

# Exploring the impact of the relationship between the digital transformation and the performance efficiency at governmental sector

By

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**Abstract.** The challenges that governments confront towards compelling the utilization of their rare assets or maximizing regulatory and financial returns, drive governments to explore the components that empower them to attain those objectives. Among these instruments, the so-called transformation to automated frameworks that start with a good investigation of procedures, re-engineering methods and forms to attain all offices for merchants, increment preventive control over state assets, and anticipate all shapes of debasement and the manhandle.

The digital transformation showed up after the digital transformation at smartphones, their applications, and the spread of cloud computing program, which quicken the pace of digital transformation that changed completely different divisions

like legislative ones to extend the productivity of government execution. Those transformations accomplished the government's objectives as expanding offices, and drawing in all sorts of ventures, hence diminishing unemployment rates, citizens 'satisfaction, and increasing peoples' welfare. Moreover, the Covid-19 widespread was one of the foremost vital reasons for quickening the pace of digital transformation change.

Moreover, we would like to include that the foundation of the new capital city within the Egyptian government has been a support for the digital transformation.

**Keywords:** digital transformation, E-government, performance efficiency.

## 1. Introduction

This paper aim to clarify how digital transfor-

mation may lead to make strides the productivity at the legislative division, and is considered as an expansion of the so-called e-government. Given the returns that can be accomplished by digital transformation changes to dispense with bureaucracy in working methods, in addition to exchanging to digital transformation forms that make strides execution productivity, efficiency of allocating resource which lead to realize the advanced administration goals that citizens get. There is no question that the worldwide emergency confronting the world in 2020 due to (COVID-19) malady that necessity social distancing led to enforce the digital transformation that has been of the most extreme significance to preserve the cycles of financial activities.

In this paper we will try to answer the following question: "Is there a relationship between digital transformation and improving the performance efficiency in the government sector? That's why we will investigate the factors and measurements that influence at the relationship, measure to what extent do the patterns of these factors or measurements influence this relationship, and study the future benefits of the analysis of these factors, measurements, and the relationships among them in the light of studying their trends.

#### Literature review:

### 2. Digital transformation concept

The digital transformation is considered as an extension of concepts such as the digital economy, e-government or digitization processes, where e-government is defined as the use of govern-

ment automated applications, communications, information systems and advanced technology through websites to provide services to all individuals and citizens to increase opportunities for participation (Fang, 2002). many researchers addressed the concept of digital transformation so it is known from SMEs point of view as the central and integrated coordination of data circulation in a way that clarifies the priorities for activating digital transformation (Pelletier & Cloutier, 2019). Moreover, from business and showcasing point of view it is a way to automate business operations and display products in digital form to make information available based on the technology apps and web applications (Ekman et al., 2019). Digital transformation is also known as a process of providing value to users by integrating digitization and technology into business, which leads to a change in how it operates (Aly, 2020). In other definitions it is also considered as a strategic preference to enhancement the performance of senior leaders and keep pace with global developments in technology and the digital economy (Wang et al., 2020), the last definition very is important as it focuses on the strategies and leadership.

The common aspect of the above definitions is the reliance on technology in the concept of digital transformation. The focus was on circulation and integration of data at times and on the value provided to the recipient of services or products and at other times on human resources, the strategies and finally on operations. There are four dimensions of independent variable related to digital transformation that are mentioned by Bonanomi

et al. (2019) as operations, strategic, services and people readiness. The most important sub-variables that may affect the dependent variable is improving the efficiency of government performance.

The comprehensive and general concept of the digital transformation is the transformation of existing business models into automated business models based on the big data concept and data analytic tools, so from that analysis we can conclude that the digital transformation is not just an improvement in business performance models, but it helps decision makers in strategic planning and improving operations performance. We will focus here on digital transformation at governmental sector. The growing benefits and achievement can be reached when applying that for citizens at governmental sectors. Digital transformations at governmental sectors has a wide meaning, as there are a lot of governmental segments for example health, education, infrastructure, fiscal and economic sectors services, and last one is our aim. Given the belief that significant progress in the financial sector, whether in the short or long term, and reforming this sector will achieve efficiency in financial performance that will lead to obtaining good indicators (Wang et al., 2020). Where the so-called term fintech was introduced, which is expressed in the use of technology in financial and business processes and the interaction with the recipients of services and products electronically (Breibach et al., 2019). In addition to the interest that the Egyptian Ministry of Finance attaches to this financial aspect in or-

der to benefit from technology to achieve preventive and governance oversight and increase the efficiency and effectiveness of public spending performance.

### 3. Digital transformation dimensions

There are many dimensions and meanings related and influencing digital transformation that researchers mentioned when dealing with their articles on digital transformation. This article studies those dimensions through the questionnaire that will be mentioned later and focuses on the following dimensions or sub-variable:

#### a. Process and operations

Defined as how to deal with the types of inputs and convert them into outputs, depending on a group of different activities (Robbins & Coulter, 2016). So the digital transformation process and the concepts of modern technology based on new technological terms as the cloud, case risk management, process re-engineering and reliance on electronic forecasting processes to avoid any risks have a huge impact on the performance, in addition to use artificial intelligence that can accelerate digital transformation and the processes. The artificial intelligence defined as many techniques that enable machines to learn, research, explore, analyze and understand on their own to aid human deed (Aly, 2020), this definition confirm and lead to improve the performance efficiency. The intelligence analysis concept expose the relationship between digital transformation and depend on Big data concept (Ashwell, 2017). During this study, we must not forget that the financial operations that we target are part of the general

operations, and that they have a large share of vulnerability to digital transformation, as all operations are positively affected, which increases the efficiency of performance for Financial management, both in the short and long term (Wang et al., 2020). This increases the efficiency and effectiveness of operating procedures and processes, which demonstrates the possibility of reaching the positive relationship between digital transformation and performance efficiency.

#### b. Strategies

It is defined as the plans and methods that attain the long and the short term aims (David, 2011). but find the strategic management known as the ability to perform and assess decisions with multiple functions that would accomplish the goals of organizations to be done in a scientific and technical manner (David, 2011).

Wang et al. (2020) had proven that there is a positive relationship between digital transformation and its influence on strategic decision-making and policy development, Therefore, the analyzed micro data is also based on big data analysis that uses intelligence analysis (Ashwell, 2017), that uses a lot of electronic applications that would achieve the knowledge that may help various departments in taking decisions and setting the necessary plans and policies with an good expectation of the extent of the results that can be achieved, especially in the government sector and within the financial sector where the digital transformation achieves the integration of the various databases in all government agencies that would assist the strategic decision-maker in setting the priorities of government goals.

#### c. Services

It is defined as responding to implementation needs and benefits obtained (Kotler & Keller, 2015) whether it is a public or private benefit. The government sector is known for providing many public services and some public products that are predominantly strategic, such as electricity, water, etc., but given that most of what the government provides to citizens is the public services that it meets their needs, whose quality has worsened in previous periods or interspersed with some manifestations of corruption and dissatisfaction with citizens, such as unequal provision of service to all citizens with the same efficiency and quality. We found that digital transformation, which is an extension of the concept of e-government, came to provide many services to all citizens with same quality which was reflected in the satisfaction of citizen confidence (Mahmood, 2016). Given the advantages provided by the digital transformation, including achieving the governance, facilitating and reducing procedures for obtaining the service, preventing corruption and friction between citizens and workers in public entities by using technology, mechanized applications, the internet, smartphones and presence of electronic portals for services provided by public agencies and other public procurement (Chen et al., 2014) which will have many roles in providing those services in a better and faster way than before, reflecting the greater effectiveness and efficiency of public service performance this was reflected in the satisfaction and confidence of the citizens.

#### d. People readiness

The human resources readiness is defined as the ability of human resources and that range to which they are prepared to achieve a particular mission (Robbins & Coulter, 2016). so it considered one of the most important dimensions in activating digital transformation according to what he mentioned (Bonanomi et al., 2019), whether this individual is the recipient of government service who deals with it works on it. We can find resistant of human resource to digital transformation in the early stages due to lack of knowledge and the tendency of the human soul to what it knows. People start to support and welcome digital transformation after receiving high degree of training and making sure of the value that they get as a result of the digital transformation from what he was getting before, so the cognitive conflict of the human resource has a positive relationship with that dimension and will be taken as a moderating variable.

Also, we must not lose sight of the fact that human resources as effective leaders have a strategic role in activating or not digital transformation, which is mentioned by (Mergela et al., 2019). This point of view is highly supported by the researchers as if there are not willing, the human resource will be a demolition tool, but in the case they have desire to change, they will change all tools to help the digital transformation from many dimensions whether laws, legislations, organized regulations, organizational structures or interrelationships between government agencies. The Egyptian government are working on the establishment of the National Payments Center, which is headed by the leadership pyramid summit in

the Egypt, also the digital transformation committee was established headed by the minister of Finance. it aims to automate all The financial procedures of the state in a manner that guarantees the effective performance of the state's public finances.

#### **4. Moderating variables (cognitive conflict)**

As verified by Wang et al. (2020 ), there is an impact of the moderating variable of cognitive conflict on the relationship between the digital transformation represented by the individual's readiness dimensions and the effectiveness of the performance in general due to the impact of this variable on (U) shape on individuals dealing with digital transformation in government agencies performing public services for citizens who obtain these services. There is difficulty in making decision related to the digital transformation due to the different levels of all the parties involved knowledge, which requires good promotion of rapid shift in diminishing the resistance in this dimension which will be beneficial in formulating digital transformation plans. So, cognitive conflict is a type of cognition that operates by consensus or disagreement during the decision-making to accomplish something in common (Wang at el., 2020). It should be noted that if cognitive flourishing gets out of hand, the positive relationship ends immediately. The conflict begins when the human element resists change towards digital transformation, and then turns into support and acceptance once knowledge is increased, dealing skills are raised, training provided to clients or beneficiaries of digital transformation and the ability to improve the benefits for both parties. We

feel the progress that has been made from this change, so we have overcome this resistance through the growth of digital culture and knowledge as noted (Zoppelletto et al., 2020). It should also be kept in mind that in the event of support from senior leadership, they should formulate digital transformation strategies, as mentioned (Chaniyas, 2017).

### 5. Governmental performance efficiency

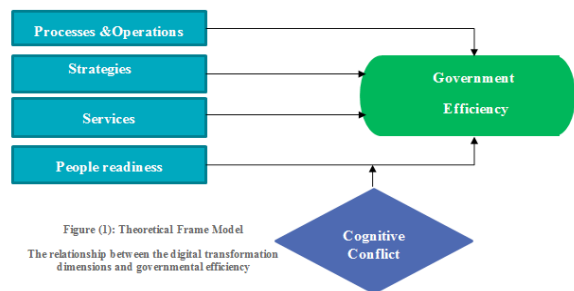
Organizational efficiency is characterized as the ability to deliver the most potential outcomes with minimal inputs (Robbins & Coulter, 2016). Due to the rare of resources, there is always a need to raise the efficiency of using and managing available resources to maximize the possible outputs. This paper focus on the efficiency of performance, despite the narrow link to effectiveness, which is known as working on implement the necessary activities to accomplish desired objectives (Robbins & Coulter, 2016). There are those who divided it by effectiveness performance between the organization and the human resources (Kalada, 1997), the digital transformation with its four sub-variables actually affects these two elements, whether in developing strategies, operating processes, human readiness, or services provided. Digital transformation aims to present those factors in digital form, taking advantage of technological advances, huge databases and advances in communication tools, including electronic fibers, which led to the increase in Internet speeds doubly as mentioned (Robbins & Coulter, 2016). By referring to the performance measurement to ensure effectiveness, we found that the measurement is what clarifies whether the matter is taking

place in the right direction or not. But in our case in the Egyptian government sector, we look to find out the relationship between digital transformation and effective performance Moullin (2007) definition is better applied as he mentioned that it is a quantitative measure of the efficiency and effectiveness of previous proceedings.

### 6. Research Methodology:

#### A. CONCEPTUAL FRAMEWORK

Through the previous studies, mentioned for all the variables related to digital transformation and its impact on the efficiency of government performance, it can be seen through the following theoretical framework where influential variables of digital transformation and affecting performance in the government sector are:



From the previous illustration (figure.1), which shows the four dimensions for digital transformation or sub-independent variables and the government efficiency as the dependent variable.

**1- Digital transformation:-** It is the main independent variable which is characterized as an ordering of the significance inside an integrator framework for the circulation of data in a coordinated and centralized manner for the implementation of digital transformation (Pelletier & Cloutier, 2019), but Bonanomi et al. (2019) operationalized this definition by dividing it into four dimensions

or sub-variables who have impact on the performance efficiency.

**2- Processes or Operations:** - It is a sub-independent variable which can be seen as the process of converting all kind of input resources into outputs in the form of final goods or services depending on the set of various activities, procedures and processes (Robbins & Coulter, 2016).

**3- Strategies:** - Is a sub-independent variable which is known as the methods that enable the achievement of long-term objectives (David, 2011).

**4- Services:-** It is a sub- independent variable which is referred to as the fulfilling of the customer's needs and requirements or the benefit provided to him (Kotler & Keller, 2015).

**5- People readiness:** - It is also a sub-independent variable which is defined as the range of competencies and ability of individuals to complete certain tasks (Robbins & Coulter, 2016).

**6- Cognitive Conflict:** - It is a moderating variable which defines the result of differing views in decision-making towards achieving a common objective (Wang et al., 2020), and it is influencing the relationship between the people readiness and the performance efficiency.

**7- Performance efficiency:** - It is the dependent variable that is known as the ability to obtain the greatest results from the output with the least volume of resources (Robbins & Coulter, 2016). Although efficiency is closely related to the element of effectiveness when there is a desire to improve the performance, this paper aims to explore the relationship between performance efficiency and digital transformation which is positively affected

by the previous four dimensions.

## B. HYPOTHESES

Through the previous studies, this article explores the impact of the relationship between improving the efficiency and effectiveness of performance in the government sector (as a dependent variable) and digital transformation (as an independent variable) and assumes that there is a positive relationship through its positive impact on some dimensions ( sub-variables ) as operations, policies, services provided and people readiness, whether the recipient of the government service or its provider. With The presence of a (U) shape relationship in with the last dimension that impact on people's readiness (as moderating variable), which represents a cognitive conflict, where individuals' resistance to the digital transformation increases in the beginning and changes to support and welcome with training and awareness. This relationship will be proven by the results of the survey, that will be discussed later.

## DATA COLLECTION AND DATA DISCERPTION

In order to study these hypotheses, a questionnaire was created to study the relationship between the sub-variables that shaped the digital transformation and the efficiency of performance in the governmental sector. The questionnaire was designed out of a total of 31 questions and was published electronically. The questionnaire included 22 objective questions and 9 demographic questions about gender, age, the occupational sector, whether governmental, public or private, educational level.

Whereas, the purpose of this questionnaire was

to review the opinions of participants from the government sector on the impact of digital transformation on the performance of the government sector, those who had the opportunity to deal with the digital transformation community, or the prediction of those who are expected to deal with it.

**By studying the results of the questionnaire, we found the following:**

The sample included (248) questionnaires, the response rate of which was 100%, the percentage of male respondents reached 68% Vs 32% of women. Various government agencies, ministries which find that 69% of the respondents in the government sector and they deal with digital transformation, most of whom achieve high educational level, as it was found that 95% have bachelor's degree, of whom are 55% of them have higher educated (high diplomas, masters and doctorates), which corresponds to the reality of dealers in digital transformation in the Government sector. moreover, the Egyptian governmental trend recently to increase the efficiency and skills of government sector employees and appointing many masters and doctoral holders in the Egyptian government sector. Based on the reality, we find that a higher percentage of our sample is employed in government organizations and agencies that have taken operational or planning steps within the framework of digital transformation, such as the Ministry of (Finance - Planning and Economic Development - Communications and Information Technology - Local and Governorates Administration - Transport and Civil Aviation - The Central Agency For

mobilization and statistics), which is in line with the results of the latest releases of the Statistics Authority on digital transformation in state agencies, as it stated that most of the agencies are (the Ministry of Finance, the Ministry of Communications and Information Technology, and the Ministry of Planning and Economic Development). The above supports the validity of the sample under study of the relationship between digital transformation and efficient performance in the government sector.

#### **DISCUSSION**

By analyzing the questionnaire measures, through the answers to the objective questions of the first axis related to (the processes dimension). 72% of the respondents' opinions expected an improvement in the operations of government performance as a result of implementing digital transformation.

As for the analysis of the answers to the objective questions of the second axis related to (the dimension of services provided by government agencies, there were 73% of the respondents' opinions are expected to improve those government services provided with the implementation of digital transformation.

also, by analyzing the answers related to the third axis related to the strategies dimension, it was found that 71% of the respondents' opinions are expected to improve the strategic planning of government performance as a result of digital transformation.

Through the analysis of the previous three axes, which are considered one of the basics of the



foreseeable government performance, we find the convergence of percentages in the respondents' expectations of the three axes, which lead to an improvement in the efficiency of government performance.

while the fourth axis related to (the people 'readiness dimension) with digital transformation, whether employees of the government sector, service providers or beneficiaries, 65% of respondents' opinions believe that the readiness of individuals have a major role in increasing the efficiency of government performance during implementing digital transformation.

With regard to the last axis related to (the Cognitive Conflict dimension), 71% of the respondents indicated that the more knowledge and awareness of the dealers in digital transformation increased, the more effective the government performance would be. obviously this last axis is considered a moderating and influential axis in the readiness of people in digitization of Governmental performance, which explained previously in the conceptual framework.

#### **Contribution:**

Therefore, we conclude from the foregoing the distinguishing proof of the determinants influencing the efficiency of performance by digital transformation and that digital transformation has benefits will help quantitatively measure the efficiency and effectiveness of the performance and that what transformation will support in automated mechanisms and the indicators for measuring that performance. This will lead to the efficiency of the performance of the information and

will raise the efficiency of developing strategies, in addition to re-engineering procedures, raising operating efficiency, increasing their governance, and improving services and benefits provided electronically as much as possible, which lead to citizens and employee's satisfaction at the same time as mentioned (Mahmood, 2016). So the government should work on those four dimensions and accelerate the digital transformation, which in turn will lead to an impact on the effectiveness of government performance and the improvement of services provided to citizens according to what was reviewed in this research paper of close relationship.

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