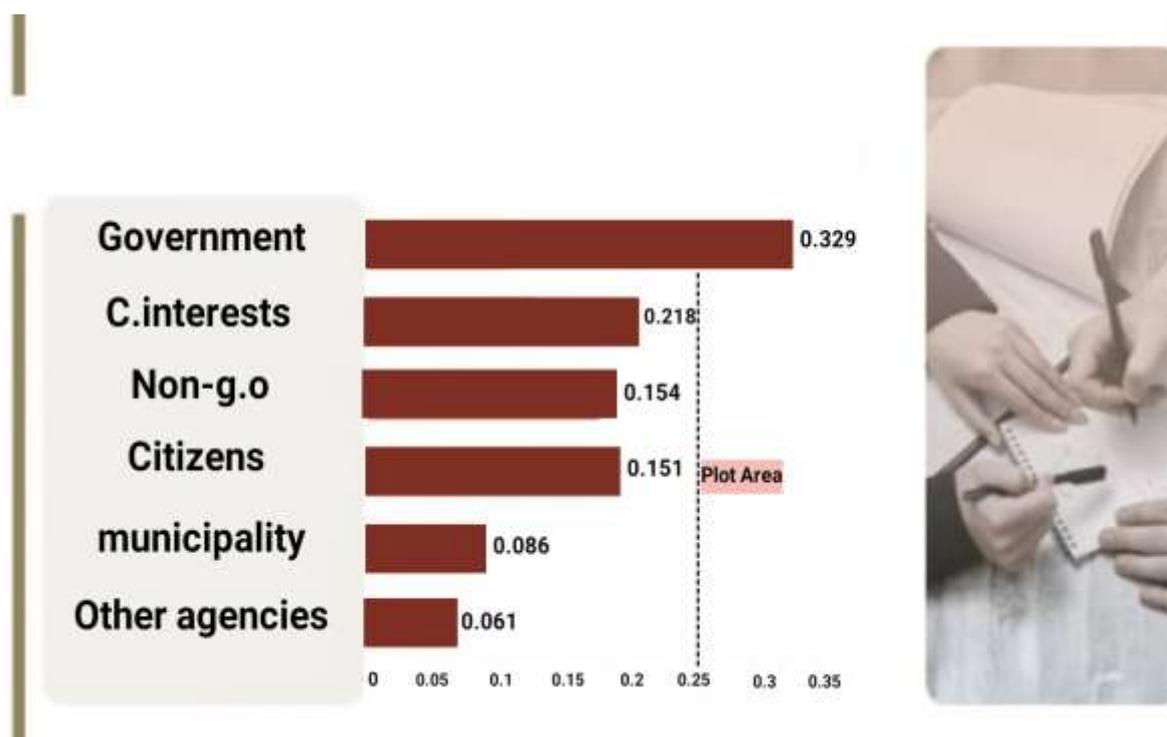
Fig. 7 – Weight chart of criteria in AHP model

as follows: 1) General satisfaction 2) Dissatisfaction 3) Lack of communication 4) Unsuccessful call 5) Repeated and informed. Also, the following criteria: 1) survey 2) referral to the cartable 3) field visit 4) speed 5) quality 6) general satisfaction 7) confirmation of performance 8) disapproval of performance 9) referral to the executive director's cartable with the purpose of feedback to the municipality's cartable. The level of public satisfaction should be measured by the process of network analysis. To analyze this part, Superdecision software and ANP method were used, and the final weight of this model is given in Fig. 8 and Fig. 9. Internal relationships are also shown based on the form of the question. After drawing the model in the software, pairwise comparisons are made, which are given below.

The results of this part of the survey show that the citizens' satisfaction with telephone answering is in a favorable rank, but the follow-up and performance of the municipality and the level of satisfaction is almost or to a high extent low. It should be noted that the factor of time and timely response plays a decisive role. Now it's time to reach these answers that were observed during the study. The priority or the main concerns of the stakeholders in this section are also addressed by using

the ANP process to prioritize the following five criteria:

1- Communication channels

2- Cost

3- Misuse and failure to protect data privacy

4- Lack of support for quick and timely decision making

5- Project information management

First, the network model of the research is drawn using Superdesign software, and its final weight diagram with ANP is shown in Figure 10. Based on this, the lack of support for quick and timely decision-making has won the first rank with a weight of 0.242. Misuse and failure to protect data privacy with a weight of 0.232 ranked second and cost ranked third with a weight of 0.202. Figure 11 shows the final weight of these economic and social criteria.

10 Statistical analysis to evaluate the optimality of the decision. The frequency of responses even with a small number of participants indicates an easy-to-use interface. That is, even the work in the hands of those who do not have the experience of mass planning in route finding, will be able to create a new net work of routes with reliability and without any doubt. Therefore, in addition to effective
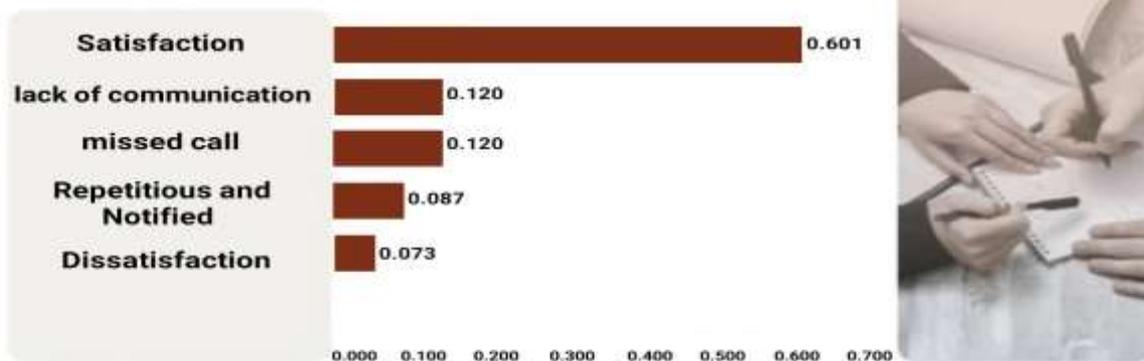
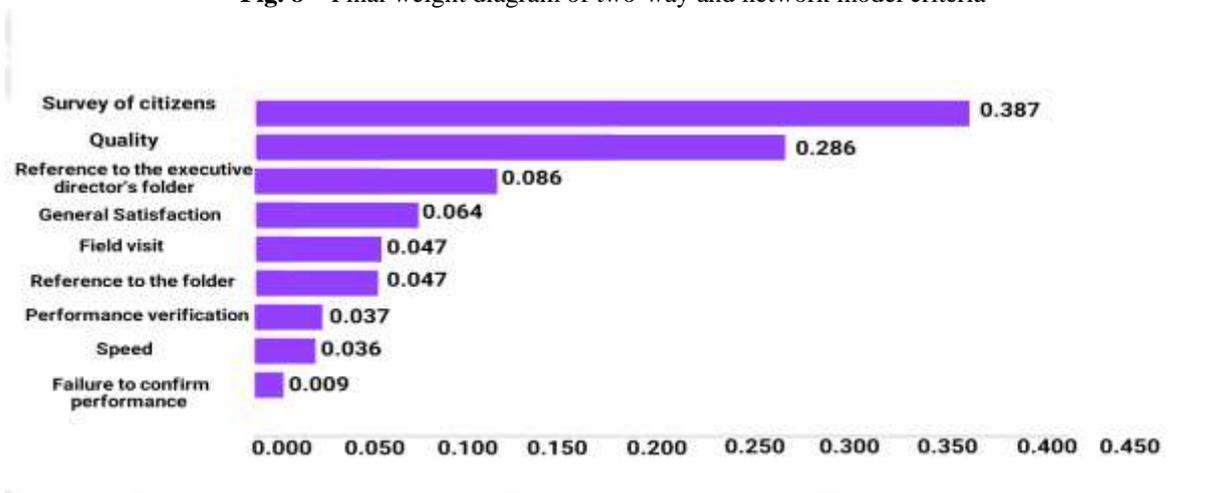**Fig. 8** – Final weight diagram of two-way and network model criteria

Fig. 9 – Diagram of the final weight of the two-way model and network sub-criteria

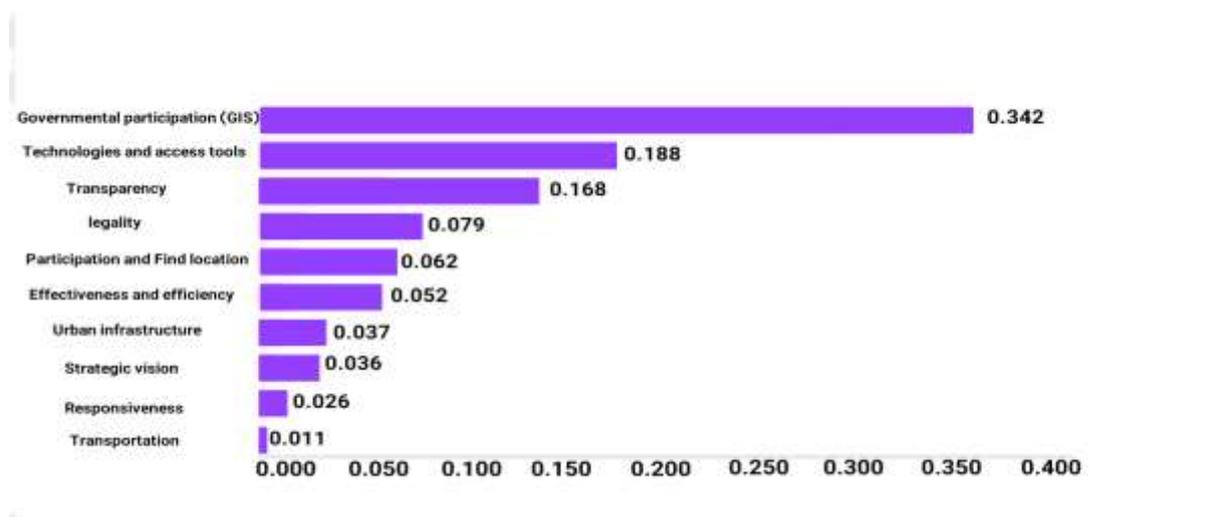**Fig. 10** – Chart of final weight and criteria priority

Fig. 11 – Weighting diagram and final priority of criteria based on social-economic priorities

decision-making, the paths that are created in a place will be clear and realistic [42]. Statistical analysis was performed on user performance data, which was collected from pre-post web activity questionnaires and analytical software. Finally, all data were submitted to the Statistical Package for Social Sciences (SPSS) for statistical analysis, the results of which are discussed. The following are the activities of statistical authorities that have been used in the study and have made efforts in this way [43 – 46]. In fifth part, according to the issues and limitations of the study, the number of accompanying people, apart from the general interview, which was 384 samples and based on the population of Sari, varies between 19 and 70 people. So we arrive at the statistical ranking according to what the municipality has considered to be considered by the people, based on the Friedman test, the following results have been obtained. After the descriptions and on the basis of the public question, it was done according to the population of Sari and it was shown in the following. In fact, since Milton Friedman examined it for the first time in 1937, the non-parametric statistical test is known by his name. This test does not need to know the distribution of variable values [46 – 50]. The calculation of Friedman's statistic, which is represented by χ_r^2, is possible using the following relations and can be done in two ways:

$$\chi_r^{\Upsilon} = \frac{SS_{br}}{\frac{k(k+\Uparrow)}{\Upsilon\Upsilon}}$$

$$(1)$$

where SS_{br} is the sum of the rank squares between the distributions and k is the number of categories or distributions for which the ranking is done

$$\chi_r^{\Upsilon} = \frac{\Upsilon\Upsilon}{Nk(k+\Uparrow)} \sum (T_g)^{\Upsilon} - \Upsilon N(k+\Uparrow)$$

$$(2)$$

where N is the number of subjects, k is the number of categories or distributions for which ranking is done, and Tg is the sum of the ranks of the g-th group. The value of SS_{br} is also obtained from the following relation:

$$SS_{br} = \frac{\sum (T_g)^{\Upsilon}}{N} - \frac{(T_{all})^{\Upsilon}}{N_a}$$

$$(3)$$

This test was used to check whether the criteria of satisfaction with time participation are significantly different from each other or not. The results of this test showed that the proposed factors have a significant difference at the 99% confidence level. The comparison of the average ratings showed that the time with an average of 5.97 is in the first place and the activity on time is in the second place with an average of 5.90 and the Along option, which is the same as the mobile smartphone and the result of the first and second options with a score of 5.97, is in the third place and Other factors were ranked next. Its diagram is shown in fig. 12 and the software output can be seen below it.

Case studies with collaborative map sharing system. This map, as a KML map, was reviewed in terms of time and space before uploading it in the NPGIS environment and made expert decisions so that the most optimal processes can be carried out on the proposed locations. Local decisions and proposals of experts as well as economic stakeholders were taken into account so that the most convenient and best operations in this environment are carried

Fig. 12 – Graph of the average scores of the criteria based on the statistical test

out in every aspect and leave no room for any doubt or object in it. And the next section this process has gone through a long period of one month to show the efficiency of this system compared to other systems based on GIS software. It is shown in figure 13 which will definitely include the best positions. This section was selected as the urban planning section of Sari regions, assuming that according to its regional reform plans, there was a possible scope for reforms in the municipality in each region. Spatial data related to the corrections were prepared using Google Earth software in the form of GIS files, which are loaded into a computer as a web- based map layer to be displayed as a KML layer associated with map sharing and This map can be seen in Figure 14 along with 83 locations. This shows that NPGIS is an innovative and creative topic that will be used much more later, and it is not surprising if this happens. The reason for this is important because due to the protection of privacy and some special conditions, the application environment as well as the subscription-oriented hardware and software environments have not been revealed so far. And of course, after going through the routine and legal procedures, this will happen soon.

Conclusion

This study starts with a short discussion related to the formation of the software, the formation of the environment and hardware and all the existing criteria, and then the evaluation process, proposed for the participation-oriented information system, continues.

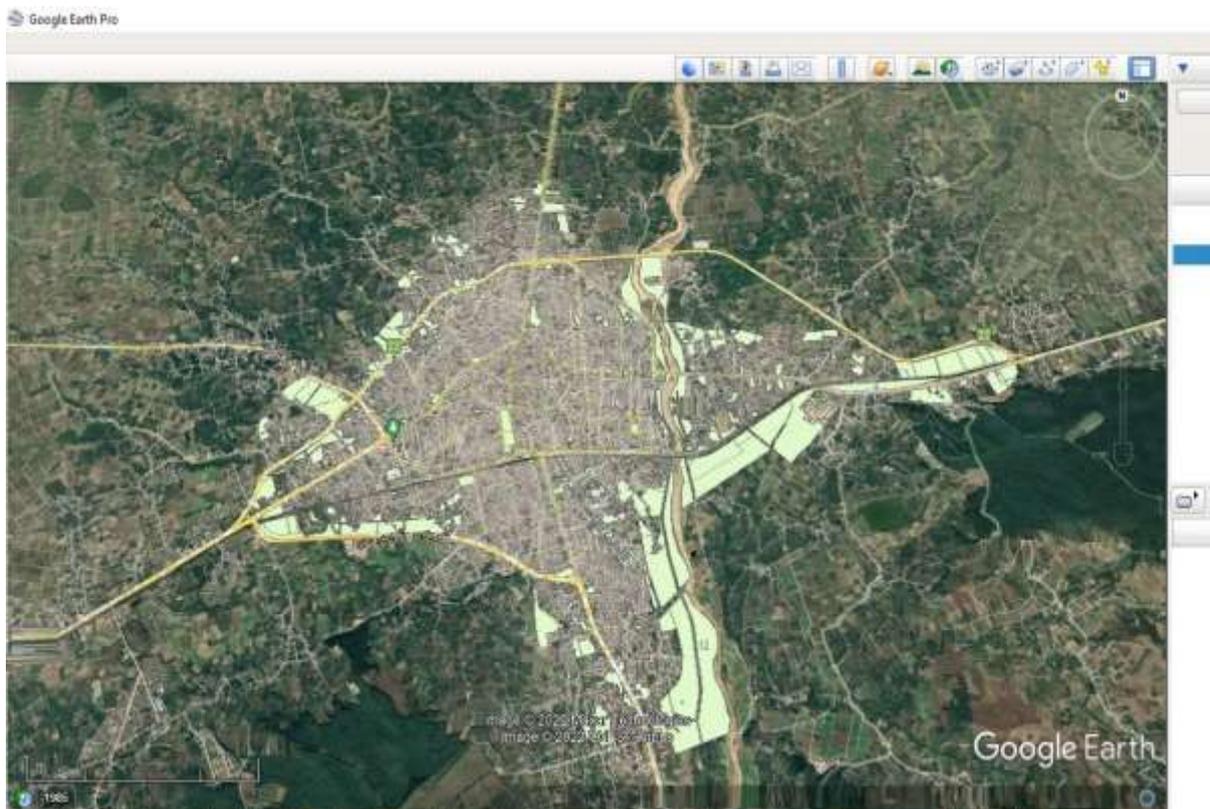The methods are discussed and then the discussion related to the case study and

Fig. 13 – New and creative accesses, preventing accidents on the Google Earth map
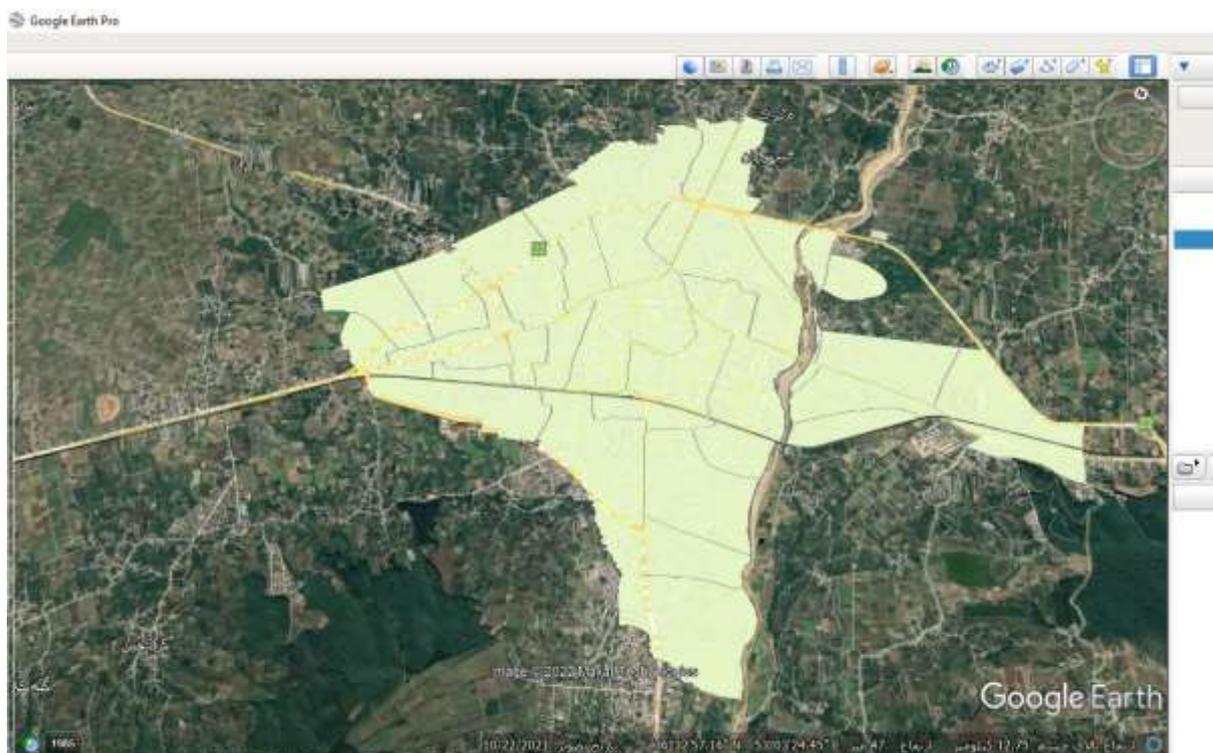

Fig. 14 – Innovative and creative process in NPGIS environment on the Google Earth map

evaluation of the usability of the participatory spatial information system and requirements engineering as a support tool for participatory planning in the city and related organizations such as the municipality was discussed. In the end, statistical analysis along with interpretations based on statistics, especially Spearman's correlation, are discussed and demonstrated. The reason for the topic of decision-making is based on statistical analysis, not just comparing decision-making with analysis, because sudden decisions like early humans are usually made in natural events and away from dangers and the like.

This issue has not been seen in any dispute so far. In the following, we realized that the time factor and then being on time are the most important factors along with the economic criterion. Although planners were expected to be decisive, the results showed otherwise. In practice, it was proved that the basis of software, mathematical and statistical analysis decisions of the groups is the reason for the rise of the economic standard, along with the time factors, which are very necessary in improving the participation with GIS. The role of the power and wealth layer is still colorful and unlike the priorities, the fastest and most dominant decisions are made by this. So, it should be said that the behavior gap between urban science expert groups and others is actually undesirable, which means that there is no need for technological skills in participation and it will be investigated in its own time. Soon, much more details of the dissertation from which this article was extracted will be provided by the author of the dissertation in subsequent studies, which will probably be surprising. Anyway, based on the results obtained and due to the misleading nature of the time issue, it cannot be managed, and people should not worry about time management, because they lose their focus. Therefore, they should manage their concentration and be focused in the moment. It is only in this way that one can use the time effectively and continue the desired activity. Finally, an environment consisting of time, which is the main focus of the study, computer hardware and software, criteria and sub-criteria for experts and the general public, the presence of stakeholders and decision-makers, urban, national and military stakeholders with a wide presence of people of different ages It has been done for the first time in the world. The title, NPGIS, has been formed with a forward-looking view that is unique in its kind and which was introduced in this study, which is in line with the high creativity and technology of the present era. In the next researches of the researcher, more topics and aspects of this extremely broad and content-rich Doctoral Dissertation will be narrated.

Due to the extensive nature and dimensions of this doctoral thesis, this is one of the five articles that have been published so far, and we will see more articles published soon.

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Dedicated to the pioneer of the world of solitude and discoveries: "Nikola Tesla", lovers of science, researchers of knowledge and innovation in the world

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НАЦІОНАЛЬНА ГЕОПРОСТОРОВА ІНФОРМАЦІЙНА СИСТЕМА У МІСТОБУДУВАННІ

Мета. Обґрунтування теоретичних і методичних засад формування національно\ геопросторової інформаційної системи у містобудуванні.

Методи. Картографічний для просторового аналізу, геоінформаційного аналізу, а також методи статистичного аналізу даних, зокрема кореляцію Спірмена.

Результати. Теоретично обґрунтовані питання щодо формування програмного забезпечення, формування ГІС-середовища та апаратного забезпечення; всіх існуючих критеріїв; запропонований процес оцінювання проектованої інформаційної системи. Обговорені методи, що пов'язані з практичним дослідженням та оцінкою можливості використання просторової інформаційної системи при участі та розробці вимог як інструменту підтримки планування містобудування в муніципалітеті. Продемонстровані результати статистичного аналізу разом із інтерпретаціями на основі статистики, особливо кореляції Спірмена. На практиці доведено, що використання програмного забезпечення, математичного та статистичного аналізу є причиною підвищення економічного стандарту разом із врахуванням фактору часу, які дуже необхідні для покращення ГІС.

Висновки. Через оманливу природу питання часу, бо ним неможливо керувати, і люди не повинні турбуватися про управління часом, оскільки вони втрачають увагу. Необхідно бути зосередженими на конкретному моменті і тільки так можна ефективно використовувати час і продовжувати необхідну діяльність. Нарешті, шляхом програмування та створення механізму спільного прийняття рішень в асинхронних і синхронних середовищах, представлено в організаційній формі національної геопросторової інформаційної системі (NPGIS).

КЛЮЧОВІ СЛОВА: містобудування, НПГІС, повітряний простір, час-місце, інновації