# The Impact of the COVID 19 Pandemic on the Digitalization of Municipal Administration, the Development of E-Governance

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*Authors' contributions*

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

*Original Research Article*

## ABSTRACT

This paper essentially addresses the importance and contribution of digitalization in the creation and implementation of public policies, thus analyzing the activity of the Municipal Administration in Gjilan, Vitia, and Kamenica, the principles on which it relies and administrative bodies as an important part of administration. First, the importance of Public Administration and its principles is presented, then Municipal Administration and Ethics in Municipal Administration. It then analyzes E-Government and E-Kiosk as an important structure of the administration and the role it has given so far in administrative reform as one of the advantages for the integration of Municipal Administrations, strong management and use of information technology for a smooth-running of work quickly and accurately, especially in protecting the health of citizens from the Covid-19 Pandemic. To achieve the purpose of this paper, the method of surveying citizens directly through

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questionnaires was used. The questions are mostly qualitative and they are closed-type, open-type, but there are also Liker type. The questionnaire was used to survey 60 participants from the Municipality of Gjilan, 50 participants from the Municipality of Vitia and 50 participants from the Municipality of Kamenica. After completing the questionnaire, it was concluded that the digitalization of the Municipal Administration requires well-trained staff and continuous maintenance of information systems. E-Government should be the main goal in the reform of the municipal administration, which will promote radical changes such as: a new way of management, discussions and communication, more efficient and faster decision-making, access for all to services, elimination of corruption and administrative silence. It is a driving force for the reorganization and renewal of administration services. It also protects the health of citizens from contagious diseases, especially during the Covid-19 Pandemic.

## 1. INTRODUCTION

The purpose of this research is the presentation and analysis of work in the municipal administration in Gjilan, Vitia and Kamenica [1-3]. Public Administration as a set of human resources, services, processes and competencies in which public services are realized through the provision of staff, at the same time supervises the implementation of duties and obligations from the employment relationship. The actual use of standard method to go physically in the municipality office, to take an order number, wait in line to take the papers is too much especially in this pandemic time. On the other hand, the standards of public services and goods are guaranteed, and then the principles and ethics in the Municipal Administration for performing the tasks within the competence of the municipal bodies and civil servants. The administration is an activity without which the activity of the organized state cannot be imagined, and in essence it has three main elements:

1) Orientation of the administration towards the citizens,
2) The existence of mechanisms that ensure a good quality of services by the administration and
3) Citizens' access to these services being guaranteed.

These three elements also have other aspects based on which the reform is monitored and evaluated in the whole pillar of service delivery. For example, the first important element is whether the administration is open to citizens and the provision of services is made easier for citizens to access, through Online Web technology. The second important element is whether service providers have designed mechanisms through which citizens have the opportunity to express their opinion on improving service delivery. In the third element, it is important whether the administration has established branches / offices closer to the citizens, whether the administration is spread throughout the territory and that the access of persons with special needs is also enabled. In essence, the future of the municipal administration will be presented, which is organized to perform tasks within the competence of municipal bodies, while the organization, operation of the administration and the manner of execution of tasks are determined by the municipal assembly, based on the proposal of the Mayor of the municipality. At the epicenter of its activities should be the redesign of measures aimed not only at the development role of the administration and the protection of its core values, but also the reconfiguration of public service institutions so that they will be more open, efficient, transparent and more innovative. By e-services we mean the use of Information and Communication Technology to promote more effective governance, to facilitate access to services provided by institutions and to make governance closer to the citizens [4]. In general, e-government as such aims to create new methods for providing public services. Citizens through digital services can at any time receive information on their requirements, while the government by reducing the number of administrators can increase revenue and in turn realize the reduction of expenditures. The e-Kiosk project is at the service of all citizens, who want to have services 24 hours a day. This is a very perfect project which has enabled the citizens to benefit in many aspects, from the realization of an information administration in a modern way to the increase of the quality of

efficient service, transparency, as well as the reduction of administrative costs.

## 2. MATERIALS AND METHODS

In order to successfully conduct research, this research involves the combination of qualitative and quantitative methods. The whole research is focused on collecting and processing qualitative information on the content of Public and Municipal Administration in Gjilan, Vitia and Kamenica. On the other hand, by measuring the advantages of digitalization of local administration, primary data were collected from a questionnaire designed specifically for the correspondents participating in this research, more specifically from the citizens of Gjilan, Vitia and Kamenica. After collecting the data from the relevant questionnaire, the necessary tests and analyzes were performed to derive the research results and to answer the research questions and to confirm the hypotheses raised. A considerable part of the secondary data is provided through the use of electronic libraries of various universities, published books, published articles related to the topic, scientific journals and e-books which will be used to complete the theoretical part of the research. Also part of the research will be the reports extracted from the research of organizations which are deeply involved in the research of this phenomenon on digitalization in the administration as well as scientific researchers of e-government.

## 2.1 Purpose of the Paper and Objectives

This paper aims to analyze the organization and functioning of the Municipal Administration in Gjilan, Viti and Kamenica. The paper aims to present the importance of digitalization and the approach to the organization of administrative structures as an important link of society for the realization and implementation with full effectiveness and integrity of public services. Since the Administration of the Municipality of Gjilan is always faced with numerous requests, and a large influx of citizens in this institution, especially in the time of the Covid 19 pandemic, presents the necessity of using information technology which affects the provision of efficient and fast services for citizens on distance. Also, the Municipal Administrations in Vitia and Kamenica are being characterized by a continuous process of digitalization of public services. It also aims to analyze how the municipal administration works, on what principles it is based, what are their bodies and activities, and what are the advantages of its digitalization.

### 2.1.1 Starting point and posing the problem

Public administrations are institutional government units that regulate the functioning of society. Public administration is an interface between government, civil society, the private sector and citizens. The municipal administration is organized to perform the tasks within the competence of the municipal bodies, which is divided into sectors and units. The organization, action of the administration and the manner of execution of duties are determined by the municipal directorates, based on the proposal of the mayor and the municipal assembly, always based on the laws in force. Municipal administrations in Gjilan, Viti and Kamenica are characterized by an ongoing development process. This undoubtedly requires trained people, honest professionals, capable of responding to constant change. To support the professional and continuous development of public servants, a series of training curricula have been developed, in collaboration with the best experts in the field of information technology. These trainings aim to provide the basic principles of a modern administration of management, to improve administrative efficiency, respect for ethical norms, increase accountability and transparency based on democratic values. Another aim of the trainings is to present the changes made by information and communication technology as well as the use of techniques and procedures necessary for their effective implementation. The current situation of the Municipal Administration in Gjilan, Viti and Kamenica towards the use of technology in general increases the need for greater treatment of administrative staff by relevant institutions dealing with digitalization.

### 2.1.2 Hypotheses

For this research paper, two hypotheses have been raised which are related to the work and importance of the municipal electronic administration in Gjilan, Viti and Kamenica, which have been submitted in the form of questionnaires and we have tried to decompose them during further work:

1. The digitalization of the Municipal Administration significantly affects the performance of public services from a

distance in a more efficient and effective manner.

2. The use of e-Kiosk has brought satisfactory results in the performance of public services and especially the avoidance of gathering of citizens from contacts with individuals infected with the Covid-19 virus.

## 3. EXPECTED RESULTS OF RESEARCH AND DISCUSSION

Municipal administration is an activity that undoubtedly our country needs to improve the strategy of implementing legislation in administrative and judicial practice. In Kosovo, there is a growing demand for improving the quality of service delivery and informing citizens about their rights and obligations to the administration, especially during the Covid-19 pandemic. The administration should function on the basis of key constitutional principles and act in support of the administrative procedures provided by law. The administration also needs more qualified, professional, impartial, transparent and capable staff to provide services to citizens. Therefore, the incorporation of information technology, Web technology and application software in the administration increases the need and even more the necessity of the adoption of relevant laws in the Republic of Kosovo. The digitalization of the Municipal Administration is related to the provision of trusted services by government institutions through information and communication technology. All this reflects on the daily work of employees in the Municipal Administration, therefore the digitalization of services in the Municipal Administration is expected to have a positive reflection on employees, so that they can do the job better and thus achieve the objectives of institutions. The final results of this research I hope will be an inspiration for young researchers who intend to continue to do research on the situation in other municipalities of the Republic of Kosovo and anywhere in the world.

### 3.1 Public Administration

Public administration is a broad concept that has as its object the realization of values that express the interest of the state or of a special community, recognized as such by the state, these values that are issued in the form of acts by the legislative power, e.g. fundamental human rights and freedoms.

From its objective of organizing execution and enforcing the law, the public administration is closely linked to the legislature and the judiciary, whose decisions are executed within the framework of public administration. Public administration is closely related to the executive branch, but it is not identified only with this branch, because it has a wider sphere of involvement. The AP is distinguished from the private administration by its public character because it serves the general interest of society or a community of people without limits [5]. Author Georges Vestel has defined public administration as the community of activities aimed at maintaining public order and meeting other needs of general interest. This definition corresponds to its term administration which means to serve [6]. Public administration is one of the disciplines that occupies a prominent place in all study programs of the economic field as a whole, providing knowledge on the administration and management of the public sector [7]. The term administration is used for public sector organizations, but even here the term "management" is being used more and more. While in its narrowest sense, administration is part of the management process that has to do with the design of systems and procedures in order to achieve the set objectives. In other words, if management is a whole, administration is an integral part of it [8]. It has been argued here that this period of change represents a paradigm shift from the traditional model of public administration, dominant for most of the twentieth century, to modern public management [9].

Public administrations are divided into three categories: a) central administration (including ministries and other institutions at the central level), b) territorial administration (local government units) and c) social security administration.

#### 3.1.1 Principles of administrative procedure

The basic principles of administrative procedure are essential guidelines in the exercise of administrative activity, as they enable the functioning of the rule of law and democracy within a country. Principles are general legal rules or are basic norms, which are applied in situations in which there is doubt and lack of determination regarding the implementation of any legal provision. General principles are an important part of any legal order, while their practical function enables the resolution of disputes for which there are no concrete and written legal rules [10]. The body that conducts

the administrative procedure takes care of the protection of the public interest and at the same time protects the rights of the private persons, which means that it should be possible for natural and legal persons to protect their rights and interests [11].

- The principle of legality is the basic principle in all legal systems. By the principle of legality we mean the compatibility between the lowest rates with those higher rates. The principle of legality ensures the implementation of legal acts by the bodies that issue them and the full implementation of this principle in the administrative procedure creates more legal certainty for all parties in the procedure [12].
- The principle of economization is a very important principle in administrative procedures, and aims to reduce costs to the most possible minimum during the administrative procedure.
- The principle of equality according to the law is one of the essential principles of the constitution which is guaranteed by the Constitution of the Republic of Kosovo [13].
- The principle of efficiency means the qualitative and successful realization of the rights and legal interests of natural and legal persons. This principle aims at the fastest and most qualitative realization of tasks by administrative bodies, minimizing the time of realization. The administrative bodies that develop the administrative procedure and decide on concrete issues, have the duty to ensure the efficient realization of the rights and legal interests of natural and legal persons. The principle of efficiency means the qualitative and successful realization of rights and interests [14].
- The principle of using their own language in the administrative procedure guarantees the parties and other participants in the administrative procedure the right to use their own language. If the administrative procedure is not conducted in the language of the party, the administrative body has the duty to enable the follow-up of the process in its own language [15].

### 3.1.2 Municipal administration

Administration as a concept has two basic meanings of the word "administration": administration as a summary of administrative

organizations and administration as a specific activity. The concept of administration is most often used as a specific activity (functional or objective activity) and as an organization (organizational or objective definition). However, this division is not precise. Definitions can be further divided into substantive and material, positive and negative (e.g. administration is a state activity, which is neither legislation nor judiciary). [16] Although there are a number of definitions of administration, it is nevertheless related to general economic, cultural and social development. Thus, the administration is a link of the state which has a great role and importance in the development of the state itself as a state mechanism and as such it is at the same time an instrument and carrier of useful works that satisfy the needs of citizens. The administration in general is and should be at the service of the citizens. Therefore, when it comes to public administration, respectively its types, they include: state administration, municipal (local) administration, some holders of public authorizations, i.e. public agencies, public entities which mainly perform administrative work and public funds. The municipal administration is oriented towards the independent regulation and solution of the vital needs of the citizens of that administrative territory with autonomy, decentralization and democratization. It is also responsible for implementing all executive duties assigned to it by law, statute and other normative acts.

### 3.1.3 Ethics in municipal administration

Creating an ethical, professional, accountable, non-discriminatory, non-corrupt, transparent and efficient municipal administration should be the goal of every state. Ethical behavior in the work of the civil servant, performance of duties according to the law, respect for the rights of citizens and equal treatment of all citizens increase the trust of citizens by being a model in central and local institutions. The term ethics is encountered everywhere, for example: professional ethics, media ethics, code of ethics, business ethics, which refers to the rules, principles and standards that guide the behavior and actions of businesses. But the essence in all these areas is ethical responsibility and the way you adhere to it, intertwined with social responsibility [17].

## 4. THE CONCEPT OF E-GOVERNANCE

The concept of e-Government has different definitions but, in essence, it means that the

government works with Information and Communication Technology in providing services to citizens. E-Governance involves the use of Information and Communication technology, especially the global Internet, to improve the delivery of government services to citizens, businesses and other government agencies. It enables citizens to interact and receive services from federal, state, or local governments twenty-four hours a day, seven days a week [18]. Excellence in e-government requires that the initiative be driven by effectiveness and not simply by efficiency [19]. E-government is defined as "the use of information and communication through technologies to provide public services, to improve managerial effectiveness and to promote democratic values. It serves as a regulatory framework that facilitates information, promotes initiatives and knowledge of society [20]". Citizens have access to information that can help improve their professional and private lives. As new technologies and new practices will ensure that public authorities improve quality, speed, transparency, efficiency and availability. While the government uses information technology and especially the Internet to support government operations, engage citizens and provide government services [21]. Greater progress towards e-government includes a variety of administrations including e-democracy, e-management, e-commerce, e-justice, e-education, e-health, and more [22].

## 4.1 Mission and Vision of E-Governance

Technological development is tremendous and has become an integral part of our lives, being in constant contact with electronic devices. Modern e-Government is based on the best digital technology, management concepts and the concept of government.

The mission of e-Government is:

- To increase the efficiency of the service;
- To increase the reliability, security of networks and information;
- To increase transparency;
- To improve the speed, quality and availability of services;
- Ensure the protection of legality;
- To create the conditions for a healthy environment and protection from infectious diseases;
- To use and maintain advanced governance standards;

- To reduce the administrative costs;
- To reduce the corruption to zero in public administrative services.

E-Government refers to the use of information and technological communication by government structures that have the ability to transform relationships with citizens, legal entities and other government services [23]. Government institutions should have an Information Technology unit, which will be responsible for the development, implementation of services and support for electronic technology, and should act in accordance with legal norms approved by the responsible bodies. In modern times, good government is an accessible government [24]. E-Government has also been promoted as a strategy for public sector reform, with a particular focus on how it can improve management processes including the fight against corruption [25]. The development of e-government has also affected e-business, "e-Business has already transformed the business sphere worldwide. Due to the continuous advancement of information technology, manufacturers and consumers now use more electronic business transactions through computer networks [26]".

### 4.1.1 The advantages of digitalization of the municipal administration

Digitalization is the right path that the Municipal Administration should follow to solve the most complex issues and problems of public services. An essential element for the development of digital services is the institutional infrastructure which must plan, coordinate and review the e-government strategy to adapt it to the dynamics of change in real time. The most important advantages of the digitalization of the Municipal Administration are:

- Faster and easier access to services;
- Distancing from direct contacts of civil servants from the citizens
- Health protection from Covid-19 contagious infections
- Services are provided 24 hours a day, 7 days a week;
- Free cost of labor and services;
- Saving time;
- Increase transparency and clarity;
- Increase revenues and reduce expenditures;
- Reduction of corruption to zero;
- Improving governance.

### 4.1.2 Obstacles toward digitalization of municipal administration

The implementation of Digitalization also faces obstacles, some of which are:

- Resistance to change by skeptics;
- Difficult access of the staff to technology at least 10 years before retirement;
- Insufficient technological infrastructure;
- Security problems of the digital system;
- Lack of financial means;
- Problems with training in the use of Information Technology and related software.

### 4.1.3 Information systems security

Increasing use of electronic communications has a positive impact on economic development but at the same time exposes it to cyber risks. It is important for all information users to be protected as efficiently as possible with good information security practices, ensuring the confidentiality, integrity and availability of electronic information. Information security in its entirety unites a wide range of activities in the field of information security that includes, among others, the security of equipment, data security and computer network security, especially that of the Internet [27]. At the heart of information security is the concept of privacy. Education, awareness, policies and technology are vital concepts of information security and information system protection.

The development of information technology requires the updating of data to digital innovations, while being accurate and protected.

The objectives of e-Security are:

- Confidentiality - allowing only certain actors to obtain information;
- Integrity - prevents modification of information;
- Authorization - granting depending on identity;
- Authenticity - confirmation of identity;
- Elimination of all doubts regarding the identity of the other party in conducting transactions.

Safety is primarily achieved through risk analysis, safety policies, procedures and documentation, awareness, training and preparation to avoid disasters and recovery [28]. Security policies and standards are seen as one of the key factors for managing information security in the institution, policies can otherwise be called an action plan that influences actions and decisions. They guide the implementation of standards, which in turn guide the implementation of practices, procedures and guidelines [29].

### 4.1.4 e-Municipality

e-Municipality represents the transition from municipal services with physical copies-letters of the classical form to the use of the Internet and digital systems. From the Ministry of Local Government Administration, it communicates with all municipalities of Kosovo that are present online with their respective websites since the end of 2009 and have the same basic platform of websites. The Municipality of Gjilan in 2016 has opened the first digital self-service e-Kiosk as an experimental project that citizens will be self-service to be provided for a few seconds with birth certificate, birth certificate, certificate of residence, certificate of citizenship and certificate of marriage. This digital self-service peaked in 2020 with the introduction of the Covid 19 pandemic which provided services 24 hours a day, 7 days a week. With this, the gathering of citizens in front of the counters or e-Kiosks was avoided as much as possible, and with this, the distribution of the Covid Pandemic was prevented in this segment as well. For e-Municipality, their portals are also of great importance, such as the Website which is a good opportunity to increase transparency and serve for communication between citizens and municipal authorities.

### 4.1.5 e-Administration

For the evaluation of e-government, e-Administration should be continuously developed through information and communication technology, which determines the strategic planning and internal relations towards the provision of e-services. The digitalization of these services in the best possible way requires investments in easier and more secure access, as well as in the integration of electronic services. In the modernization of a public administration with e-government, regional, European and world program orientations for e-government also have a great role. The priorities set within the e-administration will greatly affect the reduction of administrative costs, which in parallel with the goal of the European Union will be the goal of the Republic of Kosovo

[30]. This is expected to have a positive reflection on both the citizens and the employees, so that they can do the job as well as possible and in this way achieve the objectives of the institution.

### 4.1.6 e-Cadastre

e-Cadastre is a very important project, as a summary table of cadastral data and information should be created, which provides access to the cadastral database for all owners, who can be included in any property they own according to registered land number, providing relevant information on the size and location of the property. All changes are made through the cadastral information management system, built on the numerous data provided by the Electronic Cadastral Register. Only authorized persons of the relevant public institution can have access to edits according to legal procedures. The aspect of data security is of the highest level. Users through electronic identification cards (e-ID), have the opportunity to access the system to view their parcels, to obtain the desired information or to perform the service they want about cadastral parcels [31].

### 4.1.7 e-Archive

Archives play an important role in receiving and preserving archival materials which enable its use for professional work as well as for other needs which are in the interest of all institutions and citizens. E-Archive means the creation of a document management system electronically that simultaneously archives the document and manages it in different stages, but also for the electronic archiving of all existing documents in the classical archives that exist in our institutions. By creating databases for all official documents and using the classification of documents according to the law on publication of official documents and the law of archiving documents, through the archive and document management system it is possible to classify them electronically. According to rights on the access, citizens, businesses, but also institutions of Kosovo, through the e-portal will have access to get the required document. This increases transparency, creates permanent and fast spaces for various scientific research and analysis. Internet access is sufficient and through the state portal, anyone interested based on the classification of the document will receive the required service [32].

### 4.1 8 e-Tax

Tax is the administration in the applicability of any type of tax applied by tax legislation in the Republic of Kosovo. E-tax is a very important project which will affect revenue collection, transparency and generation of various reports for budget planning. In this process security is maximal and identifications and authorizations are realized through the electronic identification card (e - ID). The census of population, households and dwellings creates very important data on the implementation of electronic taxes. Also, through electronic taxation are provided the necessary statistical reports for institutional, social and scientific needs [33]. In creating this project, property tax of taxpayers is the first necessary step, as it is also considered as a problem in the realization of property tax revenues.

## 5. CASE STUDY: E-KIOSK

The first touch screen was created in 1965. E.A. Johnson developed the first fingerprint screen at the Royal Radar Establishment in Malvern, UK. The human body is also an electrical conductor, so when a finger comes in contact with the screen, it terminates (closes) the electronic circuit and creates a voltage drop at that point. The software then processes the location of the voltage drop and orders the appropriate resultant action according to the program code. e-Kiosk is a computer project that presents a specialized device and software that provides access to information and applications for communication, commerce, or education. While in our country there is a new technological feed such as "e-Kiosk" which is mainly used to perform civil status services such as: birth extract, birth certificate, marriage, family, residence, citizenship and additional services, claims, complaints and property tax status. The e-Kiosk meets all the criteria to create a modern administration, starting with online applications, and the online register of administrative procedures. This is an investment that goes directly to the benefit of citizens, avoiding waiting in line to be served with the documentation outlined above nor will they be under time pressure because the e-Kiosk offers services 24 hours a day, 7 days a week. The aesthetic design of "e-Kiosks" is a key element that guides the work of users, and its duration. Kiosk program: is the interactive function of the kiosk hardware is mainly determined by the software program and the configuration of the kiosk

software which enables touch-only use, and plays a key role in communicating with potential users. Ergonomic: It is important to provide comfortable and easy access to the user. Interface Design: Designing for e-Kiosks usually requires larger and simpler buttons than designing for a Web or computer interactivity. Sustainability: The planned location of the e-Kiosk will greatly affect the construction, as the materials and electronic requirements are significantly different for the e-Kiosk. In the period of one and a half years of the Covid-19 Pandemic, e-Kiosks are disinfected not less than four times a day for the purpose of avoiding infections of this deadly contagious disease. Instructions for its use are also placed under strict protective measures such as masks and gloves.

## 5.1 Questionnaire Results

For the realization of the scientific work as well as the testing of the hypotheses, the data obtained from the research are presented through questionnaires in the process of providing digitalization services, seeing closely the impact of digitalization on their work. The questionnaires are standard and the same for all Municipalities included in the study. The purpose of conducting this questionnaire is to collect the necessary information for conducting this study. The questionnaires were distributed to 60 citizens of the Municipality of Gjilan (38 women and 22 men), 60 citizens from the Municipality of Viti (37 women and 23 men) and also 60 citizens of the Municipality of Kamenica (40 women and 20 men). As e-services are of great importance and are a modern segment of innovation are considered as an opportunity to provide government information to citizens 24 hours a day.

### 5.1.1 Results from the survey in the Municipality of Gjilan, Viti and Kamenica in questions 1 to 3 are as follows

**Question 1: Age group** - In Fig. 1 below are presented the age group of respondents, where are mainly citizens of the age group 18-30 years who mostly performs electronic municipal services.

**Question 2:** Fig. 2 Educational qualification of the respondents in the Municipalities of Gjilan, Viti and Kamenica.

**Question 3:** What is the rationale for using electronic services?

This means that the rationale for using electronic services lies in the ability of citizens to save time they would spend waiting in the administration to perform services and gathered in crowds close to each other especially at this time Pndemie Covid-19, which in fact it risks mass infection of infectious diseases. Therefore, e-government in such cases has the effect of health protection of citizens and civil servants. Fig. 3 shows the educational qualification of the respondents in the municipalities of Gjilan, Viti and Kamenica.

### 5.1.2 Results from the survey in the municipality of Gjilan and Viti where there are e-kiosks in questions 4 to 18 are as follows

**Question 4:** How do you assess the digitalization process in the provision of services in your municipality? – Fig. 4 show the digitization process by percentage.
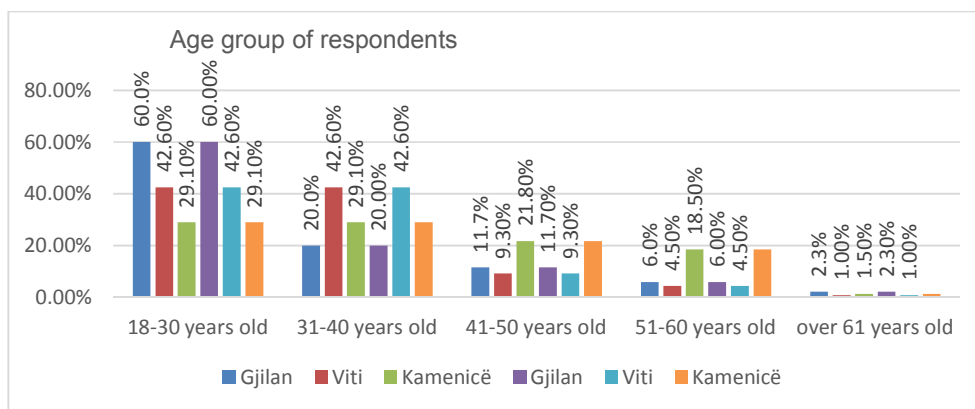


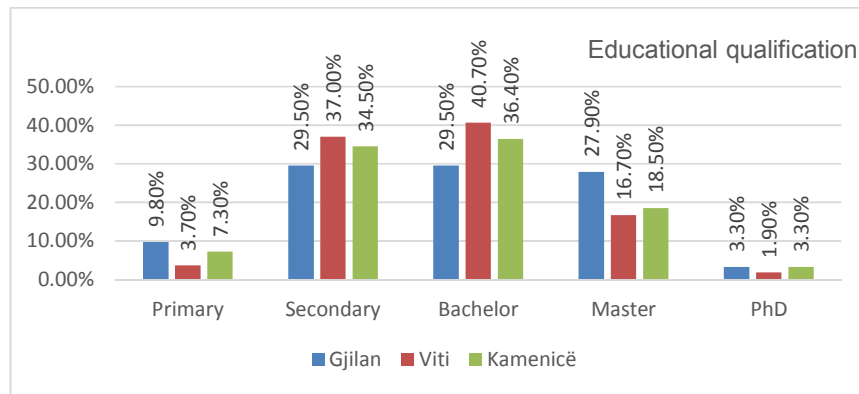**Fig. 1. Age group of surveyed citizens in Gjilan, Viti and Kamenica**

**Fig. 2. Educational qualification of the respondents in the Municipalities of Gjilan, Viti and Kamenica**
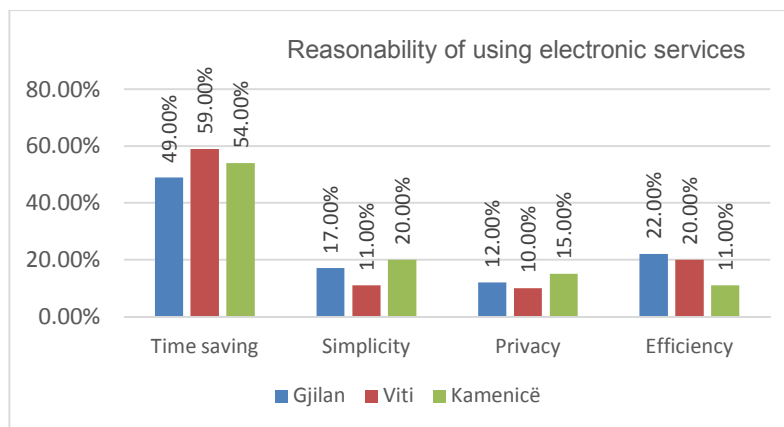


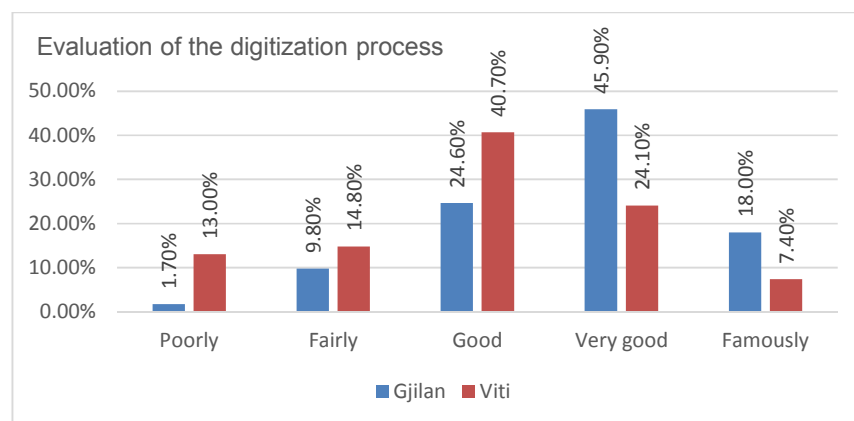**Fig. 3. Reasonability of using electronic services in the municipalities of Gjilan, Viti and Kamenica**



**Fig. 4. Evaluation of the digitalization process in the provision of services in the municipality**

**Question 5:** Are you informed about the usage of e-Kiosk? – Fig. 5 show that the surveyed citizens are informed about the use of the e-Kiosk.

**Question 6:** Have you ever used the e-Kiosk? – Fig. 6 show that the majority of surveyed citizens used the e-Kiosk.
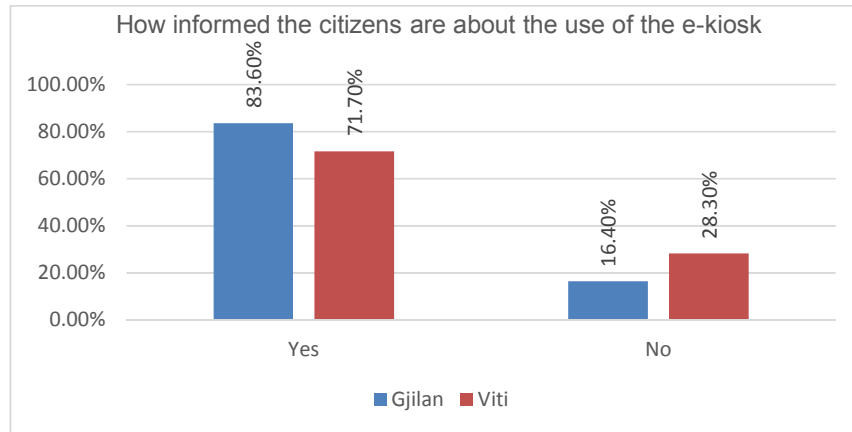
**Fig. 5. Informing the citizens about the use of the E-Kiosk**
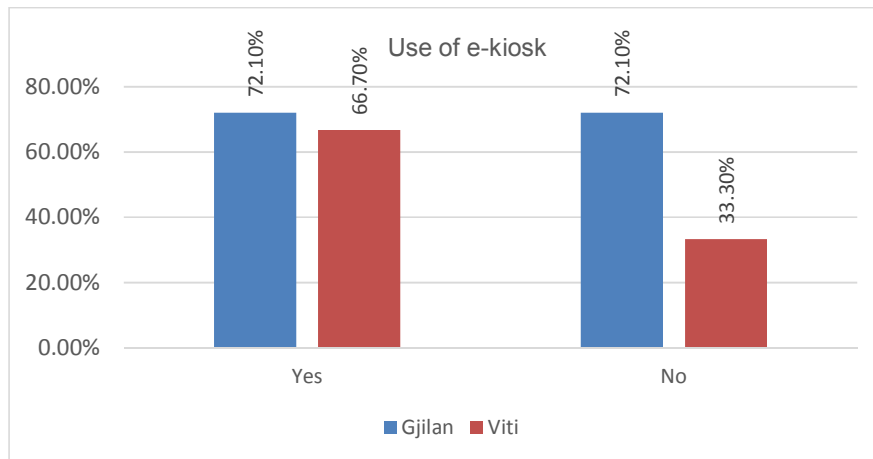


**Fig. 6. Use of e-Kiosk by citizens**

**Question 7:** Please complete your knowledge regarding E-Kiosk applications.

Fig. 7 shows the percentage of e-kiosk usage.
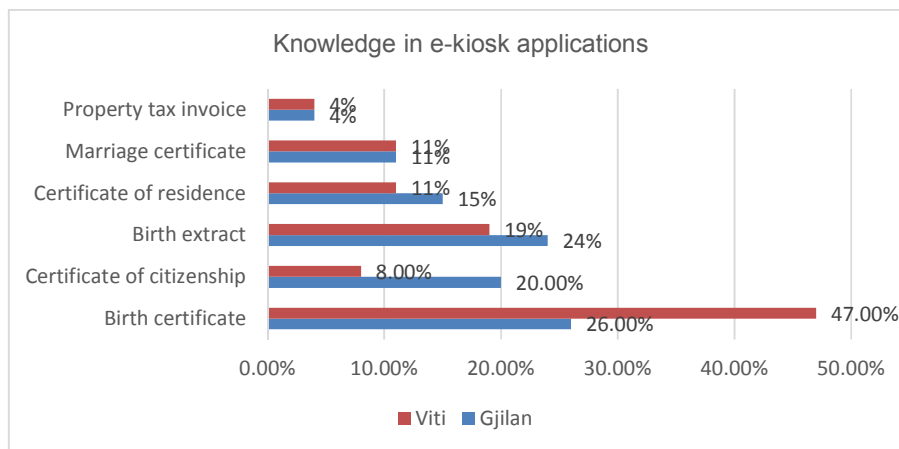


**Fig. 7. Citizens' knowledge about e-Kiosk application**

**Question 8:** Please fill in your current e-Kiosk usage status.

Fig. 8 show that the majority of respondents use the e-Kiosk.

**Question 9:** How much do you think the use of e-Kiosk has affected your performance? – Fig. 9

show that the use of e-Kiosk has affected their performance.

**Question 10:** Did you adopt the use of the e-Kiosk voluntarily or from external pressures? – Fig. 10 show that most of the respondents used the e-Kiosk in different ways.
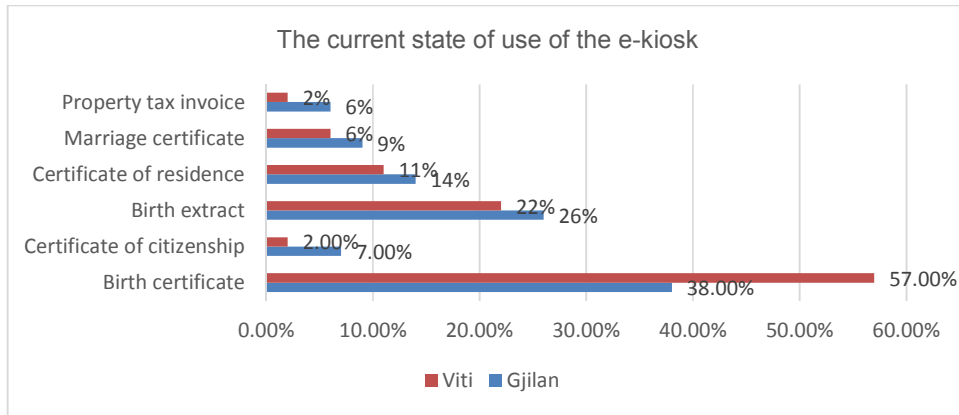


**Fig. 8. Current status of use of the e-Kiosk**
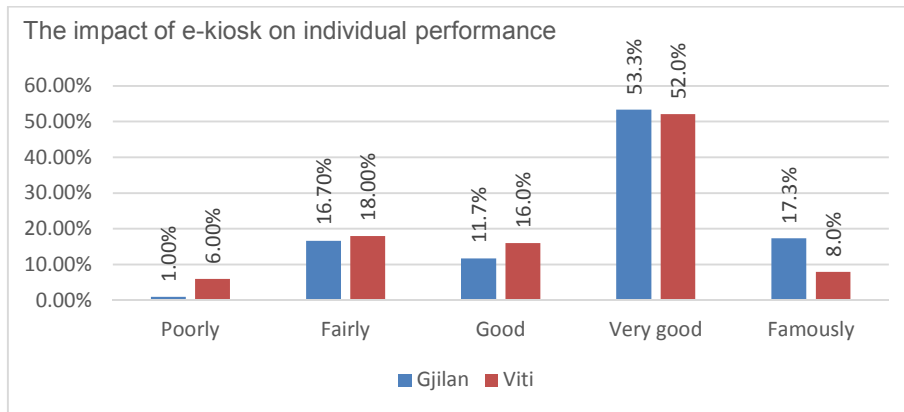


**Fig. 9. The impact of the use of e-Kiosk on the performance of citizens**
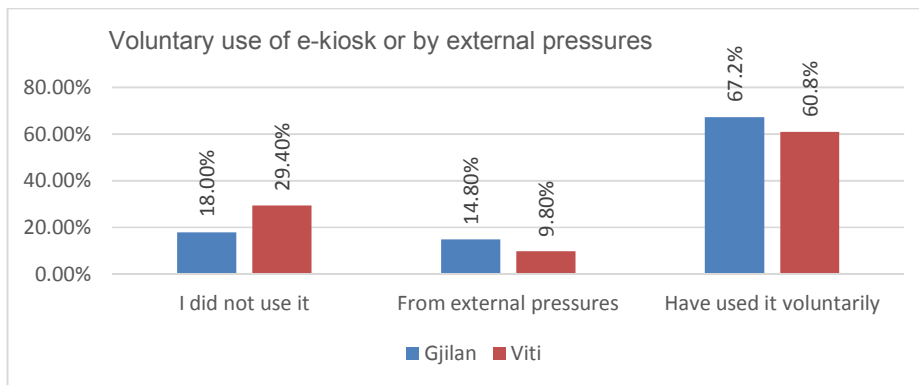


**Fig. 10. Adopting the use of e-Kiosk**

**Question 11:** Does using the e-Kiosk exactly meet my requirements?

Fig. 11 show that the use of the e-Kiosk meets the requirements of the respondents.

**Question 12:** Are you satisfied with the use of the e-Kiosk? – Fig. 12 show that most respondents are satisfied with the use of the e-Kiosk.

**Question 13:** Is the e-Kiosk located in the right position for you? – Fig. 13 show that for most respondents the e-Kiosk is located in the right position.
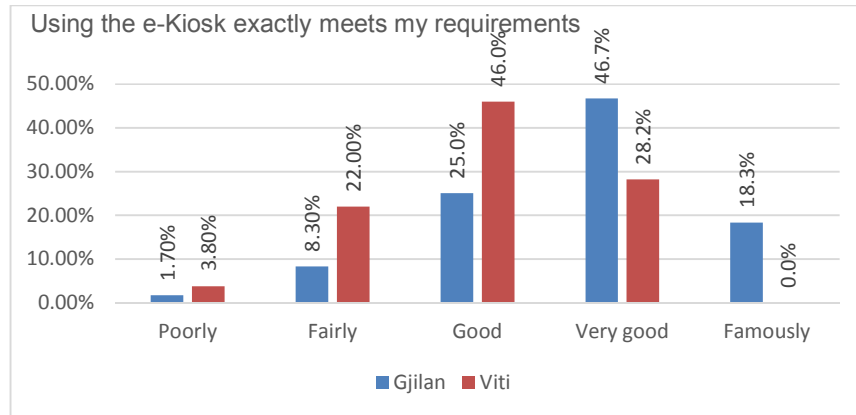


**Fig. 11. Fulfilling the requirements of the respondents from the e-Kiosk**
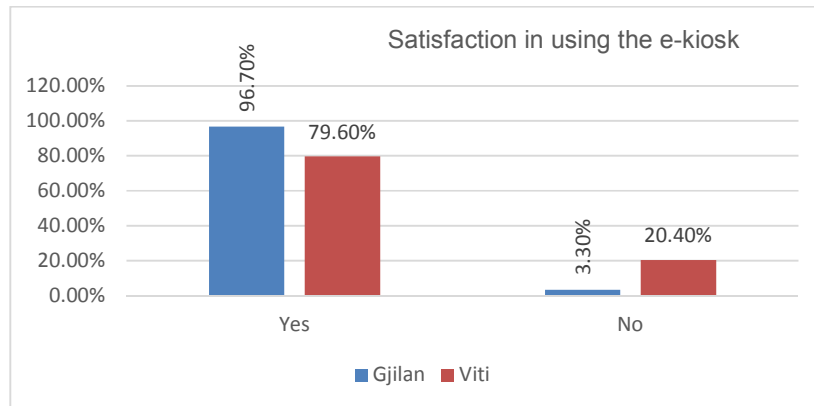


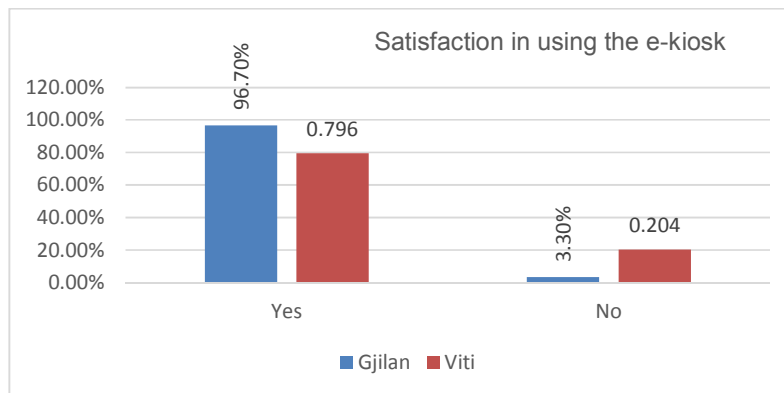**Fig. 12. Satisfaction with the use of e-Kiosk**



**Fig. 13. Putting the e-Kiosk in the right position**

**Question 14:** Do you think there should be more e-Kiosks in the service of citizens? – Fig. 14 show that the majority of respondents state that there should be more e-Kiosks at the service of citizens.

**Question 15:** Do you think there is a right management for e-Kiosks? – Fig. 15 show that some of the e-Kiosk management respondents are good.

**Question 16:** Did you encounter any problems while working in the e-Kiosk?

Fig. 16 show that most of the respondents did not encounter any problems while using the e-Kiosk.

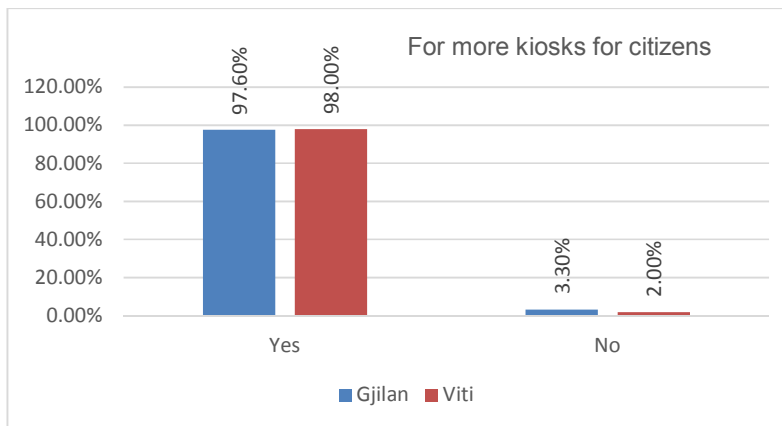**Question 17:** What problem did you encounter while using the e-Kiosk?

A large part of the respondents indicated that they had problems while using the E-Kiosk, such as: as they were not well informed about the use of the E-Kiosk, they sometimes had access problems, while some from the respondents answered that it was not functional so it was defective and that many times there was lack of letters, also some of the respondents indicated that even though the money was taken from you, the service from E-Kioska was not completed.

**Question 18:** Your comments and suggestions?

A small number of respondents provided comments and suggestions about the E-Kiosk, and some of the comments presented were as follows: first the citizens should be informed more about the use of the E-Kiosk as most of them have no knowledge about its functioning, some have commented that the management part



**Fig. 14. Evaluate whether there should be more e-Kiosks at the service of citizens**
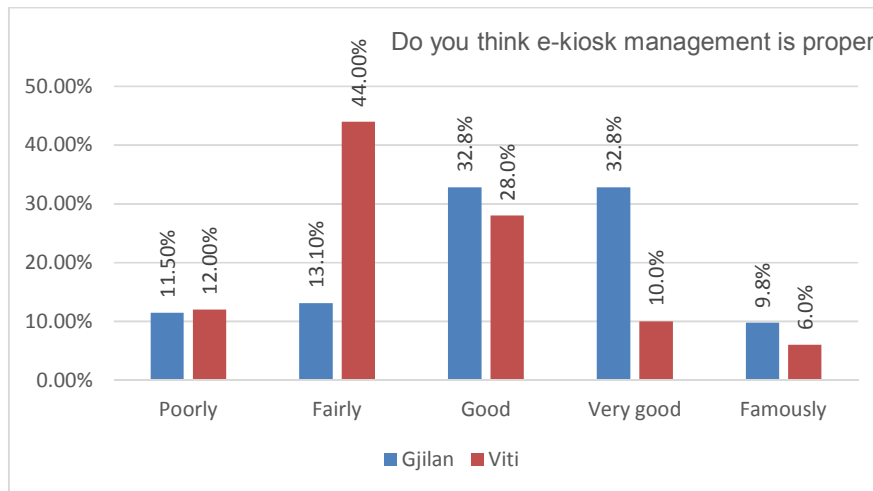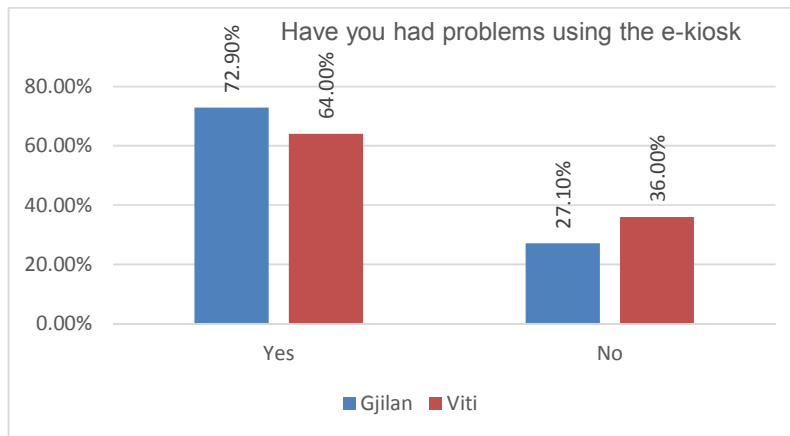


**Fig. 15. e-Kiosk management**

**Fig. 16. Problems while working in the e-Kiosk**

should be adjusted thus increasing the responsibility, maintenance and care for the E-Kiosk by both the municipality and the citizens, also to increase the number of e-Kiosks in other municipalities as well as in many more places. Also, they reported for more frequent disinfection during the day of the e-kiosk for protection against Covid-19 infection.

**5.1.3 Results from the survey in the municipality of Kamenica in the questions given that the municipality in question do not have the service of citizens e-Kiosks are as follows**

**Question 19:** How efficient is the digitalization process in providing services in your municipality?

Fig. 17 show that the digitization process has impacted very well as the majority of respondents.

**Question 20:** How much has the capacity to provide services increased after the digitalization

process in your municipality? – Fig. 18 show that the digitalization process has increased the capacity to provide electronic services.

**Question 21:** Do you consider reasonable the process of digitalization of the municipality with e-Kiosks? – Fig. 19 show that most of the respondents consider the process of digitalization of the municipality with e-Kiosks reasonable.

**Question 22:** Is there a large number of citizens performing services in the Administration? – Fig. 20 show that most of the respondents noticed a large number of citizens performing services in the Administration.

**Question 23:** Do you think the counters in the Administration would be vacated after using e-Kiosks?
Fig. 21 show that the majority of respondents think that the counters in the Municipal Administration would be vacated after using the e-Kiosks.
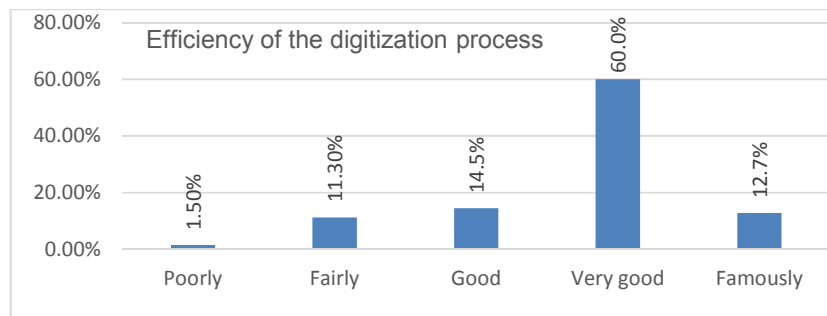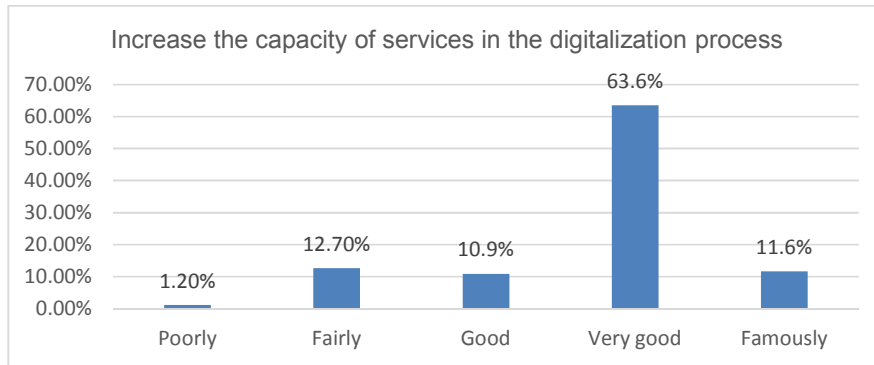


**Fig. 17. Efficiency of the digitization process**

15

**Fig.18. Capacity to provide services after the digitalization process**
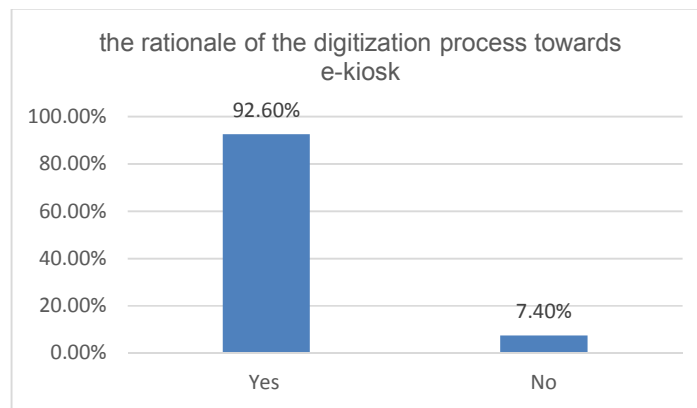


**Fig. 19. Assessing the reasonableness of the digitalization process of the municipality with e-Kiosks**
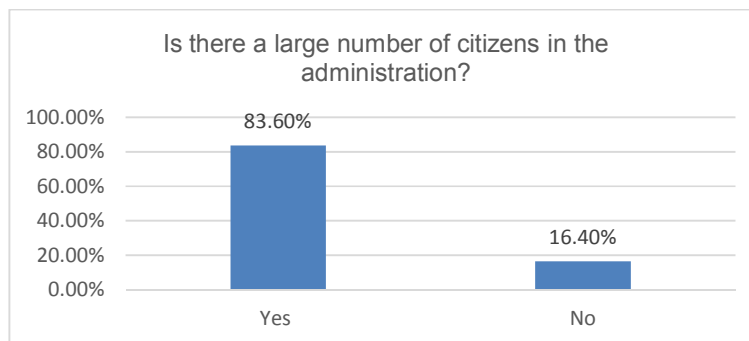


**Fig. 20. Assessing the reasonableness of the digitalization process of the municipality with e-Kiosks**

**Question 24:** Do you think you will quickly access the use of e-Kiosk?

Fig. 21 show that the majority of respondents think that they will quickly access the use of e-Kiosk.

**Question 25:** Your comments and suggestions?

A small number of respondents provided comments and suggestions about the e-Kiosk, and some of the comments presented were as follows: first the citizens should be informed more about the use of the e-Kiosk as most of them have no knowledge about its functioning, some have commented that the management part should be adjusted thus increasing the
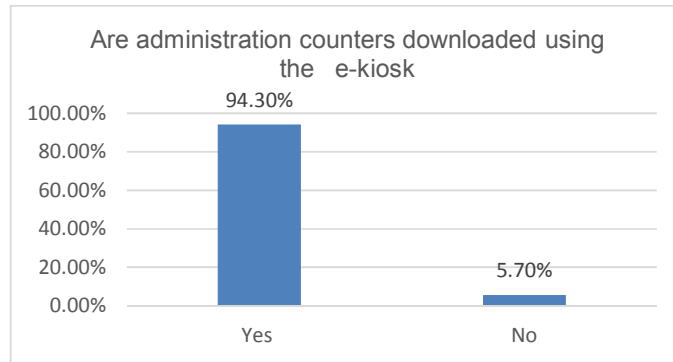
**Fig. 21. Release of counters in the administration after the use of e-Kiosks**
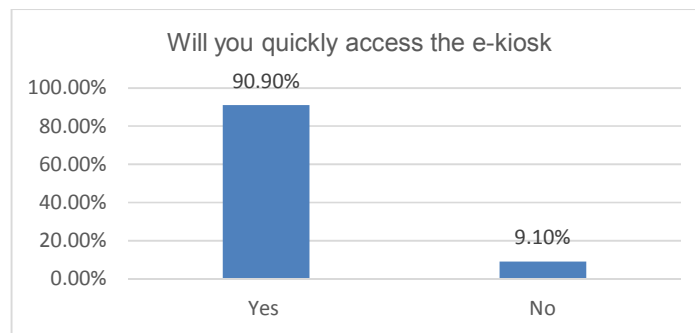


**Fig. 22. Access to the use of e-Kiosk**

responsibility, maintenance and care for the E-Kiosk by both the municipality and the citizens, also to increase the number of e-Kiosks in other municipalities as well as in with many places. Also, they reported for the most frequent disinfection during the day of the e-kiosk for protection against Covid-19 infection.

## 6. RESULTS AND DISCUSSION

We have seen that digitalization is the necessary path that should follow each Municipal Administration as a driving force for the development of administration, solving more complex issues and problems of public services, as well as to promote positive change starting from a modern way of management, communication, access, improving efficiency and saving time.

In this study, the focus is on the use of E-Kiosk by citizens at the time of Pandemic Covid-19 and a closer look at the work process in the Municipal Administration in Gjilan, Vitia and Kamenica. This has been achieved through the survey and study of data that have enabled the following conclusions to be drawn:

- The process of digitalization of the Administration is gradually taking place in the Municipality of Gjilan as well as in that of Vitia and Kamenica in order to provide electronic services to meet the needs of citizens.
- With the start of the digitalization process, the capacity and efficiency of remote service delivery by the administration has increased.
- The digitalization process ensured time savings and reduced costs for citizens. Citizens can meet their needs by submitting their requests in a single place without having to wait in line to be served with the right documentation. They will not be under time pressure because E-Kiosk will have services 24 hours a day, 7 days a week. On the other hand, with these electronic services, the protection of the health of the citizens from the contagious disease Pandemic Covid -19 has been achieved.
- Many citizens have been expressed to lack information about the use of E-Kiosk, especially adults, while the part who have used it have been very satisfied.

- One problem is that E-Kiosks sometimes go out of use. In the municipality of Gjilan, 27% of surveyed cases have encountered problems during access, while in the municipality of Vitia that 64% of surveyed cases have encountered problems during access.
- Pandemic Covid-19 presented at the beginning of 2020 was the main catalyst for the development and use of e-Kiosks in the mass, even in the daily period of 24 hours a day which throughout this time interval has been used and used for the purpose of preservation from crowds of citizens to escape infection from the deadly contagious disease Covid-19.

In this section we will try to give recommendations about the digitalization of the Municipal Administration based on the study, so that digitalization finds wider application in our society. Some of the recommendations that we thought would be considered are listed below:

- Enabling citizens to use technology that will increase the quality of electronic services.
- To increase the number of E-Kiosks in the Municipality of Gjilan and Viti, as well as to start its use in the Municipality of Kamenica, in order to increase the efficiency, quality and transparency of services.
- Sophistication of e-government applications for a wider involvement of citizens, through the advancement of e-government to achieve the establishment and strengthening of local and central links.
- Management of E-Kiosks regularly so as not to have problems during the access of citizens.
- Frequent disinfection of e-Kiosks in order to protect the health of users from the contagious disease Covid-19
- Increasing the level of knowledge and technological capacity in data storage from cybercrime.
- To continue the cooperation with local and international experts in order to use the most sophisticated technologies, facilitating the processes and complex atoms of administrative work.

There are many advantages in digitalization of municipal services, such as corruption which could be in municipalities where the officials in order to give a service to citizens they inquire money.

The disadvantage of digitalized of municipal services is that some elder people cannot learn how to use those services and how to proceed with the technology that have to use for digitalization.

## 7. CONCLUSION AND RECOMMENDATIONS

In this section we will present the analysis of the literature and research results which give us sufficient arguments to argue the hypotheses raised, as well as to give conclusions and recommendations.

The hypotheses raised at the beginning of the paper were:

- **Hypothesis 1: The digitalization of the Municipal Administration has significantly affected the performance of public services more efficiently and effectively.**
- **Hypothesis 2: The use of e-Kiosk has brought satisfactory results in the performance of public services.**

The hypotheses are validated by the answers obtained by most of the questions, where the impact of digitalization and the use of E-Kiosk is evaluated in different ways. As an example we can take the answers initially for the Municipality of Gjilan:

- Question 4) **What is the rationale for using electronic services?**
- The options were- Save time, simplicity, privacy, and efficiency, and of those 80.3% of respondents answered that it is time saving, for 54.1% it is efficiency, for 27.9% it is simplicity and for 19.7% it is privacy.
- Question 5) **Do you evaluate the digitalization process in the provision of services in your municipality?**
- The options were - "poor", "sufficient", "good", "very good", or "excellent", respondents answered "excellent" (18%), "very good" answered (45.9%), answered "Good" (24.6%) of respondents, "sufficient" according to (9.8%) respondents, and "poor" according to (1.7%) respondents.

- Question 10) **How much do you think the use of E-Kiosk has affected your performance?**
- In this question the options were - "poor", "sufficient", "good", "very good", or "excellent", respondents answered respondents answered "excellent" (18.3%), "very good" answered (53.3%), answered "good" (11.7%) of the respondents, "sufficiently" according to (16.7%) of the respondents.
- Question 12) **Does using the E-Kiosk exactly meet my requirements?**
- In this question the options were - "poor", "sufficient", "good", "very good", or "excellent", respondents answered respondents answered "excellent" (18.3%), "very good" answered (46.7%), answered "good" (25%) of the respondents, "sufficient" according to (8.3%) of the respondents, and "poor" according to (1.7%) of the respondents.
- Question 13) **Are you satisfied with the use of the E-Kiosk?**
- 96.7% of respondents answered that they are satisfied with the use of the E-Kiosk, while only 3.3% of the respondents are not satisfied with the use of the E-Kiosk.
- The hypotheses are confirmed by the answers received also in the Municipality of Vitia. As an example we can take the answers:
- Question 4) **What is the rationale for using electronic services?**
- The options were- Save time, simplicity, privacy, and efficiency, and 92.6% of respondents answered that it is time saving, 37% is efficiency, 20.4% is simplicity and 20.4% is privacy.
- Question 5) **How do you assess the digitalization process in the provision of services in your municipality?**
- The options were - "poor", "sufficient", "good", "very good", or "excellent", respondents answered "excellent" (7.4%), "very good" answered (24.1%), answered "Good" (40.7%) respondents, "sufficient" according to (14.8%) respondents, and "poor" according to (13%) respondents.
- Question 10) **How much do you think the use of E-Kiosk has affected your performance?**
- In this question the options were - "poor", "sufficient", "good", "very good", or "excellent", respondents answered respondents answered "excellent" (8%), "very good" answered (16%), answered

"good" (152%) respondents, "sufficient" according to (18%) respondents, and "poor" according to (6%) respondents.
- Question 12**) Does using the E-Kiosk exactly meet my requirements?**
- In this question the options were - "poor", "sufficient", "good", "very good", or "excellent", respondents answered "very good" (28%), answered "good" (46%) respondents, "sufficient" according to (22%) respondents, and "poor" according to (3.8%) respondents.
- Question 13) **Are you satisfied with the use of the E-Kiosk?**
- 79.6% of respondents answered that they are satisfied with the use of E-Kiosk, while only 20.4% of respondents are not satisfied with the use of E-Kiosk.
- The first hypothesis is confirmed in the Municipality of Kamenica and there is a need for E-Kiosk in this Municipality based on the answers received:
- Question 4**) What is the rationale for using electronic services?**
- The options were- Save time, simplicity, privacy, and efficiency, and 98.2% of respondents answered that it is time saving, for 63.6% it is efficiency, for 43.6% it is simplicity and for 27.3% it is privacy.
- Question 5) **How efficient is the digitalization process in providing services in your municipality?**
- The options were - "poor", "sufficient", "good", "very good", or "excellent", respondents answered "excellent" (12.7%), "very good" answered (60%), answered "Good" (14.5%) of respondents, and "sufficient" according to (12.7%) respondents.
- Question 6) **How much has the capacity to provide services increased after the digitalization process in your municipality?**
- The options were - "poor", "sufficient", "good", "very good", or "excellent", respondents answered "excellent" (12.7%), "very good" answered (63.6%), answered "Good" (10.9%) of respondents, and "sufficient" according to (12.7%) respondents.
- Question 7**) Do you consider the process of digitalization of the municipality with E-Kiosk reasonable?**
- 92.6% of respondents answered that they assess the process of digitalization of the municipality with E-Kiosk as reasonable, while a small part of the respondents of

7.4% do not assess the process of digitalization of the municipality with E-Kiosk as reasonable.

- Question 9) **Do you think that the counters of the Administration would be vacated after using the E-Kiosks?**
- 94.3% of respondents think that the counters in the Administration would be vacated after using the E-Kiosks, while a small part of the respondents of 5.7% think that the counters in the Administration would not be vacated after using the E-Kiosks.
- Question 10) **Do you think you will quickly access the use of E-Kiosk?**
- 90.9% of respondents think that they will quickly access the use of E-Kiosk while a small part of 9.1% of respondents think that they will not access the use of E-Kiosk quickly.

## CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

## ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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