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Strategic Management in E-governance:
Potential Developments of G2G, G2B, and G2C Services in Azerbaijan

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Hereby I declare that this master thesis, my original investigation, and achievement, submitted for the master's degree at ADA University has not been submitted for any degree or examination.

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List of abbreviations

G2G	Government-to-Government
G2B	Government-to-Business
G2C	Government-to-Citizens
ICT	Information Communication Technologies
OPM	Ordered Probit Model
M&E	Monitoring and Evaluation
MTCHT	Ministry of Transport, Communication and High Technologies

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Abstract

Purpose: Strategic management in e-governance is examined with the application of various concepts. Infrastructure, e-government security, organizational change and issues, training, content and application, management, e-service, and monitoring and evaluation concepts are tested against e-governance.

Design/methodology/approach: Experimental analysis is utilized where framing experiment model facilitates how to design survey-based experiment. The sample for the research is collected from the primary data. Three different surveys (G2G, G2B, and G2C) are designed to collect the data. The participants are specifically chosen among the experts whose e-governance knowledge is substantially higher. Ordered Probit Models are used to test the main influencing factors of e-governance in STATA 13.

Findings: Utilization of 37 observations from the expert pool shows a considerable variation among the main independent variables, except the e-government security measure. Infrastructure and changing the approach of management concepts predict the factors influencing G2G and G2B e-governance. While infrastructure is negatively associated with G2G e-governance, it has a positive relation with G2B e-governance. Moreover, changing the approach of management is positively associated with G2G e-governance and negatively associated with G2B e-governance. Finally, e-government security is negatively associated with G2B e-governance.

Practical implications: Our evidence has policy implications for Azerbaijan aiming to create an e-governance environment. Particularly, Infrastructure and management play a complementary role in increasing e-governance practices on G2G and G2B.

Key words: E-governance, Strategic management, Infrastructure, E-government security, Organizational change and issues, Training, Content and Application, Management, E-service, Monitoring and Evaluation (M&E)

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CHAPTER 1. INTRODUCTION

1.1. Background information

The mission and duty of coordinating the successes of the organizations involve the effective and efficient utilization of resources. Thus, the ability to achieve the mentioned results goes through proper management. In the contemporary version of management, there are certain concepts organizations need to undertake. One of them is strategic management. “Strategic management systematically organizes the resources in align with the vision, mission, and strategy throughout the organization” (Athapaththu, 2016). Its purpose is not to foresee the future; however, strategic management guides the organization and arranges the long-term strategies to deal with uncertainties. Especially, continuously changing environments put organizations in dilemma. In order to deal with uncertainties and focus on vision, mission, and strategy, strategic planning and management need to be paid attention. It should be noted that strategic planning is a way of mapping organizations’ now and future. With such planning, organizations know the steps to take from now to the future. It is those steps that carry organizations to long-term sustainable environments.

E-governance utilizes Information and Communication Technology (ICT) and contributes to the systematic conceptualizing of inputs. Efficiency in operations, cost-saving, and access to information can be achieved through the adoption of e-governance models. Hence, delivery of the government services, exchange of information across intergovernmental bodies - Government to Government (G2G), the interaction of Government to Business (G2B), Government to Customer (G2C) are some of the advantages of implementing e-governance models. Transparency is also

made available for ordinary citizens to have convenient and fast access to government services through e-governance. Moreover, e-governance is one of the effective methods of improving transparency in the public sector. Its opportunities vary in many aspects of governance including the improvement in the competitiveness of government. However, it is no doubt that the complex nature of e-governance makes the process more difficult in many phases such as designing, building, implementing, and monitoring. As a result, it is desirable to apply strategic management in this intertwined process.

1.2. Problem Identification

In Azerbaijan, implementation of the e-governance in the public sector started with the Decree of the President of the Republic of Azerbaijan "On the Approval of State Program – E-Azerbaijan for the Development of Communication and Information Technologies in the Azerbaijan Republic in 2010-2012" (President.az, 2020). The purpose of the program is to address the development of information and communication technologies in Azerbaijan. With the coordination of the Ministry of Transport, Communication and High Technologies (MTCHT), e-governance in Azerbaijan has been developing. Although there are positive outcomes received such as application of e-signature, linking of some government agency databases, broad application of e-governance models through strategic management is required.

Nevertheless, the new reforms have been ongoing in Azerbaijan in various sectors of the government. The opportunities of ICT prove that integration of people, process and IT substantially increase the cost-effectiveness and transparency. However, there are still some gaps remaining in the integration of e-governance in Azerbaijan. Although it is highlighted in the government agenda that integration of all government body databases is ongoing, accessing to e-

governance portal reveals that there are still some bodies that are not linked. The best way to overcome those gaps would be by utilizing strategic management in e-governance. Application of the most similar country models in e-governance should be linked with the long-term strategic management goals.

In the provision of e-government services, the top decision-makers are expected to weigh several factors and concepts before the implementation process. There are several concepts such as security, organizational culture, training, infrastructure, concept and application, management, e-services, monitoring and evaluation, and the relationship between stakeholders which require the analysis and proper approach before initiating the G2G, G2B, and G2C services in e-government.

1.3. Research Goal

Initially, the most important criterion for government is to make effective decisions and successfully implement them. However, the structure of the government and the provision of public services are too complicated. There are hundreds of bureaucratic decisions that need to be taken, a great deal of information, value conflicts and etc. waiting to be overcome. Today, it is no doubt that the Azerbaijani government has been implementing new reforms in all aspects of government sectors including economic, military, finance, and social. One of the areas that need to be deeply analyzed is e-governance. Thus, e-governance has recently been rooted in the public sector. Moreover, e-governance requires a great deal of centralized system in all branches of government sectors in order to have a smooth, transparent, and effective mechanism, whereas the current situation of achieved results in integration of IT, people, and process are not satisfied. Therefore, the application of a new concept with the business-mind and task-oriented goals would yield fruits in e-governance. In addition, e-governance in Azerbaijan is based on a “single window”

mechanism. To further improve the e-governance in Azerbaijan, there should be strategic management approaches with the long-term goal settings and strategic planning by taking into account several concepts ranging from security to management. Hence, strategic management will additionally improve the quality of ongoing operations and tackle the challenges faced currently.

To put it simply, the implementation of strategic management to the best practices by analyzing the given concepts and models in e-governance will yield great results. One of the main purposes is to learn the best concepts, applications and achieve the glocalization of those practices in Azerbaijan. Moreover, the understanding of the evaluation of all concepts and their dimensions can help to address the current needs in the e-governance of Azerbaijan. "The potential to improve the performance of public organizations and deliver efficient services to citizens is considerably high by implementing e-governance initiatives" (Irani, Love, & Jones, 2008).

It is worth studying the concepts in detail and apply them to the Azerbaijani model of e-governance. The main question for this paper will be: To what extent strategic management could become a successful tool in the provision of e-governance in Azerbaijan? Also, economic factors of the provision of e-governance through strategic management will be investigated. It is no doubt that there are both advantages and disadvantages of both concepts - e-governance and strategic management. However, the application of the best models for Azerbaijan can have positive impacts.

1.4. Outline of the Thesis

The thesis is divided into five chapters where each chapter captures the main steps of the whole research. In the first chapter, the introduction is provided to clearly express the background information, how the problem is referred and the research goal. Meanwhile, the second chapter

individually explains the main concepts such as e-government, infrastructure, e-government security, etc. It is worth noting that the theoretical framework and hypothesis development is an integral part of the second chapter. Further, the third chapter gives an insight into research design including the sample, dependent, independent variables, etc. Chapter 4 is an outcome of the analysis and empirical results where descriptive statistics and correlation matrix is included as well as the results of ordered probit models are discussed. Chapter 5 focuses on the conclusion of the research paper and provides information about the main topics under the synopsis subchapter, the possible contribution of the research, policy implications, limitations of the study, and recommendation for future studies.

CHAPTER 2. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

The government-to-Government process is one of the few concepts of e-governance which requires the appropriate approach to organize and implement the applications of e-government initiatives. G2G initiatives are mainly conducted among the public entities where knowledge management, human resource management, and other variables must be considered. In the private sector, the intended initiatives could be easily targeted if duties and operations are mainly centralized. It is because of the general notion that it is much convenient to derive conclusions from a single point of knowledge or data rather than having complex and diverse access.

G2G processes of governance require certain characteristics. Joia (2004) supports that the security, culture, and training concepts are fundamentally important in the provision of G2G processes. To start with security, it is the concept that has been understood in various meanings based on the application of security. In the e-governance sector, "Security is all about protecting the Information and Communication Technology (ICT) assets of an organization" (Joshi and Tiwari, 2012, p. 254). Even the concept of ICT is comprehensive where its assets might range from programs, hardware, software to networks. The threats posed by the weak security level could considerably diminish the reputation of the public entity in charge of the provision of e-governance services. Therefore, G2G initiatives are required to have the ultimate level of security. On the other hand, Joia (2004) posits that the provision of security must not collide with the usage of the system. In this sense, the provision of security and the easy use of e-government services has a diverse nature.

Moreover, the second concept proposed by Joia (2004) is the organizational culture. There are many theories explaining the organizational culture of an entity either in private or public. in G2G initiatives, the internal organizational culture of the public entity plays an important role to identify the future course of e-governance. It is due to the fact that the different cultures result in different management of G2G initiatives. The administrative procedures with the unique identity and internal culture can have an impact on the acceptance of G2G initiatives and their success. Additionally, the G2G initiatives in e-government are also products of ICT. Therefore, the usage of them requires training strategies. The communication of the benefits and usage of G2G initiatives can be best achieved through the proper training procedures. Consequently, the main factors affecting the success of G2G processes in e-governance are described security, culture, and training by Joia (2004) (Figure 1.).

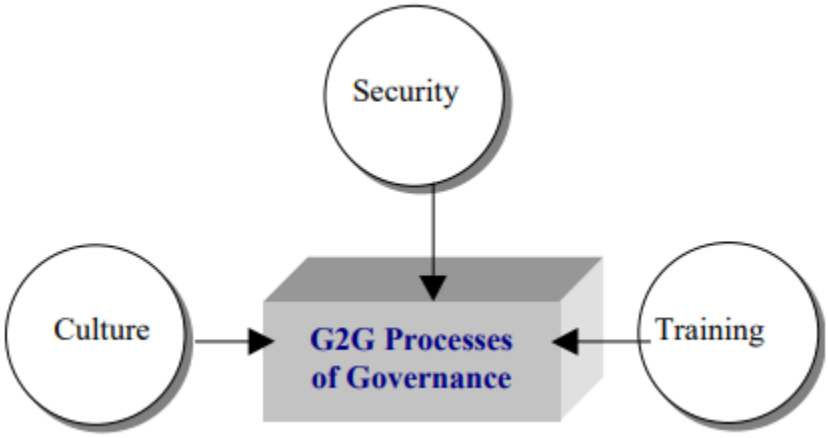

Figure 1. Main factors affec G2G e-governance. (Joia, 2004)

Additionally, Zarei and Ghapanchi (2008) also suggest that e-government security is an essential component in G2G initiatives. The technical difficulties that emerge from the weak provision of security level can have a negative impact on the implementation of G2G processes. In addition to the success factors of G2G initiatives, infrastructure capacity also plays a key role

because well-known technologies are used in the provision of e-government initiatives. These technologies also utilize the diverse program provision, and the implementation of them needs proper infrastructure. Meanwhile, content and application in ICT usage are important because the capacity and effectiveness of e-government initiatives depend on proper content and application and management of human-related issues as supported by Zarei and Ghapanci (2008).

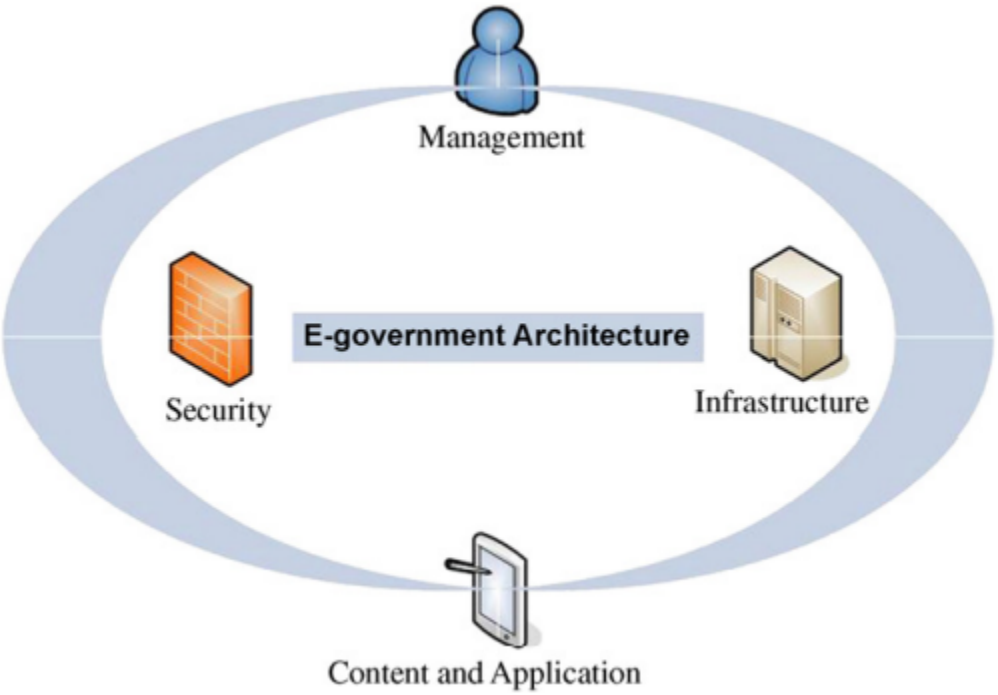

Figure 2. Main factors affect G2G e-governance. (Zarei and Ghapanci, 2008)

In Figure 3, the factors affecting the provision of e-government initiatives are identified. Based on the literature of many scholars such as Patricio et al. (2010), Pefile (2007), Sheth and Sharma (2007), Joia (2004), and Zarei and Ghapanci (2008), it is revealed that infrastructure, e-government security, organizational change, training, content and application, management, e-service and Monitoring and Evaluation (M&E) are the concepts defining the success factors of e-governance. Furthermore, e-service is also considered an indispensable part of e-government initiatives since the products and services are provided via electronic means. Monitoring and

Evaluation (M&E) further is needed for the effective keeping of the provision and implementation of e-government initiatives because continuous development is needed in the e-government sector to further develop and improve the provision of the system.

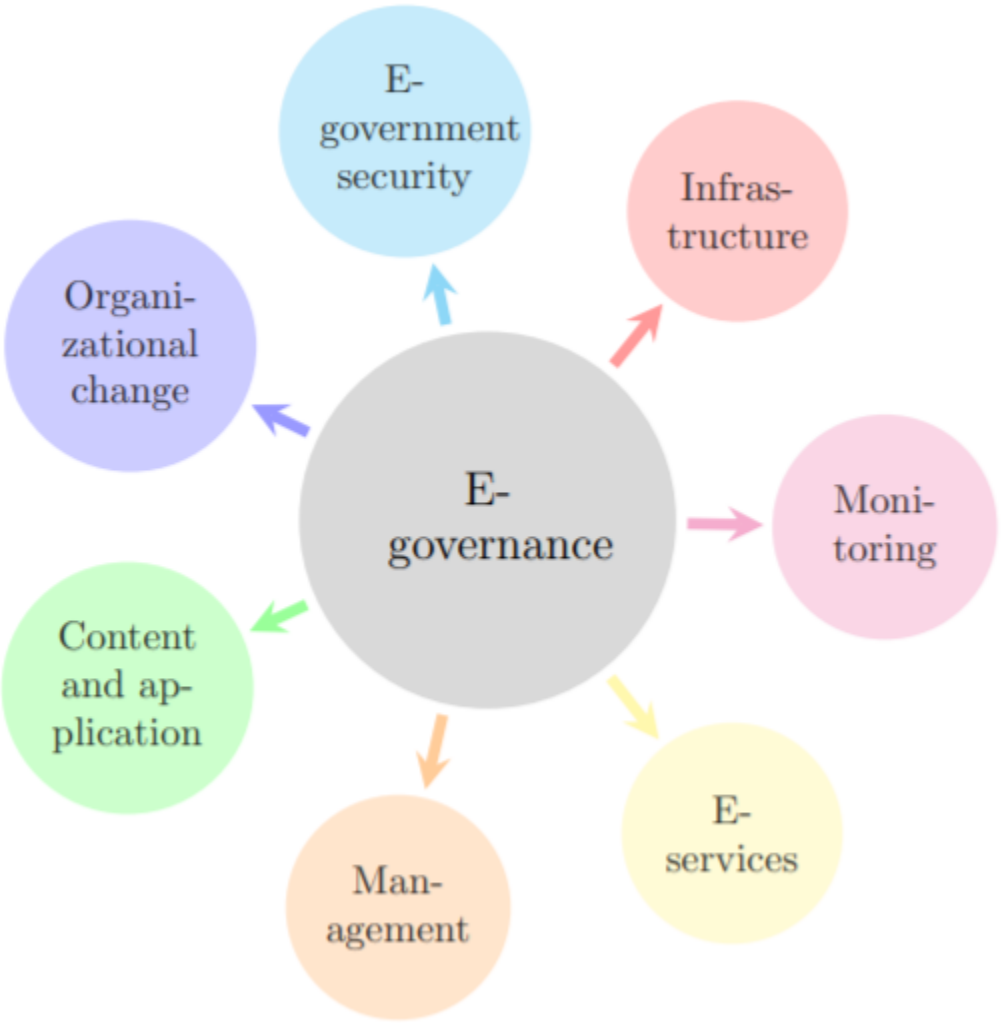

Figure 3. Theoretical framework on factors influencing G2G, G2C, and G2B.

Source: Author's own elaboration

2.1. E-Government

E-governance is the use of ICT systems in the provision of services/products to meet the growing demands of public need. One of the main purposes of e-governance is to simplify the

process of delivering public services. Moreover, it helps to overcome the barriers created by the conventional way of delivering services in government offices. High transparency, reduced corruption, reduction of almost all costs, overall, efficiency and effectiveness are delivered through the e-governance models. There are different types of e-governance. One of them is government to government (G2G) model. This model helps public bodies to exchange information with themselves in order to comprehensively deliver the services to customers (citizens). Another one is government to citizens (G2C). In this model, citizens get access to the services provided by the government. The advantages of it are ease to access, transparency, direct participation, etc. The third model is the government-to-business (G2B) model. The biggest shareholder of government services can be considered business entities. Because of this reason, there is a great number of demands that need to be supplied by the government. E-governance helps public bodies supply those growing demands.

In addition to that, D. N. Gupta (n.d.) explained the strategy formulation for e-governance, dimensions of strategic decisions for e-governance including the application of the People, Process, and Technology (PPT) Model which elaborates the role of strategic management further. The author also notes that the case of e-governance has a complex nature in which the provision of public services needs the comprehensive performance of a project. Moreover, strategic decision for e-governance has several dimensions according to the author. One of them is a strategic decision that requires the support of top leadership. However, the author forgets one of the important points of available technologies that the public body possesses. Obviously, the involvement of strategic decision for internal and external factors minimizes the threats and maximize the opportunities. Nevertheless, it is not clearly defined how an organization can

minimize the threats and take advantage of opportunities. In this research paper, the best models of how to analyze the threats and opportunities will be investigated.

It must be noted that in this research paper e-government and e-governance concepts are used in a similar meaning merely to identify the e-government. Considering the fact that there are many definitions of e-government and e-governance, many of them overlap with one another. Therefore, the conceptualization of e-government and e-governance into a single meaning is considered necessary.

Moreover, the digital environment in the government sector is as essential as in another sector to provide reliable and transparent services. The provision of proper services requires collaboration and communication among government agencies. Hence, there are various key factors indicated by Joia (2004) leading to the success or failure of G2G enterprises. In order to have the correct and proper management of G2G initiatives, the research by Joia (2004) has revealed certain factors including security, organizational culture, and training.

2.2. Infrastructure

Another important concept is considered infrastructure in the provision of G2G services. “Infrastructure, as a reasonable level of global connectivity and network infrastructure capacity for key sectors to take advantage of leading-edge technologies, is rolled out as part of an overall program that includes a wide range of actions” (Zarei and Ghapanchi, 2008, p.280). There is a heuristic approach to the infrastructure concept in which the government is expected not to rely fully on the availability of communication infrastructure. It is due to the fact that the current communication infrastructure must be checked against a sufficient level of security, reliability, and

scalability. Moreover, Zarei and Ghapanchi (2008) argue that network design and the security plan must go at the same time because they are closely related to each other. Besides this, the technological infrastructure is a must in G2G initiatives because e-government has to be equipped with the proper technological infrastructure. The reason behind the proper technological infrastructure is that the G2G system application becomes much more visible, and it gets ground for future development. Lastly, "infrastructure is not solely a technical concern, but it can be used as a managerial, political, and social driver" (Zarei and Ghapanchi, 2008, p.281). Thus, in this research paper, the infrastructure is defined as a technological and information infrastructure to have a proper provision of e-government.

2.3. E-Government Security

The concept of security is one of the important aspects which the underestimation of it in the provision of G2G initiatives would bring about irregularities not only in public agencies, also in a community whole. However, it is also the case that "the security solution adopted should comply with the characteristics associated with the way access will be conducted by the public agency" (Joia, 2004, p.159). The point that the provision of access must be considered in a way that the party is in charge of the security solution process has to be fully responsible regardless of the location. More precisely, the level of security is indeed essential and must be maintained at a high level. Nevertheless, the application of a high level of a security solution must not be the barrier to the system usage meaning that it must not impede the system so that the users will not feel any irregularities. Thus, the flexibility of the G2G initiative system must not be limited by the provision of the security solution, and "the coexistence of the different modus-operandi" should be permitted (Joia, 2004, p.159). Joia (2004) also argues that the system in the USA called

BacenSenado decreased the level of access in the system due to the security issue. As a result, only Senators were allowed to have access to the system, not assistants. Consequently, this application of the security solution caused the diminishing of flexibility.

E-government security is applied on the basis of eliminating potential technical challenges in the implementation and provision of e-government initiatives. It is important because managerial and technical concerns will be correlated. “It directly depends on managers’ attitude, because they are not interested in being questioned for data misuse, so an intensive security plan is required” (Zarei and Ghapanchi, 2008, p.281). Thus, it is common sense that the provision of the ultimate level of functional security is not feasible. Therefore, the hackers in a digital environment can be considered as misusers in traditional provisions of government services. As a result, the implementation of security standards and procedures in the management makes the special team of people to be responsible for it. “Source, destination, and communication channel of information exchange should be determined” (Zarei and Ghapanchi, 2008, p.281). Consequently, if the special security team is formed, they are expected to deeply analyze the security level of e-government initiative, hold regular meetings, communicate important information with staff and choose the optimal security level.

2.4. Organizational Change and Issues

Another essential factor in the provision of G2G initiatives is the organizational culture. According to Joia (2004), “in a G2G project, purely taking the technological facets of the specific enterprises into account, i.e., disregarding the internal culture of the public agency involved can lead G2G project managers to fail to grasp the peculiarities of the specific endeavor” (Joia, 2004, p.160). It is a fact that a public entity is governed mainly by the implementation of the unique laws

laid down on administrative procedures. However, each entity regardless of its nature, public or private, has its own specific identity and is operated by its own culture. Therefore, the analysis of the cultural and organizational differences of various public entities in the provision of G2G initiatives is of utmost importance. Moreover, Joia (2004) argues that the level of acceptance in dealing with the new technologically developed environment is essential because cultural and organizational differences of public entities have an effect on the provision of computerized systems. The assessment of such a point leads to the successful implementation of proper strategies to get over the previously emerged resistance.

In addition to the culture of the public entity, the new application of the computerized system should have the new added value as a whole. Because of the organizational culture of the public entities, employees of the public entities can figure out the new application of the process differently so that the distinct values imposed with the application of the new system must be taken into consideration.

The cases of BacenSenado and BacenJud provide contrasting practices on how Senators perceived the new application of the computerized systems. In the previous case, Senators whose involvements in political and managerial concerns considered the low understood the new application of the G2G system as distracting and undermining. However, the system is considered to improve their way of doing their duties operationally and technically. On the other hand, in the case of BacenJud, the target group was the judges, and the aim of the initiative is to fulfill the gaps in technical and operational levels in their duties. Thus, the judges considered the initiative as helpful in terms of autonomy and flexibility. “Even those judges who continued relying on assistants to deal with G2G process realized that the system greatly enhanced their output and performance (Joia, 2004, p.160). Consequently, it could be stemmed from the cases as a learning

lesson that the more the values associated with the approval from the cultural and organizational perspective, the higher the output and the result received from the implementation of G2G initiatives.

2.5. Training of Public Agency Staff Members

G2G initiatives are mostly developed and launched with the aim of having a user-friendly system and equipped with the latest technology. However, it is still common that the employees of the public agencies are not yet well aware of such systems. At least, they have not been fully introduced to the processes. Because of such reasons, the training of the public agency staff members needs to be strategically managed, and the smooth learning process should be developed to communicate the usefulness and benefits of G2G systems. The proper strategy to have effective training must include the considerable level of interaction among public agency staff members and the trainees because the acquisition of new skills on G2G systems and later interacting these skills with the new inputs will let the system improve. This improvement will be gained through the feedbacks and comments received from the public agency staff. Moreover, the interactions among the trainees will also develop intra training process in a way that the public agency staff members will learn from one another, and the new practices could be implemented as a result of interactions.

With the application of the BacenSenado case, the skills of senators were not taken into account when the G2G initiative was implemented. Therefore, the need for training was required for senators because only a few numbers of senators had the proper skill to know the G2G process. “Besides, the lack of training sessions hampered any interaction between the Central Bank and the Federal Senate, thus making it impossible to trade experiences and improve the system” (Joia, 2004, p.160). Consequently, it could be concluded that training is crucial to equip the public

agency staff members with the necessary and proper skills in order to have the smooth provision of G2G services.

2.6. Content and Application Concept

The needs of the users in e-government provision through the proper content is an important factor when Information and Communication Technologies (ICT) is applied. In order to reach the maximum level of effectiveness, it is no doubt that the customer-oriented, regardless of G2G, G2B or G2C concept application, systems must be built.

There are certain heuristic content and application principles put forward by Zarei and Ghapanchi (2008). Firstly, the integration of databases, applications, or overall software is important. Integration process can be best achieved through the interoperability by applying the primary application standards and procedures. Another crucial principle is the collection of data in one single government database warehouse. The single database warehouse makes reporting process easy in terms of avoiding redundancy. Having a unified and pre-planned project management strategy will provide the following smooth processes: designing, developing, and implementing. The provision of the e-government services needs to serve to the greater number of people including the customers, employees, and other stakeholders. However, it must also be noted that the provision of e-government service should create the added value services.

Changing political and social environment makes government services to be adjusted, accordingly. Therefore, e-government application systems need to be flexible in a way that the outdated applications, services, systems etc. could be easily replaced, removed, or transformed. “There should be a mechanism for updating and removing the abolished applications, and creating new ones” (Zarei and Ghapanchi, 2008, p.281). Not surprisingly, the monitoring system is needed

in the application process because it helps e-government services to gradually develop from initial phases to the mature level. Thus, all information stored in the database of the public agencies must be integrated regardless of the nature of the information. Consequently, the content and application process must be carefully taken into account, otherwise, the reliability and effectiveness of the e-government services will not be fully satisfied.

2.7. Changing the Approach of Management

One of the main principal concepts is the human-related issues where the management of such processes must be transparent, reliable, secure, and accountable. Corradini etc. al (2007) argues that transparent, reliable, secure, and accountable identity management are considered crucial in the provision of e-government applications from the perspective of main actors. Meanwhile, "the changing the approach of management in the government as well as the existence of capable managers are important, because of their power for resolving emergent problems" (Zarei and Ghapanchi, 2008, p.281). It is due to the fact that the proper management of the government services leads to the identification of opportunities and turning opportunities into the effective delivery of the services. Therefore, there are certain management heuristic principles.

Application of e-government services whether G2G, G2B, or G2C, requires gradual application and management. Obviously, the implementation of e-government services cannot be achieved in all public organizations because the time, finance, and other resources are limited. In management principle, it is required that the human resources are well-aware of the positive impacts of e-government services. It helps human resources to be individually ready for the new service provision keeping in mind the technological readiness as well.

At the managerial level, it would be better if e-government initiatives are equipped with self-generating automatic reports reducing the report generation time and having precise report management for managers. Management of the e-government initiatives requires the proper government planning process which should include financial planning, procurement, and human resources. Talented and skillful employees or experts are key for the provision of e-government services. They facilitate the jobs of managers in a way that managers often encounter troubles of IT literacy or they are not fully as compatible as these experts dealing with e-government service provision. They help with the communication process and play a bridge between the new system and managers. Thus, "there are two main elements affecting the e-government progress, authorities' support, and more importantly, citizens' partnership" (Zarei and Ghapanchi, 2008, p.282). Meanwhile, Zarei and Ghapanchi (2008) prioritize the citizens' partnership over the decision-makers.

2.8. E-Services

"Electronic service, short as e-service, is a general term that refers to services over the Information Communication Technologies (ICT)" (Kvasnicova, et al., 2016, p.193). Thus, there are various applications of e-services in different fields. For instance, e-business and e-government are two of those fields in which e-services predominantly are applied. According to Krvasnicova et al. (2016), e-service is also an interaction between the provider and customer through the online channel.

There are also many methodological approaches and classifications of e-services in the literature. Many models and classifications of e-services have been introduced ranging from e-services as digitalization, proactive, to a single window, and so on. According to Sheth and Sharma

(2007), one of the classifications of e-service is considered to the degree to how products and services can be digitized. Another one is considered as the fulfillment of products such as offline products and services, and electronic products and services. There is also a five maturity model in which the interactions of government agencies with businesses and citizens are expressed. "Governments' service delivery processes are described according to the following stages: (i) information, (ii) one-way interaction (downloadable form), (iii) two-way interaction (electronic forms), (iv) transaction (full electronic), and finally (v) personalization (pro-active, automated)" (Kvasnicova, et al. 2016, p.195).

In Azerbaijan, e-government has been providing many e-services under different classifications. According to the information by E-gov Development Center (2021), in Azerbaijan, there have been four phases of e-government and provision of e-services: moving from paper documents to the electronic environment, one-stop-shop reactive services, proactive services, and non-stop shop and new technological period. E-gov.az and my.gov.az are the portals that have been providing e-services.

2.9. Monitoring and Evaluation (M&E)

Continuous development of e-government makes monitoring and evaluation an essential part of public administration. Today, many government services are offered through e-services via various online channels. The new challenges put forward by the innovative approaches of e-government make the monitoring and evaluation of e-service provision necessary. Demographic change, mobility, employment, and other such factors influence the way the strategy is designed to tackle e-government service provision. The proposed strategies or solutions to tackle the challenges presented by the application of e-government require the continuous tracking and

assessment process. Because of such reasons, monitoring and evaluation are considered an indispensable part of public administration.

Moreover, monitoring is "a process of comparing one's e-government characteristics in different periods for measuring improvements after the development of changes in e-government solution of the same administration" (Ostasius & Laukaitis, 2015, p.255). Meanwhile, the evaluation is an activity of assessment in which some objectives and perspectives are considered. There are various methods for monitoring and evaluation of e-government initiatives. The E-government maturity model is one of the highly referred monitoring and evaluation models. The purpose of the model requests the step-by-step assessment of objectives and perspectives. Hence, the evaluation of e-government stages is assessed in sequence.

2.10. Hypothesis Development

There are many concepts involved in the identification of successful e-government models. To begin with, it is worth mentioning the economic development theories in which various conceptual approaches to the development are mentioned. Nevertheless, the relationship between governance and development is the key point in economic development theories. According to the modernization and *growth* theories, more specifically, Walt W. Rostow's the Stages of Economic Growth model (1960) emphasizes the importance of the factors of production including land, labor, and capital (Todaro and Smith, 2015). In addition to the economic development theories, the Harrord-Domar model also emphasizes the importance of capital. Considering such theories, it could be concluded that infrastructure in e-government is one of the important factors regardless of G2G, G2B, or G2C.

Moreover, electronic governance is a process involving the extensive usage of ICT tools. Therefore, there are fundamental reasons to have proper security systems. E-government provision involves many processes and applications, in essence. The underestimation of the security systems in the provision of e-government initiatives could lead to threats to the government, businesses as well as citizens. Therefore, the concept revealed after the Cold War is called cyber security. Technological innovation and changes lead to the consideration of cyber security. In Security Studies, there are many authors such as Buzan, Waever, Williams, etc. emphasizing securitization and societal security. However, these studies mainly looked at security as national security. "Security has a particular discursive and political force and is a concept that does something – securitize- rather than an objective (or subjective) condition" (Hansen and Nissenbaum, 2009, p. 1158).

The perspective of organizational culture has a specific role in the provision of e-government initiatives. It is no doubt that the provision of e-government initiatives including G2G, G2B, and G2C applications involves many entities and organizations. Each organization has its own specific culture and identity. Even within public organizations, the organizational culture and behaviors differ from one another. For instance, "The empirical literature on organizational culture and effectiveness can be traced back to early studies of culture and adaptation (Weber 1930, Buckley 1967), and to the work of classic organizational theorists such as Likert (1961), Burns and Stalker (1961), or Lawrence and Lorsch (1967)" (Denison and Mishra, 1995, p. 206). It is also stated that "in a study of organizational change, showed how companies with progressive human resource practices outperformed those with less progressive practice" (Denison and Mishra, 1995, p. 206).

Moreover, the proper usage of ICT tools is considered a 21st century skill. A higher level of requirements to have the appropriate skills and knowledge on how to utilize the digital tools push employers to organize training for their employees. The factors explaining the digitalization process are best described through Baxter's and Sommerville's (2011) individual-related, technology-related, and environment-related factors (Peiffer, et al., 2020). While individual-level factors focus on the person's competencies, past experiences, etc. to find out the level of influence these factors have on adaptation to digitalization, technology-related factors emphasize the importance of the level of digital automation and system capacities. Moreover, "environment related factors describe a person's work environment, including task characteristics (e.g. task type) as well as team or organizational characteristics (e.g. team collaboration)" (Peiffer, et al., 2020, p.159).

Additionally, the level of effectiveness in the implementation of e-government initiatives requires proper content and application management. Regardless of the applications (G2G, G2B, and G2C), the level of effectiveness is highly correlated with the provision of customer-oriented content and application. There are many factors leading to the successful provision of such initiatives. For instance, the integration of databases, proper management of software systems, and other factors are highly essential because reliability and effectiveness are measured based on the proper content and application systems. Therefore, system theory is trying to best explain the importance of content and application systems. The system theory is an interdisciplinary theory explaining the systems in a way that each system has its own characteristics, and there are many factors defining each system. Therefore, the change in any components of a system can negatively or positively influence other integral parts of it. "The aim of systems theory for business is to develop an objective, understandable environment for decision making; that is, if the system within

which managers make the decisions can be provided as an explicit framework, then such decision making should be easier to handle" (Johnson et al., 1964, p.372).

Transparency, reliability, security, and accountability are the factors leading to the proper management of the e-government processes. It is no doubt that a human-oriented process is essential in every aspect of governance. Managerial skills can turn challenges into opportunities. Therefore, the approach to the e-government sector requires unique analysis to find out what is best for the management of e-government. Management theories are predominantly descriptive or prescriptive. Descriptive management theories introduce how what is management, whereas prescriptive management theories emphasize how management should be. Thus, "The motivational system developed from management theory is based on a view of human nature which says that humans are bound by the laws of nature and social science to be purposeful creatures who must act to carry out needs" (Sullivan, 1986, p. 543). It indicates that if proper manipulation is conducted by the managers, the employees could be successfully led to the desired outcome. Consequently, the proper management and desired fulfillment of the needs could lead to the successful provision of e-government initiatives.

Digitalization has brought about the great usage of e-services. The e-services can be best defined if a product or service is offered through electronic means. In the e-government sector, e-service is an integral part of it. Also, e-service is economically much more beneficial than the traditional way of service provision. "The European Commission estimates that every €1 spent on software as a service (SaaS) replaces €2.30 spent on traditional administrative solutions" (Barker, 2016, p. 3). Although there are many barriers in the provision of e-services such as administrative, legislative, technological, user culture, social barriers, the appropriate strategy will facilitate the

usage and provision of e-services. From the perspective of economic development, the provision of e-services is a must to have productivity and technological advancement.

The monitoring and evaluation process requires the proper guideline to implement an effective and efficient scheme. Input indicators, process indicators, outcomes, assessment instruments, and monitoring plans are considered essential by Patricio et al. (2010). Each indicator and process has its own importance in the monitoring and evaluation process. From the economic perspective, M&E greatly decreases future economic costs. "A robust monitoring, evaluation, and impact assessment framework should demonstrate transparency and confer accountability" (Pefile, 2007, p. 660).

Thus, the importance of the M&E process should be emphasized in e-government initiatives, as well.

To sum up, we consider three levels of e-governance and set the following hypotheses:

H_1: There is a strong positive effect of infrastructure, e-government security, organizational change and issues, content and application, changing the approach of management, provision of e-services, and monitoring on *Government to Government (G2G) e-governance.*

H_2: There is a strong positive effect of infrastructure, e-government security, organizational change and issues, content and application, changing the approach of management, provision of e-services, and monitoring on *Government to Citizen (G2C) e-governance.*

H_3: There is a strong positive effect of infrastructure, e-government security, organizational change and issues, content and application, changing the approach of

management, provision of e-services, and monitoring on *Government to Business (G2B) e-governance.*

CHAPTER 3. RESEARCH DESIGN

With the increasing attention to the experimental analysis in the social and political sciences, there have been several approaches emerged. One of the noticeable approaches is considered the framing experiment. The framing experiment is going to be utilized in order to see the effect of behavioral influences in regard to the selection of certain policy options. Kuehnhanss and Heyndels (2018) argue that framing experiment also helps identify and test the decisions of the policymakers both at the administrative and political levels, and weigh their susceptibility.

A survey-based experiment is much more practical to capture the understanding of government-to-government, government-to-business, and government-to-citizen approaches in the specific policy-making process. In the case of e-governance, it is also a practice to utilize the survey-based experiment with the different scenarios. Kasper et al. (2015) provide different scenarios in their paper to see the trust and power condition by giving introduction texts to the questionnaire takers. The current study closely follows the techniques utilized by the aforementioned scholars.

3.1. Sample

The sample for the research has been collected from the primary data. Firstly, three different surveys have been designed to collect the data. Each survey is designed based on the same questions showing the different e-governance models such as G2G, G2B, and G2C. Each model survey has been distributed to the experts. However, one of the essential points is that those experts who filled out the G2G survey are not aware of the fact that there are other G2B and G2C surveys. Therefore, the reliability of the survey is indeed kept as high as possible. 37 participants have filled out the survey. Additionally, the survey consists of demographic questions and main

questions related to the topic. The nature and design of the survey refer to the World Values Survey methodology.

Considering the fact that the research focuses the survey-based framing experiment on the e-governance model with three scenarios of G2G, G2B, and G2C, the respondents have been clearly chosen from the relevant sectors. Basically, the sample selection includes 13 respondents for the G2G model, 12 respondents for the G2B model, and 12 respondents for the G2C model with the total number of respondents equaling 37 (see Appendix D).

3.2 Dependent variable

E-governance is the dependent variable in the research paper. Corresponding questions in the survey experiment measure how participant's perceptions of e-governance change after introducing new scenarios. Therefore, e-governance is used as a dependent variable against three models including G2G, G2C, and G2B with different concept applications. All three items were measured on a three-point scale, ranging from $-1 = Government\ to\ Government$, $0 = Government\ to\ Citizen$ to $1 = Government\ to\ Business$. Venkatesh S. (2003), Sharma T. (2002), and Barthwal (2003) corresponds that e-governance is good governance, however, there are boundaries that can affect the provision of it.

Since e-governance is the dependent variable, the survey is designed in a way that e-governance could be measured properly. To start with the models of e-governance, e-governance is firstly divided into three models of G2G, G2B, and G2C. As it was mentioned that these three models were given a three-point scale -1, 0, and 1 for each model. Then, each survey is designed separately based on the models of e-governance. Each model or scenario is given a definition and further factors as independent variables were identified. Each independent variable was given a definition of what it means in this research paper. Thus, each independent variable aimed at identifying an effect on the dependent variable is scaled with certain characteristics. More precisely, 4 scale answers (to a large extent, to a medium extent, to a small extent, not at all) and 2 neutral answer chances (do not know and no answer) was given to the respondents for each independent variable. Based on the responses collected from the respondents on the independent variables and based on the fact that the dependent variable is divided into three scenarios and given scales, the dependent variable is measured.

3.3 Demographic variables

There are 4 demographic variables in the research paper, and they all are considered as the control variables. These variables help identify the age, education level, and gender of the survey participants. It further helps facilitate the linkage among dependent and independent variables. Although the control variables do not directly affect the study's aim, they are used to increase the validity of the study. In non-experimental research, such control variables are used to see the relationship between main variables. *Age* variable denotes the age of the participant, ranging from 22 to 39. *Gender*, proxied as a dummy variable, equals 1 if respondent is male, and 0 otherwise.

The base group is female. *Tertiary, and Other Education* are educational dummy variables, which Other Education holders are kept as the base group.

Demographic variables are considered the noneconomic variables in this research paper which the including them in the survey will help incorporate and explain the influencing factors of independent variables on the dependent variable. Thus, there is plenty of previous research that also supports the importance of the demographic variables. Dudek, H. (2010), and Geirdal et al. (2021) emphasize the fact that demographic variables are important when running the statistical models in order to see the significant effect of values.

3.4 Independent variables

There are mainly eight independent variables used in the research paper in order to see their positive, negative, and null effects on the dependent variable, e-governance. In this research paper, all independent variables including are tested in three concepts: G2G, G2B, and G2C in order to find out to what extent they are important.

All independent variables were measured on a five-point scale, ranging from $0 = not\ at\ all$ to $4 = To\ a\ large\ extent$. In the questionnaire, which is shown in the Appendix, it can be seen that there are answers such as *Do not know or No answer*. Those values are also proxied as 0. A higher value means respondents place more value on the particular independent variable. We control for these main independent variables as they may have a negative, positive, and ambiguous associations with the dependent variable.

To start with ***infrastructure***, security, reliability, and scalability are the key factors for Zarei and Ghapanchi (2008) that the appropriate infrastructure leads to the sustainable and effective provision of e-governance. Moreover, United Nations Public Administration Network

(2008) also suggests that the proper infrastructure is indeed needed for connected e-government development. Chandra (2018) posits that "e-government is complete transformation of governmental functionality and this transformation requires info-structures for its establishment" (Chandra, 2018, p.146).

Additionally, ***e-government security*** solutions are considered as the secure and easy use of ICT tools in the provision of e-government initiatives. Joia (2004) argues that e-government security solutions should not be a barrier to the level of access. Meanwhile, Zarei and Ghapanchi (2008) posit that an intensive security plan is a must in e-government provision because the misuse of the data would result in security breaches. Benabdallah et al. (2002) also argue that security solutions are central to the constructing of confidence in e-government initiatives. Therefore, the importance of e-government security is scaled against e-governance in three cases: G2G, G2B, and G2C.

Subsequently, ***organizational change and issues*** are the internal characteristics of the public agency where employees figure out and accept the new IT initiatives differently. Organizational culture plays an important role in the provision of e-government initiatives because internal cultural traits among individual level and organizational level are different. Kanungo and Jain (2011) argue that "while government and public sector organizations can use culture to positively impact efficiency dimensions of e-government performance, the dominant bureaucratic culture will tend to hinder systemic and enterprise wide e-government performance" (Kanungo and Jain, 2011, p. 1). Consequently, the organizational change and issues have been identified as independent variables in all scenarios (G2G, G2B, and G2C).

Additionally, the lack of ***training of the public agency staff members*** could result in irregularities in capturing the true essence of e-government initiatives. Joia (2004) posits that lack

of training makes it impossible to trade experiences and improve systems. In research conducted in Ukraine reveals that "the development of e-government in Ukraine is impossible without appropriate training of relevant qualified professionals" (Morze and Makhachashvili, 2020, p.93). Thus, these studies show the importance of training of staff members as training of the public agency staff members is tested in G2G, G2B, and G2C e-government scenarios.

Another independent variable is considered ***content and application*** which properly designed content and application principles yield customer-oriented e-government initiatives. The usage of ICT makes it more difficult to implement and develop in comparison with conventional service provision. Therefore, Zarei and Ghapanchi (2008), Eduard H. (2008), and Amar and Chauhan (2010) emphasize the importance of the integration of databases and the usage of data in e-government initiatives.

Changing the approach of management is a human-related concept and it should be transparent, reliable, secure, and accountable. Corradini et al. (2007) and Zarei and Ghapanchi (2008) considerably put managers' skills on priority to resolve the emergent problems and to have the e-government initiatives work smoothly. Wairiuko (2014) also indicates that if proper human capacity building is in place, the development goals in e-government initiatives will highly be attained. Because of such reasons, the management concept is weighted as an independent variable against three scenarios in this research paper.

E-service is a service provided through ICT tools or electronic means. Sheth and Sharma (2007), and Kvasnicova et al., (2016) argue that e-service provision is greatly based on the digitalization process. Thus, automation and digitalization are needed to provide products and services online. The essence of e-service is also important for e-government initiatives. "Research on e-government has identified challenges such as lack of awareness, access to e-services,

resistance to change and lack of skills are hindering the adoption of e-government in many countries" (Wairiuko et al., 2018, p. 95). Therefore, the role of e-service in e-government initiatives is measured in order to find out its importance.

Monitoring and Evaluation (M&E) is a process of comparing, assessing, measuring, and such activities toward certain policies or systems, etc. Ostasius and Laukaitis (2015) argue that there should be some methodological approaches to the M&E process. Meanwhile, Patricio et al. (2010) and Pefile (2007) posit that transparency and accountability, as well as certain variables such as input and process indicators, outcomes, assessment instruments, and overall monitoring plan, must be established. Therefore, the level of significance of the M&E process is scaled in three different scenarios with the different expert groups.

3.5 Model specifications

To test the main influencing factors of e-governance, the following Ordered Probit Models were estimated with STATA 13. This modeling helps to examine the ranking information of the scaled e-governance dependent variable, and only marginal effects will be interpreted in the regression results to find the quantitative effect of the factors on e-governance. It will indicate the percentage unit changes in the proportion of the e-governance when the main independent variables change by one unit. This technique has been utilized by many scholars in the fields such as behavioral economics and public administration (see Torgler, 2006; Frey and Torgler, 2007; Torgler and Valev, 2010).

The baseline model was specified as follows:

$$Egovernance_t = \alpha_t + \beta_1 \sum_{k=1}^{3} Demografic\ variables_t + \beta_2 \sum_{k=4}^{11} İndepdent_t + \varepsilon_t \quad (1)$$

Where t is time, α_t is intercept, and ε_t is the error term.

CHAPTER 4. EMPIRICAL RESULTS AND ANALYSIS

4.1 Descriptive statistics and Correlation matrix

Table 1 reports the Descriptive statistics and Table 2 shows the Correlation matrix for the main interest of the variables. There is a considerable variation among the main independent variables, except the *E-government security* measure, which has less variability and ranges from a minimum of 3 values to a maximum of 4. This is a good sign as it helps us to run the empirical tests to examine their effects on the dependent variable, e-governance. The mean value for the Age is roughly 28.

Table 1. Descriptive Statistics

Variable	**Obs.**	**Mean**	**S.D.**	**Min.**	**Max.**
E-governance	37	0.02	0.79	-1	1
Gender	37	0.64	0.48	0	1
Age	37	28.24	4.59	22	39
Tertiary Education	37	0.62	0.49	0	1
Other Education	37	0.35	0.48	0	1
Infrastructure	37	3.56	0.76	0	4
E-government security	37	3.75	0.43	3	4
Organizational change and issues	37	3.45	0.86	0	4
Training of the public agency staff members	37	3.54	0.83	0	4
Content and application concept	37	3.43	0.92	0	4
Changing the approach of management	37	3.48	0.76	0	4
E-service	37	3.56	0.68	1	4
Monitoring	37	3.51	0.60	2	4

Source: Author's own elaboration

Table 2. Correlation Matrix

Variable		***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***	***13***
E-governance	1	1.00*												
Gender	2	-0.19	1.00*											
Age	3	-0.19	0.15	1.00*										
Tertiary Education	4	-0.18	-0.10	0.06	1.00*									
Other Education	5	0.19	0.06	-0.10	-0.94*	1.00*								
Infrastructure	6	0.01	0.17	0.11	-0.07	0.12	1.00*							
E-government security	7	-0.14	-0.28	-0.10	0.07	-0.11	0.00	1.00*						
Organizational change and issues	8	-0.01	-0.00	0.08	-0.23	0.19	0.64*	-0.13	1.00*					
Training of the public agency staff members	9	-0.31	0.13	0.33*	0.03	-0.07	0.59*	0.14	0.48*	1.00*				
Content and application concept	10	-0.01	0.10	-0.12	-0.23	0.20	0.62*	0.13	0.43*	0.51*	1.00*			
Changing the approach of management	11	-0.20	0.02	0.18	-0.01	0.05	0.69*	-0.05	0.57*	0.53*	0.39*	1.00*		
E-service	12	0.07	-0.21	0.10	0.24	-0.28	-0.15	0.38*	-0.12	0.07	0.03	0.04	1.00*	
Monitoring	13	0.08	-0.12	0.00	0.20	-0.15	0.07	0.17	-0.09	0.25	0.08	0.04	0.47*	1.00*

Source: Author's own elaboration

* Correlation is significant at the 0.05 level

4.2 Results of Ordered Probit Models

Table 3 presents the results of Ordered Probit Models mentioned in models (1), (2), and (3). In Table 3, these models are presented for testing hypotheses (1), (2), and (3), respectively.

Hypothesis 1 predicts the factors influencing G2G e-governance. In Model 1, the marginal effect of the value of the GENDER has a significant positive effect on G2G e-governance. GENDER corresponds to the male as it takes 1 value, and 0 for female. Therefore, it shows that an increase in the value of the male (GENDER) by one point increases the share of G2G e-governance by 25.4 percentage points. One point increase in the value of TERTIARY EDUCATION raises the share of the G2G e-governance by 43.5 percentage points. The marginal effect of the value of the INFRASTRUCTURE has a highly significant negative effect on G2G e-governance. It implies that an increase in the value of the INFRASTRUCTURE by one point decreases the share of the G2G e-governance by 39.2 percentage points. Reported results in the value of the CHANGING THE APPROACH OF MANAGEMENT indicate that increase in its value by one point increase the share of the G2G e-governance by 24.2 percentage points. This result is in line with the previously reported studies by Corradini et al. (2007), Zarei and Ghapanchi (2008), and Wairiuko (2014), who argue that changing the approach of management can lead to a better understanding of e-governance.

Hypothesis 2 predicts the factors affecting G2C e-governance. In Model 2, there is not any significant value, meaning that respondents of our sample might not favor the importance of the G2C e-governance for Azerbaijan. This is an interesting finding, but future studies can scrutinize the reason behind these associations.

Hypothesis 3 predicts the factors influencing G2B e-governance. According to Model 3, if the value of GENDER rises by one unit, the percentage share of G2B e-governance falls by 25 percentage points. This means that females might favor the importance of the G2B e-governance. Regarding findings of the TERTIARY EDUCATION, Model 3 shows that a point increase in its value decreases the share of the G2B e-governance by 44.3 percentage points. Conversely, INFRASTRUCTURE raises the proportion of the G2B e-governance by 40 percentage points. The finding of the INFRASTRUCTURE on the G2B model confirm the views of Zarei and Ghapanchi (2008) and Chandra (2018) who argue that the infrastructure leads to a better understanding of e-governance. Lastly, E-GOVERNMENT SECURITY and CHANGING THE APPROACH OF MANAGEMENT decrease the share of the G2B e-governance by 30.9 and 24.7 percentage points, respectively. The result on E-GOVERNMENT SECURITY is not in the line with the prior studies reported by Joia (2004) and Zarei and Ghapanchi (2008).

Table 3. Results of Ordered Probit Models

Ordered Probit (dependent variable: E-governance)			Model 1	Model 2	Model 3
	Coefficient#	*z*-Statistic	Marginal effect (G2G)	Marginal effect (G2C)	Marginal effect (G2B)
(d) Demographic factors					
GENDER	-1.01	-2.04	0.245**	0.004	-0.250**
AGE	-0.04	-0.73	0.009	0.000	-0.009
TERTIARY EDUCATION	-1.79	-2.19	0.435**	0.008	-0.443***
(a) Independent variables					
INFRASTRUCTURE	1.62	2.74	-0.392***	-0.007	0.400***
E-GOVERNMENT SECURITY	-1.25	-1.72	0.303	0.005	-0.309**
ORGANIZATIONAL CHANGE AND ISSUES	-0.19	-0.49	0.048	0.000	-0.049
TRAINING OF THE PUBLIC AGENCY STAFF MEMBERS	-0.61	-1.67	0.149	0.002	-0.152
CONTENT AND APPLICATION CONCEPT	-0.22	-0.74	0.055	0.001	-0.056
CHANGING THE APPROACH OF MANAGEMENT	-1.00	-2.17	0.242**	0.004	-0.247**
E-SERVICE	0.69	1.23	-0.168	-0.003	0.171
MONITORING	0.23	0.48	-0.055	-0.001	0.056

Dependent variable: E-governance on a three-point value such as G2G, G2C, and G2B. In the base group are FEMALE and OTHER EDUCATION.

#Coefficient= G2B value (2)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

CHAPTER 5. CONCLUSION

5.1. Synopsis

Strategic management in the public and private sectors is substantially different. In essence, the quality of provision of public goods is taken into account first in the public sector, whereas the private sector looks into the cost-benefit of programs. However, both of the sectors pay attention to sustainable management and the long-term benefits of the programs implemented. Strategic management pays attention to the creation of a sustainable environment in order to keep the comparative advantage at a high level. Through strategic management, organizations guide their actions all over the process. In addition to the guide, the analysis of actions, operations, decisions, processes, people, etc. in the organization is collected in strategic management tools. Thus, the development of comparative advantage by the above-mentioned analysis helps organizations to catch new opportunities and cut back threats.

A. Matheson, G. Scanlan, and R. Tanner (1997) provide the practical side of strategic management. It has been stated that strategic management contributes to reforms in the public sector, however, it can only be effective if the government improves processes, exercises leadership that does not control every single aspect shares the responsibility of managing public funds, learns from the outcomes of applied policies continuously, strengthens institutions and welcomes political changes. Additionally, Al-Terki (2014) points out that strategic management in corporative governance is goal-oriented management. All process and management tools are prepared to achieve the overall organization's goals. However, this insight from their papers lacks the knowledge of strategic management. It is defined that strategic management and

strategic planning are interrelated, but different concepts in the literature. Therefore, clear-cut borders between strategic management and strategic planning are needed, as we explain next.

5.2 Contribution

This research paper aims to contribute to the advancement of public services through e-governance by proposing the advantages of applying the strategic management concept and its tools. Moreover, enhancement of the capacity of e-governance provides a suitable environment for transparency which is one of the challenging goals to achieve in the public sector. Potential developments in e-governance in Azerbaijan are high-priority matters to achieve. It is obvious that sustainable development needs strategic management meaning that a business-mind approach with the cost-reduction and efficient application of programs can be best targeted. Strategic management provides long-term sustainable development which in Azerbaijan it is one of the most important areas.

The advantage of this study is that it is based on the opinions of experts representing a relatively homogeneous group. They can have more knowledge on e-governance and its main factors compared to the general population. The disadvantage of the study is that experts may underestimate or overestimate the factors influencing e-governance. Nevertheless, this problem was reduced by setting three different scenarios (inviting different participants to different scenarios) so that it helped us to see if there is a systematic misperception among the experts.

Initially, the dataset of the research paper is based on primary data. There are three surveys conducted with different scenarios. Firstly, the first scenario is composed of G2G, while the second and third are G2B and G2C respectively. The surveys are distributed among the experts of the relevant groups where either they have knowledge or expertise of e-government, business provision, or working directly with citizens in the government sector. Each survey is separately

distributed among the experts where the ones who attended in G2G survey did not know about the availability of G2B and G2C surveys. Therefore, the validity of the surveys must be high. Consequently, the experimental survey method is used to gather the primary source of data in this research paper which can play a good secondary data in this field for future studies.

There are eight factors sought to have a positive effect on e-government initiatives. However, it is checked that whether those factors do have a positive effect on each e-governance model such as G2G, G2B, and G2C or not. To start with infrastructure, it is believed that infrastructure should play an important role in the provision of e-government initiatives regardless of the models. However, we found out that the infrastructure variable has a negative effect on the G2G model where it is surprising as a result of our analysis. Security solutions and management are also considered important in each model. Nevertheless, it is found out that e-government security and changing the approach of management is negatively associated with the G2B model. Content and application concept is negatively associated in the G2B model, whereas this result is positively associated with G2G and G2C models. However, it is not statistically significant. The same result is also received in training and organizational change and issues variables as well. However, it cannot surely be concluded that these are the exact results because they are not statistically significant, either. Moreover, each concept contributes to the literature in a way that such research is not widely conducted in Azerbaijan to the best of the author's knowledge.

5.3 Policy implications

Based on the results of the analysis of three models including G2G, G2B, and G2C, it is revealed that the factors affecting the provision of e-governance are not always positive as they have been hypothetically formulated. Thus, there are statistically significant results received in G2G and G2B model, whereas in the G2C model there is not any factor that is statistically

significant, and we can draw a conclusion on this model. Infrastructure factor is surprisingly negatively associated in the G2G model, while it has a positive impact on the G2B model based on the thoughts of the experts who participated in the surveys. There might be several reasons for this conclusion. Therefore, state-level officials must consider this conclusion when they are required to initiate infrastructure projects in G2G or G2B governance.

Moreover, the implementation of infrastructure projects in G2G governance is considered an additional burden. It is no doubt that a high level of infrastructure projects leads to continuous development, the well-being of the citizens and has a multiplier effect on the economy. However, infrastructure projects are always a burden on government revenue. From the strategic management point of view, there is a lack of strategic vision and management in the implementation of infrastructure projects in Azerbaijan. If we look at the infrastructure projects, it is visible that most of the projects are rather sectoral plans planned and implemented at sectoral levels. Therefore, the respondents of the framing experiment negatively favor the infrastructure projects in the G2G model. Based on this notion we can conclude that when infrastructure projects are planned and implemented in the G2G model, officials must consider planning and implementing such projects based on the application of strategic management tools or disfavor to engage in G2G infrastructure projects.

Rather, the results show that the respondents favor infrastructure projects to be conducted in G2B models because they consider that the efficient and effective management of such projects is highly paid attention to in the G2B model. In the G2B model, the results show that there is a high chance of having strategic infrastructure plans, strategic framework of investment plans, easy application, and implementation of processes and units. In addition to the negative association of G2G infrastructure projects, the initiation of infrastructure projects at the government level is

bureaucratically complex and time-consuming which diminishes the effectiveness of such projects. For instance, in the G2G model infrastructure, the involvement of various public institutions, level of policy fields, the level of jurisdictions, and such barriers play a gating role for easy application of the projects. Therefore, the flexible and vigilant nature of the business makes infrastructure projects more acceptable for people in the G2B model rather than in G2G. Consequently, officials must consider the above-mentioned points when implementing infrastructure projects and prefer such projects in G2B models.

On the contrary, one of the factors called e-government security is negatively associated with the G2B model. The results show that the experts who participated in the survey do not favor security solutions in the G2B model and see such projects as less important. Although it is not crystal clear that why the respondents are inclined and come to such a conclusion because the author did not have a chance to conduct an in-depth interview to get the root cause of it, we can conclude that in the private sector the sharing such burden seems costly for them. Another point is that government should not highly consider security measures in the G2B sector because the customers of G2B initiatives must take their own measures to have security. Security threats in e-governance are considered breaches of security systems. In order to prevent such breaches, both public and private entities invest in cybersecurity. Therefore, almost all private organizations try to have security solutions in their organizations in order to be protected from such breaches and threats.

In Azerbaijan, the G2B model is designed in a way that the provision of such services is conducted on time processes. More precisely, the government sends requests to take information and processes the information from the database of the related G2B model. The government does not have a single stored database which makes the provision of security solutions dispersed and

scattered. In order to provide proper security measures, the government officials are supposed to plan and implement distinct security measures in each G2B initiative which are highly costly. Therefore, the respondents of the survey do not favor the initiation of e-government security measures in the G2B model. Consequently, we suggest that the security measures must be conducted by the relevant G2B initiative by itself or business owner who is the customer of the G2B initiative.

Changing the approach of the management factor is positively accepted in the G2G model, whereas it is negatively associated with the G2B model. There are fundamentally many reasons explaining the results of the analysis that there should be a change in the management of the G2G model in Azerbaijan. From the perspective of institutional trust, it is visible that the respondents do not trust the level of management in G2G initiatives. Therefore, their open willingness to have a chance at the management level of the G2G model. Human-related factors in G2G processes are as important as in the G2B model. It is due to the fact that the application of ICT tools requires competitive human capital and management. With the lack of skills and management, the success factors of e-governance decrease. The lack of management in the public sector stems from the inadequate skillful labor in comparison with the business sector, the involvement of many institutions and bureaucratic barriers, lack of an organizational culture of innovation, and the overall complex nature of the government sector. Therefore, management factors should be conducted in the G2G sector rather than in the G2B sector based on the results of the surveys.

Moreover, the application of the management concept in the G2G sector should be conducted through strategic management. Formulation and implementation of strategies could lead to value-added in the public sector. Changing the approach of the management in the G2G sector should incline toward the integration of management approaches. More precisely, strategic

management is not merely strategic planning. It further needs the strategic implementation process. As a result, the integration of such management could have efficiency in overall management. Organizational culture, mission, vision, and values must incorporate with the business mind inclined nature. If the management would be provided in such a way, the ultimate results would be yielded with the successful provision of G2G initiatives. Therefore, the experts of the survey consider changing the approach of management is important in the G2G model, not in the G2B model.

5.4 Limitation of the study

This study has several limitations. First, the sample size of 37 participants is relatively small, which can be considered that the findings of our study cannot be generalized. In spite of that, this is the usual problem of the survey studies when you have focused groups, particularly experts in the area investigated. However, it must be noted that the research can be used as a guide in a certain area which solely is left for the consideration of future study authors.

The second limitation of the study is that independent variables (e.g., security, organizational culture, training, infrastructure, concept and application, management, e-services, monitoring) are proxied and calculated based on the survey-experiment data which can lead to bias in our analysis. But, to the best of our knowledge, this is the first study to conduct this type of study to examine the factors affecting e-governance in Azerbaijan. By compiling the list of the variables from the international studies and using their techniques on survey experiments can decrease this concern for the current study.

The age variable of the respondents in this research paper ranges from 22 to 39. It could be considered as a limitation because there is an alternative that the older respondents could not be reached. Firstly, the main reason behind such age range of the respondents is that even though the

respondents are expert and knowledgeable in their fields, they have been mostly appointed newly. Moreover, the surveys are conducted in the entities where the young people are given priorities in higher positions. However, it is suggested that future studies should find possible alternative approaches to reach the older participants, too.

Lastly, the language of the surveys is specifically chosen English due to the fact that the translation of certain concepts could cause misunderstanding. The respondents have also been specifically chosen from the group whose level of English language is quite good and competent. Because of this reason, the sample size is small. If the surveys were conducted in the native language, the sample size would have been quite large. Hence, the respondents do not only possess English language skills, but they are also from the field where they know the topic very well and are professionals.

5.5 Future study

The result of the G2C model should raise the concern among the policymakers to know why participants do not grant this scenario for the Azerbaijan case. Future research on this finding can be extended and can explore the missing factors influencing G2C e-governance. The relevant demographic control variables were included based on the previous research. We believe that there can be also other control variables that are omitted in our study, and we are unable to account for them. Mainly those omitted variables are stable over time, which can be perceived that they are normally explained by the fixed effects. Future research may explore these relevant variables that vary among the participants and include them in our proposed model.

Although 66.7 percent of the respondents in the G2B scenario favored e-government security as an important factor in the provision of G2B initiatives, it is found out in the analysis that it has a negative association with the G2B scenario. In G2B models, non-commercial

interaction of public entities and private organizations are considered with the notion that these two entities will exchange the best practices in government and business-related sectors. Thus, businesses mainly seek the ultimate profit maximization. The provision of e-government security should be provided by the government from the perspective of business in G2B models because sharing such responsibility could have a negative effect on the budget reallocation for businesses. Moreover, the management of the security threats requires adjustments and changes in business processes including, technological infrastructure, customer interface, customer expectations, etc. Therefore, the e-government security variable could be negatively accepted by the experts in the G2B scenario.

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Appendix A

Government-to-Government (G2G) Survey

Demographic questions:

1. Age
2. Gender
    - Male
    - Female
    - No answer
3. Income level
    - Low
    - Middle
    - High
    - Do not know
    - No answer
4. Years of education
    - Primary
    - Secondary
    - Post-secondary
    - Tertiary
    - Do not know
    - No answer

Government-to-Government (G2G) scenario:

In this section, you are going to refer to the G2G scenario in which you will be introduced with few concepts and will be asked to weight the importance of those concepts for G2G initiatives.

Government to government (G2G) is the electronic sharing of data and/or information systems between government agencies, departments or organizations. The goal of G2G is to support e-government initiatives by improving communication, data access and data sharing.

1. Infrastructure, as a reasonable level of global connectivity and network infrastructure capacity for key sectors to take advantage of leading edge technologies, is rolled out as part of an overall program that includes a wide range of actions. To what extent infrastructure is important in provision of G2G initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know
    - No answer
2. E-government security is an important factor that should be considered in the architecture because of numerous potential technical challenges that may occur in e-government implementation. To what extent security solution is important in provision of G2G initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent

- Not at all
- Do not know
- No answer

3. Organizational change and issues quantify variables to measure the level of transformation; understand the characteristics of the barriers during the transformational process of E-Government; migration from conventional paper invoices to E-Invoices; investigate alternative means of preventing corruption (anti-corruption strategy); implement one-stop shops for enterprises; provide a tool to aid the detection of fraud in areas of vital importance with a direct relation to the overall cost of business. To what extent the cultural and organizational differences of public agencies plays important role in the successful provision of G2G initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know
4. Training of the public agency staff members is important factor in e-government initiatives because e-government is developed and launched with the aim of having user friendly system and equipped with the latest technology. Therefore, training will lead to the smooth learning process to communicate the usefulness and benefits of e-government systems. To what extent training of staff members of public agencies is important in provision of G2G initiatives?
    - To a large extent

- To a medium extent
- To a small extent
- Not at all
- Do not know

5. Content and application concept are reviewed in e-government because the needs of the users in e-government provision through the proper content is an important factor when Information and Communication Technologies (ICT) is applied. the integration of databases, applications, or overall software is essential because integration process can be best achieved through the interoperability by applying the primary application standards and procedures. How does content and application (customer-oriented system, monitoring system, integration of database, overall software etc.) contribute to the successful provision of G2G initiatives?
   - To a large extent
   - To a medium extent
   - To a small extent
   - Not at all
   - Do not know
6. Changing the approach of management in the government as well as the existence of capable managers are important because of their power for resolving emergent problems. The proper management of the government services leads to the identification of opportunities and turning opportunities into the effective delivery of the services. To what extent the human related management issues is important in provision of G2G initiatives?
   - To a large extent

- To a medium extent
- To a small extent
- Not at all
- Do not know

7. E-service is an interaction between the provider and customer through the online channel. E-service is considered to the degree of how products and services can be digitized. To what extent e-services is important in G2G initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know
8. Monitoring is a process of comparing one's e-government characteristics in different periods for measuring improvements after development of changes in e-government solution of the same administration. Meanwhile, evaluation is an activity of assessment in which some objectives and perspectives are considered. To what extent the monitoring and evaluation (M&E) is essential in the provision of G2G initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know

Appendix B

Government-to-Business (G2B) Survey

Demographic questions:

1. Age
2. Gender
    - Male
    - Female
    - No answer
3. Income level
    - Low
    - Middle
    - High
    - Do not know
    - No answer
4. Years of education
    - Primary
    - Secondary
    - Post-secondary
    - Tertiary
    - Do not know
    - No answer

Government-to-Business (G2B) scenario:

In this section, you are going to refer to the G2B scenario in which you will be introduced with few concepts and will be asked to weight the importance of those concepts for G2B initiatives

Government-to-Business (G2B) is the category of e-government that focuses on interactions between government and various organizations, including businesses and nonprofits, to support transactions such as contract bids, data collection, and grants.

1. Infrastructure, as a reasonable level of global connectivity and network infrastructure capacity for key sectors to take advantage of leading edge technologies, is rolled out as part of an overall program that includes a wide range of actions. To what extent infrastructure is important in provision of G2B initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know
    - No answer
2. E-government security is an important factor that should be considered in the architecture because of numerous potential technical challenges that may occur in e-government implementation. To what extent security solution is important in provision of G2B initiatives?
    - To a large extent
    - To a medium extent

- To a small extent
- Not at all
- Do not know
- No answer

3. Organizational change and issues quantify variables to measure the level of transformation; understand the characteristics of the barriers during the transformational process of E-Government; migration from conventional paper invoices to E-Invoices; investigate alternative means of preventing corruption (anti-corruption strategy); implement one-stop shops for enterprises; provide a tool to aid the detection of fraud in areas of vital importance with a direct relation to the overall cost of business. To what extent the cultural and organizational differences of public agencies plays important role in the successful provision of G2B initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know
4. Training of the public agency staff members is important factor in e-government initiatives because e-government is developed and launched with the aim of having user friendly system and equipped with the latest technology. Therefore, training will lead to the smooth learning process to communicate the usefulness and benefits of e-government systems. To what extent training of staff members of public agencies is important in provision of G2B initiatives?

- To a large extent
- To a medium extent
- To a small extent
- Not at all
- Do not know

5. Content and application concept are reviewed in e-government because the needs of the users in e-government provision through the proper content is an important factor when Information and Communication Technologies (ICT) is applied. the integration of databases, applications, or overall software is essential because integration process can be best achieved through the interoperability by applying the primary application standards and procedures. How does content and application (customer-oriented system, monitoring system, integration of database, overall software etc.) contribute to the successful provision of G2B initiatives?
   - To a large extent
   - To a medium extent
   - To a small extent
   - Not at all
   - Do not know
6. Changing the approach of management in the government as well as the existence of capable managers are important because of their power for resolving emergent problems. The proper management of the government services leads to the identification of opportunities and turning opportunities into the effective delivery of the services. To what extent the human related management issues is important in provision of G2B initiatives?

- To a large extent
- To a medium extent
- To a small extent
- Not at all
- Do not know

7. E-service is an interaction between the provider and customer through the online channel. E-service is considered to the degree of how products and services can be digitized. To what extent e-services is important in G2B initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know
8. Monitoring is a process of comparing one's e-government characteristics in different periods for measuring improvements after development of changes in e-government solution of the same administration. Meanwhile, evaluation is an activity of assessment in which some objectives and perspectives are considered. To what extent the monitoring and evaluation (M&E) is essential in the provision of G2B initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know

Appendix C

Government-to-Citizens Survey

Demographic questions:

1. Age
2. Gender
    - Male
    - Female
    - No answer
3. Income level
    - Low
    - Middle
    - High
    - Do not know
    - No answer
4. Years of education
    - Primary
    - Secondary
    - Post-secondary
    - Tertiary
    - Do not know
    - No answer

Government-to-Citizens (G2C) scenario:

In this section, you are going to refer to the G2C scenario in which you will be introduced with few concepts and will be asked to weight the importance of those concepts for G2C initiatives

Government-to-Citizens (G2C) is the communication link between a government and private individuals or residents. Such G2C communication most often refers to that which takes place through Information and Communication Technologies (ICTs) but can also include direct mail and media campaigns.

1. Infrastructure, as a reasonable level of global connectivity and network infrastructure capacity for key sectors to take advantage of leading edge technologies, is rolled out as part of an overall program that includes a wide range of actions. To what extent infrastructure is important in provision of G2C initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know
    - No answer
2. E-government security is an important factor that should be considered in the architecture because of numerous potential technical challenges that may occur in e-government implementation. To what extent security solution is important in provision of G2C initiatives?
    - To a large extent

- To a medium extent
- To a small extent
- Not at all
- Do not know
- No answer

3. Organizational change and issues quantify variables to measure the level of transformation; understand the characteristics of the barriers during the transformational process of E-Government; migration from conventional paper invoices to E-Invoices; investigate alternative means of preventing corruption (anti-corruption strategy); implement one-stop shops for enterprises; provide a tool to aid the detection of fraud in areas of vital importance with a direct relation to the overall cost of business. To what extent the cultural and organizational differences of public agencies plays important role in the successful provision of G2C initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know
4. Training of the public agency staff members is important factor in e-government initiatives because e-government is developed and launched with the aim of having user friendly system and equipped with the latest technology. Therefore, training will lead to the smooth learning process to communicate the usefulness and benefits of e-government systems. To

what extent training of staff members of public agencies is important in provision of G2C initiatives?

- To a large extent
- To a medium extent
- To a small extent
- Not at all
- Do not know

5. Content and application concept are reviewed in e-government because the needs of the users in e-government provision through the proper content is an important factor when Information and Communication Technologies (ICT) is applied. the integration of databases, applications, or overall software is essential because integration process can be best achieved through the interoperability by applying the primary application standards and procedures. How does content and application (customer-oriented system, monitoring system, integration of database, overall software etc.) contribute to the successful provision of G2C initiatives?
    - To a large extent
    - To a medium extent
    - To a small extent
    - Not at all
    - Do not know
6. Changing the approach of management in the government as well as the existence of capable managers are important because of their power for resolving emergent problems. The proper management of the government services leads to the identification of

opportunities and turning opportunities into the effective delivery of the services. To what extent the human related management issues is important in provision of G2C initiatives?

- To a large extent
- To a medium extent
- To a small extent
- Not at all
- Do not know

7. E-service is an interaction between the provider and customer through the online channel. E-service is considered to the degree of how products and services can be digitized. To what extent e-services is important in G2C initiatives?

- To a large extent
- To a medium extent
- To a small extent
- Not at all
- Do not know

8. Monitoring is a process of comparing one's e-government characteristics in different periods for measuring improvements after development of changes in e-government solution of the same administration. Meanwhile, evaluation is an activity of assessment in which some objectives and perspectives are considered. To what extent the monitoring and evaluation (M&E) is essential in the provision of G2C initiatives?

- To a large extent
- To a medium extent
- To a small extent

- Not at all
- Do not know

Appendix D

Sample Selection

Sample Selection	Number
Total number of the respondents	**39**
Government-to-Government (G2G) model	13
Government-to-Business (G2B) model	12
Government-to-Citizens (G2C) model	14
Less: the respondents who are not expertise in either G2G, G2B or G2C model	2
Final Sample	**37**