

# The Engines to a Successful Digital Transformation Process

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## Summary

The main goal of this study is to set a roadmap for government sectors (GS) to transform their legacy systems to a digitized system. This roadmap offers the foundation for the digital transformation process to be adopted particularly in the Saudis' governmental sectors. Aiming at facilitating the digital transformation in a clear way that shows the main important factors to be considered in the transformation journey. In this research, insights from fifty respondents to our survey have been obtained. Consequently, a model that represents the engines of successful digital transformation is born. This research can also inspire further research that can lead to better governmental services in alignment with the Saudi vision 2030.

## Key words:

*digital transformation, Government sector (GS), vision 2030, strategic roadmap, logistics.*

## 1. Introduction

This research presents a roadmap for digital transformation, or digitalization, in the Government Sectors (GS) of the kingdom of Saudi Arabia (KSA). A timely-based plan that maps the current state of sectors' digitalization process's status, of moving legacy systems to a digitalized integrated system, with the desired goal of the KSA's vision 2030 for digital transformation along with the approach to work it through (figure 1). As it can be seen nowadays, the different GSs are working extensively in pursuing the achievements of the goals of the KSA's vision 2030. Digital transformation is perceived as a paradigm shift (Berman & Marshall, 2014) and the researchers propose a roadmap for the GSs to follow in order to move their procedures from their internal traditional systems to a digitalized integrated system, taking in consideration the three main transformation drivers, customer; technology; and local and global competition [1].

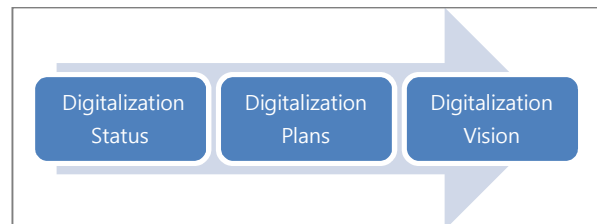


Figure 1 Basic digital transformation (digitization) process

It is a necessity for GS to fulfill transparency, integration, competition, sustainability, services improvements, employees' empowerment, and innovation encouragements to achieve greater efficiency and flexibility. These factors play a great rule in driving GSs toward achieving digital transformation for their processes, along with ensuring the achievements of integration, customer satisfaction, and competition. And for delivering these digitalized processes to their beneficiaries GSs need to work on their logistics to ensure secure and proper delivery. The term logistics which is broadly referred to as the processes of coordinating and moving resources of people, materials, inventory, and equipment to its desired destination, applies to GSs digital deliverables. Digital transformation processes affect this governmental logistics that are represented in this research in data-driven services' records and customers' governmental documents delivery. Such logistics face challenges from the rapid technology advancement, implementations of new organizational and leadership structures, and the integration of real-time information exchanged within the internal sector's process and other GSs' services, along with the seamless cooperation with the private sector. Hence, to meet the objectives of performance in logistics in GSs, both government and industry must agree on business practices that provide the greatest value for all parties [2].

To achieve a successful digital transformation, important steps need to be fulfilled. There are many studies that addressed digital transformation and approves the fact that you cannot just buy a digital thing and plug it into the organization [3]. According to Manikas et al. (2016), a digital ecosystem needs to consider three continuous and re-

iterative steps of pre-analysis, design, and lastly, monitoring and evaluation (see figure 2) [4].

Moreover, maintaining a mix of both people and technology to facilitate the process of digital transformation; collecting and analyzing data to make business decisions, and maintaining digital transformation a top priority when formulating business strategy. In addition, defining digital transformation frameworks for people and their skills, technology infrastructure, and internal processes. According to Mirković et al (2019), digital transformation is imperative due to its necessity to maintain competing on the market. Hence, GSs need to make significant structural changes [4].

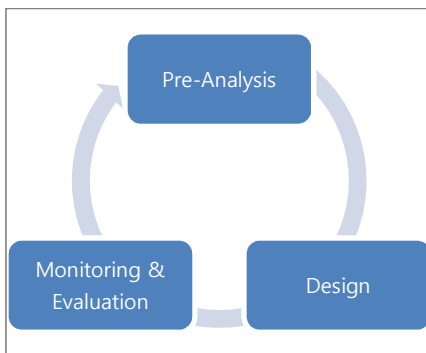


Figure 2 A digital ecosystem steps

Most of the common barriers that face and affects digital transformation are as follows:

- Lack of clear vision and objective of digital transformation
- Lack of management understanding, knowledge and experience
- Lack of leadership skills
- Lack of organizational agility, rewards and incentives
- Lack of digital transformation alignment with unclear measurement and rewarding system
- Lack of employees' involvement and engagement and employees' resistance to change.

However, since digital transformation can lead to improvements in GSs, they need to enforce significant changes in their structure, employments, perspectives, investments, along their openness to change and acceptance of modern technologies [4]. In reference to the organizational models presented in figure 3, it has been revealed that GSs mainly follow the "centralization model". Digital strategies and funds in GSs are managed at an enterprise/corporate level by the governmental regulatory entities, who enable the different GSs to scan the market for opportunities and provide a central team to work with

business units for implementation to achieve the government vision [4]. Alghamdi and Beloff (2016) suggested that GSs needs to consider the most critical influencing factors of personal, motivational, technical and reliability factors as mentioned in their proposed E-Government Adoption and Utilization Model (EGAUM) (see figure 4) when starting the digital transformation and the adoption processes of government digitalizing [5].

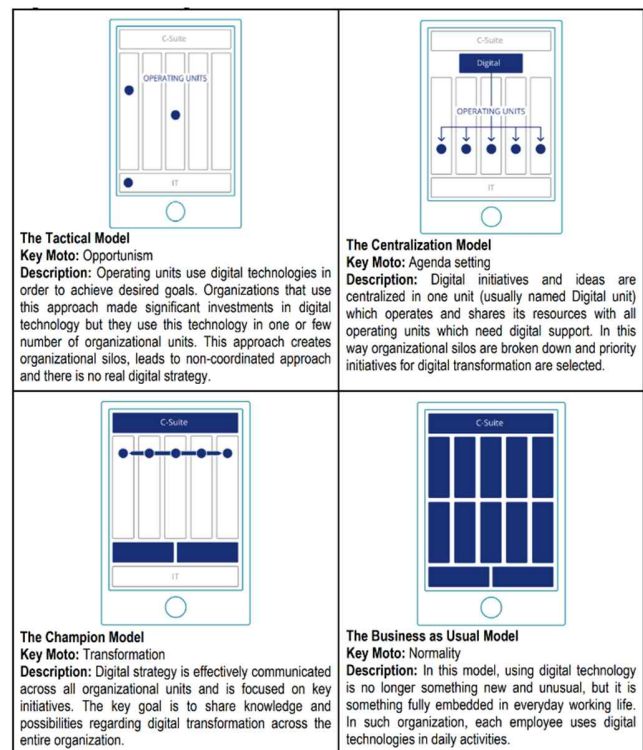


Figure 3 Organizational models for digital transformation Source: [4]

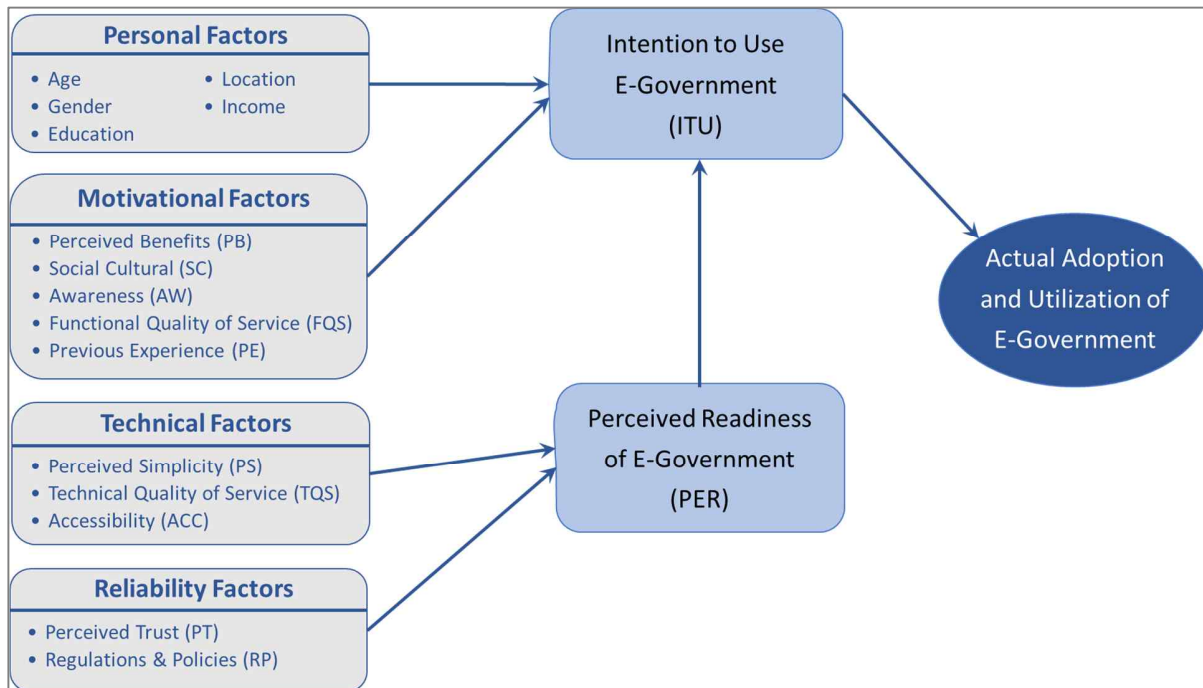


Figure 4 proposed in the E-Government Adoption and Utilization Model (EGAUM) | Source: [5]

In the following section, we will support our study with the theory of change (ToC), and we will explain how it inspires the creation of our proposed model.

**The supporting theory**

In this study, we have used the Theory of Change (ToC) defined by Lewin, 1958, as “the ideas and hypotheses (‘theories’) people and organizations have about how change happens. These theories can be conscious or unconscious and are based on personal beliefs, assumptions and a necessarily limited, personal perception of reality” [6]. We used ToC for its relation to the transformation situation and for ToC’s rigorous yet participatory process, where groups and stakeholders in a planning process articulate their long-term goals and identify the conditions they believe that needs to be revealed for those goals to be met [7].

**2. Objectives**

Recently, the process of digital transformation has been rapidly spreading among both government and private sectors to achieve alignment with the KSA’s vision 2030. And since the scope of this research is focused on GSs who desires to move from their traditional systems to the fully digitalized integrated system; the researchers aim to present

a roadmap for this digital transformation process particularly for GSs. It is hoped that this roadmap can provide the steps for the digital transformation process throughout the derived results from previous studies and this study’s collected data. Based on both primary and secondary data (indirect observations, survey results, and literature review). It is clear that the concept of digital transformation in the GSs is following the "paperless" direction. However, the concept of digital transformation goes far beyond that aim. We see that digital transformation aims at achieving the integration within organizations’ internal departments and externally with all other sectors, achieving transparency in their transactions and foremost attaining customer satisfaction.

To facilitate the process of digital transformation within those sectors, we propose a roadmap to facilitate the digital transformation process in GSs. Starting the first step with setting the strategic goals of the digital transformation within the GS. Then, proceeding to the next stage of setting a methodology to govern the digital transformation process. Reaching afterward, to the most important and sensitive step in the process, of applying better practices to improve the digitalization processes. Then, moving to the selection and activation of compatible technologies with the existing processes and supports the development of efficient IT infrastructure.

The role of the next step is to deliver the "data" which comes in two main points.

- First: data management through the archiving system and the other systems.
- Second: making data available and accessible to the employees and beneficiaries.

Then comes the role of the logistics for delivering the services provided by each sector, which is required to diversify the service delivery channels and focus on retaining its quality and reaching the beneficiary satisfaction of the provided digitized services.

There is no one-size-fits-all approach to a successful digital transformation. Hence, GSs need to fully understand their resources and capabilities, their gains from digital transformation, and the value-added for them and their customers. The researchers in their proposed roadmap for GSs took into consideration the existing work culture within GSs and the need for cooperation with the private sector in their engaged processes and logistics. The "top to bottom" mechanism, which imposes governmental regulations, shall be considered as well as a basic step when starting the process of digital transformation.

Given the continuous need for digital transformation within GSs, and the constant pursuit to provide the best services to their beneficiaries, the lack of a proven unified roadmap to be followed in the transition process of the GS's existing traditional systems to a digital system. This deficiency may cause the failure of their digital transformation and the inability to reach the kingdom's strategic goal of digital transformation's integration, transparency and customer satisfaction.

This research seeks answers to the following questions:

- 1- Why is Digital Transformation essential for your organization?
- 2- What are the basic steps when initializing the digital transformation process?
- 3- What factors affect the success of the digital transformation?
- 4- What are the drivers of digital transformation within government sectors?
- 4- How to employ digital transformation in government logistics?

Challenges to a successful digital transformation of government logistics operations include the lack of expert employees. "Low digital expertise among colleagues and leadership" leads the list of challenges at 31.4%.[8]

### 3. Methodology

The undertaken study conducted both qualitative and quantitative research methods to measure the degree of satisfaction of the internal beneficiaries from the process of digital transformation processes currently taking place

within government sectors. By mixing multiple methods in a form of triangulation in research, it is hoped that weaknesses found in single method researches are mitigated. The first research method was a questionnaire scientifically based on the ToC on a non-random sample of government sector's employees, which aimed to measure the impact of the current digital transformation process in the government sectors. And, the second research method used to be observations reported by researchers, as they work in two different government sectors, that emphasized the lack of a clear roadmap for implementing the digital transformation initiatives that are taking place in their GSs. The most important steps taken in the process of digital transformation, and consistent with the steps of the ToC are as follows:

1. Determine the long-term goals and the assumptions underlying the lags behind these goals, by working on the preconditions or requirements that are necessary to achieve this goal and explaining the reason behind them.
2. Expressing assumptions about what exists in the system which theory will not work without, along with rationales to answer why these outcomes are necessary preconditions to other outcomes.
3. Weighing and choosing the most strategic intervention to make the desired change.
4. Developing indicators to measure progress on desired outcomes and assess the initiative's performance.
5. The Quality review should answer three fundamental questions about the theory of being, 1) Reasonable, 2) doable (or feasible), and 3) testable.
6. Writing a narrative text explaining the summary logic of the initiative.[7]

In this research, the presented roadmap is suggested to facilitate the transition process from the traditional system to the digital system in GSs who desire to achieve the digital transformation initiative. The roadmap starts with defining the strategic goals and objectives of the digital transformation initiative and then setting a methodology for the governing the digital transformation process "governance", then improving internal processes through reengineering and applying best practices. Later comes the role of logistics, through technically providing infrastructure, networking and data storage, making the data available and accessible through GSs' services that are delivered to their beneficiaries and ensuring their quality. Finally, with all factors acting as engines working in harmony with one another, we achieve the "beneficiary experience".

#### 4. Results

We received fifty replies from the survey. Based on the results, concerning strategic planning for digital transformation, the results varied between 60% of responders who works in GS that have a strategic plan for digital or electronic transformation. However, those plans included a vision, mission, goals and indicator measures aligned with the strategic goals of the sector. In contrast to 40% who work in GS, they are still taking some steps to develop such strategic plans.

Notably, the application of enterprise architecture practices, the majority 80% of the responders are part of GSs working on implementing the enterprise architecture project with a formed committee to follow up project progress. Whereas 20% of the responders work in GSs who have completed the enterprise architecture project and have built their roadmap for digital transformation processes, covering the business sector along with information technology linked to the sector's strategic goals.

Concerning raising the skills of GSs' employees within the process of digital transformation, 70% has taken steps toward acquiring the knowledge and skills necessary to achieve the strategy of digital transformation, such as determining the needed training; 20% of the responders' GSs prepared an approved training plan to acquire the knowledge and skills necessary to achieve the digital transformation strategy. Whereas 10% of the responders GSs enroll their employees in several training programs in the field of digital transformation and works to cope up with the emerging technologies and modern trends in the field of digital transformation and trains those involved in it. Overall, in developing a framework and a methodology for the governance of the digital transformation process, 80% of the responders' GSs apply methods to monitor performance and responsibilities' compliance without a unified nor documented framework for governance and management of digital transformation project. However, 20% of the responders' GS are working on developing unified framework projects for the governance of digital transformation that includes all authorities, responsibilities and performance standards, along with following-up and continuously questioning those involved in the digital transformation process and applying the necessary corrective measures. Accordingly, to processes re-engineering, 80% of the responders' GSs had completed the documentation of all processes and procedures and are working on studying, analyzing and redesigning these documents toward better-re-engineered processes and procedures, whereas, 20% of the responders' GSs had only started with few initial steps to document and slightly improve their processes and procedures.

In regard to infrastructure management with compliance to best practices, 80% of the responders' GSs had developed standards, policies, goals, and operations related to technical services management and infrastructure management in compliance to international best practices such as ISO, and 20% had started to take initial steps towards developing technical services management and infrastructure management operations.

Furthermore, data analysis shows 50% of the responders' GSs ensures that their internal data are integrated with other external data in their business intelligence and decision support systems; 30% provided the necessary system for business intelligence and decision support working with limited data sources and on a narrow-scoped system, whereas 20% took steps to provide business intelligence systems and support decision-making.

With regard to managing the quality of services following best practices, 60% of the participants had identified some criteria for measuring and monitoring the quality of electronic services; and 40% had identified necessary standards for measuring and monitoring the quality of provided electronic services.

Regarding the logistics of service delivery channels employment, 60% of the responders' GSs made a portion of their services available throughout various channels, depending on their prepared plan; 25% monitors the performance of the provided services various channels continuously observing and improving them; 10% prepared plans to define the channels that can be offered to provide their services and put indicators for measuring the performance of these channels, and the rest of 15% offered their services on all possible available channels according to their stated plans and are continuously monitoring the performance of these channels.

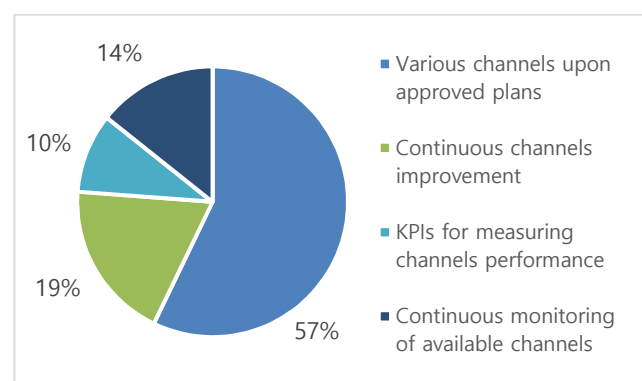


Figure 5 Logistics employment of service delivery channels

And with regard to beneficiary participation and decision-making; 65% of the participants' GS continuously monitors their beneficiaries' feedback of comments, posts and complaints received and take the necessary measures and



decisions upon them; 35% of the participants' GS authority provided the necessary electronic channels such as social media channels according to their designed plan to enable a channel to get the beneficiaries general comments, complaints or participate in posted polls.

For strengthening the relationship with the beneficiary, 50% of the participants' sectors GS implemented mutual marketing campaigns and exchanged expertise with other parties to enhance the relationship with their beneficiaries; 25% developed a plan to enhance the relationship with their beneficiaries, and the rest of 25% of the participants' GS took steps to enhance their relationship with their beneficiaries relying on few electronic channels. In the hope that granting the beneficiary a smooth and satisfying digital experience, 40% of responders' GS took no measures in this regard or took few primitive steps to improve the beneficiary experience; 30% had set a vision for the beneficiary's digital experience and its goals along with developing plans for the change and mechanisms for dealing and interacting with the beneficiaries, and 20% had put all their service departments efforts to improve the experience of the beneficiary through digital media and replaced the remained traditional work methods internally and externally.

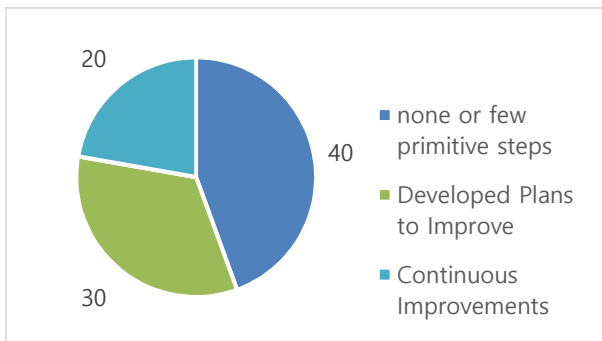


Figure 6 Government sector efforts toward beneficiary experience

Furthermore, participants' suggestions agreed on the following measures to be taken into consideration when working on the digital transformation plans:

- There is an urge for clear and open procedures and policies for everyone
- The need for training and preparation of employees in the digital transformation process
- The need for data integration process's management, and IT infrastructure management

## 5. Discussion

Altogether, the results from the participants' sample of GSs' department managers and the administrative staff; along with the observation results carried out by the researchers,

it is clear that there is great attention taken by GSs in the process of digital transformation to achieve the vision of the KSA's Vision 2030. It can be said that 60% of GS has begun to develop a strategic plan for digital transformation that included vision, mission, and goals, along with governance controls that follow methods to monitor performance and compliance with responsibilities without a unified and documented framework for governance and management of digital transformation. However, 20% reached the process of the engineering stage who had started with primitive steps to document and improve their existing processes and procedures. And for employing technology channels, only 10% of the sectors offer their services through all possible available channels planned, continuously follow up on the performance of services' delivery channels.

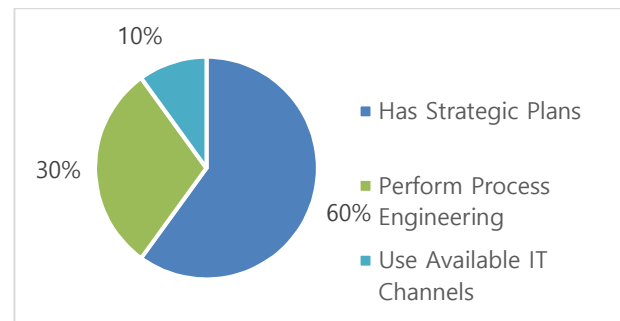


Figure 7 Government sectors digitization status

To summarize, there are digital transformation plans and activities taken within GSs, however, they lack a roadmap for this transitional phase. Hence, as supported and confirmed by the ToC mentioned earlier, such a roadmap of clear and specified stages is an essential need for the desired change to be carried out.

Thus, this research offered the fundamental factors that affect the success of this digital transformation process. As shown in figure 8, the suggested model starts with defining the strategic goal and then setting up a "governance" methodology to carry it out. After that comes in cooperation, both improving the internal processes and applying best practices. That is technically managed under the properly planned infrastructure, through managing the data and making them available. Then comes the GSs' provided services roles and how these services under logistics channels are utilized and delivered to their beneficiaries along with its ensured quality; Finally, there comes the customer or beneficiary. All factors represented in figure 8 with gears are meant for being working together in harmony

as engines to one another to process GSs strategic goals to achieve their customers\beneficiaries' satisfaction.



Figure 8 Model of the Engines to a Successful Digital

## 6. Conclusion

Notably, the reached results focused on the necessity of the existence of a clear roadmap grounded on the ToC for the employees during the process of moving from the traditional system to the digital system under the regulations of GSs and their work mechanisms.

There is a necessity for the digital transformation within the GSs, prompted through three factors which are:

- The integration among all sectors,
- Transparency
- Customer satisfaction.

In the long run, future work needs to be considered to review the impact of employees' resistance on the digital transformation process and include activities to overcome their negative impact on the suggested roadmap. Also, studying the results of this roadmap model of adoption in government digitization processes. Transformation Process Figure 8 shows a suggested model that can be used as a roadmap assuming that technology adoption and employee resistance issues are resolved.

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