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# Contribution the Stakeholders E-Participation in the Maturity of E-Government Services and Achieving the Sustainable Development Goals in Egypt

## "Sustainability and The maturity - A case study in Egypt"

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**Abstract:- In light of the increasing interest of governments in e-government and achieving the sustainable development goals 2030, the governments seek to provide new e-government services and to develop strategic plans to achieve the SDGs. There is a lot of research that sheds light on the contribution of information technology and e-government to achieve SDGs and leaving no one behind.**

**In this research, we will present a new proposal for e-government maturity model that will support governments in developing countries to achieve sustainable e-government services. and also, we will present a new proposal of sustainable e-government service which will clarify how E-government can contribute to achieving Sustainable Development Goals through E-participation and partnership between the main players citizen, business and government in achieving citizen profile Service in Egypt. And that considers a good example of information technology use and e-government in improving the capacity of the national data ecosystem within organizations to be more effective in producing high-quality data and in providing data to facilitate the measurement monitoring the SDG indicators. in order to identify the achieved goals and the goals that we will work to achieve them.**

***Keywords:-*** *SDGs; E-Government; E-Go Services; E-Participation; E-Government Maturity; Means of Implementation (MoI) ; E-Government Maturity Model .*

## I. INTRODUCTION

On September 2015, on a historic UN Summit and in the presence of 193 countries. The 2030 agenda for Sustainable Development Goals (SDGs) was adopted, which included 17 SDGs that aim at reaching 169 targets, which will be monitored and evaluated through 232 indicators. these indicators are measured by percentages, prevalence rates, participation rates, assistance amounts, averages and other methods that need continuous and accurate data collection. These social indicators and data should be of high-quality, timely and easily accessible, reliable, and sufficiently disaggregate to achieving the Sustainable Development Goals. (1) .

E-government (electronic government) is increasingly a global phenomenon that is consuming the attention of politicians, policymakers, and even ordinary citizens. Governments around the world continue to make massive financial and political commitments to establish e-government and that form a significant part of the government investment portfolio in almost around the world. Now, there is a strong interest in developing Internet applications and working towards technological transformation as they are a powerful tool that can change the relationship between government, citizens, and the business sector, in general. (2) (3) (4)

The technology plays an important role towards monitoring SDG indicators and achievement its goals through highlighting and supporting the articulation of technology as an explicit Means of Implementation (MoI) under SDG17.

The applying of data revolution perspective on the SDGs is occurred by the integration of data to produce high-quality information that is more detailed, timely and relevant for many purposes and users. especially to foster and monitor sustainable development (5) , Therefore traditional statistics entities must be not only engaged with new data sources but, also with new technologies and data analysis tools.

In view of the inherent and increasing complexity of the national and global data systems, this research adopts a model development for E-government Maturity to get the Sustainable E-government Services.

## II. RESEARCH BACKGROUND

### 2.1. The Sustainable Development Goals (SDGs):

On September 2015, on a historic UN Summit and in the presence of 193 countries. The 2030 agenda for Sustainable Development Goals (SDGs) was adopted, which included 17 Goals that aim at reaching 169 targets, which

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will be monitored and evaluated through 232 indicators. (As shown in Figure 1 United Nations – SDGs ) (6) (7) (8) . These indicators are measured by percentages, prevalence rates, participation rates, assistance amounts, averages and other methods that need continuous and accurate data collection (See Table 1 Appendix) (9). The SDGs are built on the Millennium Development Goals (MDGs), a set of eight time-bound and quantified goals that led the worldwide efforts to meet the needs of the world's poorest between the years 2000 and 2015. (10) (11).

The United Nations Statistical Commission (12) is the body within the UN system which responsible for the development of a global indicator framework for monitoring the progress towards the achievement of the SDGs that comprise a new broad range of economic, social and environmental objectives. And over the next years, the countries will mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change ensuring that no one is left behind.

Figure 1 United Nations – SDGs

One of the challenges for implementing Sustainable Development Goals (SDGs) is the measurement of indicators that represent progress towards such goals. Measuring such progress enables data-driven decision making and help the management of SDG relevant projects and strategies. (10)

One of these challenges is that the efforts were mostly focused on the goals but, not enough for achieving them (13). Acknowledging this shortcoming, the SDGs point out that the Means of Implementation (MoI) are the key to the realization of the SDGs and that they are equally important as the rest of the goals and targets. so, the agenda dedicates one full goal (SDG-17) to the articulation of such means. (10) (As shown in Figure 2 )

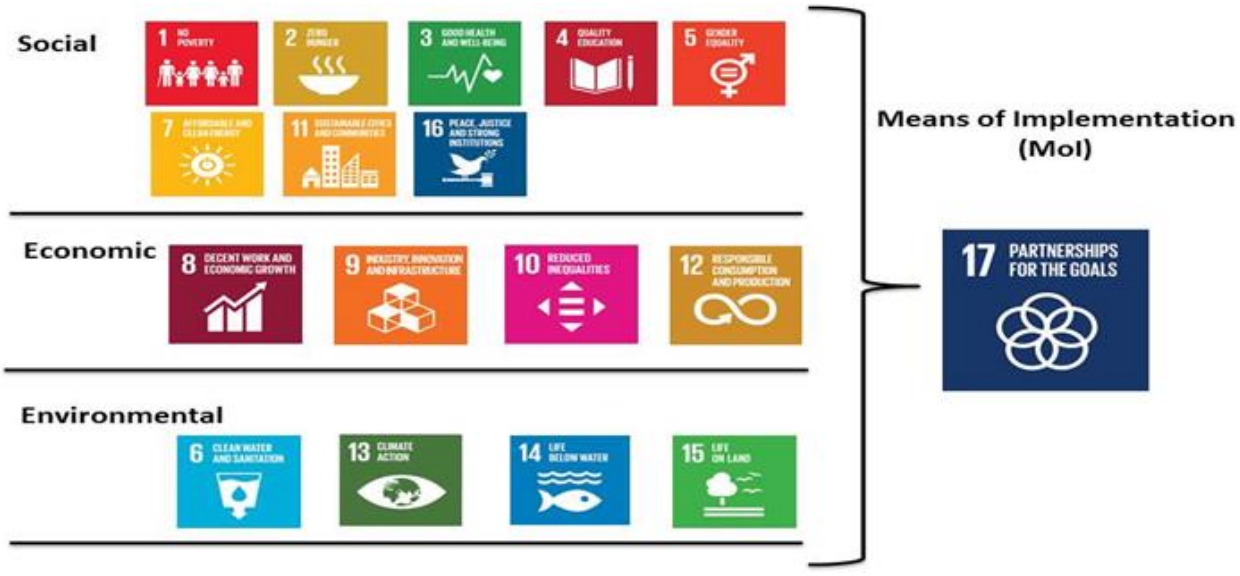

*Figure 2 - The Means of Implementation (MoI)*

**2.2. E-Government: -**

The United Nations Department of Economic and Social Affairs (UN-DESA) defined the E-government as the use of ICTs to deliver more effective and efficient government services to citizens, businesses and governments by achieving public ends using digital means to improve the internal workings of the public sector by reducing the financial costs and transaction times, better integrate workflows and processes and to enable effective resource utilization across the various public sector agencies aiming for sustainable solutions (20) .

The primary models of E-government are divided into: Government-to-government (G2G), Government-to-Business (G2B), Government-to-Citizen (G2C) and Government-to-Employees (G2E). (21)

E-government aims to make all necessary services equally available, secure safe, privacy and more efficiently delivered and also it improves communication and citizen participation and accomplish organizational missions and goals, as well as increasing the economic competitiveness, managerial effectiveness and citizen satisfaction. (22) (23)

**E-Government Maturity Model**

The growing interest in e-Government raises the question about the developmental stages of e-Government, as a number of e-Government stage models have been suggested by international organizations, consulting firms, and individual researchers since the year 2000, which are seemed to be incongruent with each other as these are based on different perspectives and use somewhat different metaphors. (24)

With technological advancements, many variants of maturity models were proposed by various researchers. Almost all agreed that the development of the electronic government occurred in a linear and progressive manner, where the government achieved its maturity at different stages. (25)

In particular, by focusing on the literature done on e-government maturity , we observed that no significant attempt is made to develop an updated e-Governance maturity model since the year 2012.

In 2019, Sayantan Khanra & Rojers P Joseph studied and analyzed e-government 27 maturity models. They are (United Nations Maturity Model (26) (27) , Alhomod Maturity Model (28) , Lee and Kwak Maturity Model (29) ,Chen Maturity Model (30) , Kim and Grant Maturity Model (31) , Lee Maturity Model (32) , Almazan and Gil-Garcia Maturity Model (33) , Shahkooh Maturity Model (34) , Cisco Maturity Model (35) , Andersen and Henriksen Maturity Model (36) , Siau and Long Maturity Model (37) , Reddick Maturity Model (38) , West Maturity Model (39) , Accenture Maturity Model (40) , World Bank Maturity Model (41) , UK National -Audit Office Maturity Model (42) , Chandler and Emanuel Maturity Model (43), Moon Maturity Model (44) , Netchaeva Maturity Model (45) , Windley Maturity Model (46) , Hiller and Belanger Maturity Model (47) , Howard Maturity Model (48) , Layne and Lee Maturity Model (49) , Wescott Maturity Model (50) , Deloitte Maturity Model (51) and Gartner Maturity Model (52) ).

One of the most important results of this study, it identifies the key dimensions that constitute a mature e-Government ecosystem through a systematic review of the existing e-Governance maturity models. This study also identifies five stages of e-Governance maturity models that are namely online presence, facilitating interaction, integrated ecosystem, online payments, and participatory e-Democracy. as the five key dimensions of mature e-Government systems by summarizing the extant research on the e-Governance maturity models. (53) (As shown in Figure 3 - Key Concepts for the stages of E-Governance Maturity Models )


*Figure 3 - Key Concepts for the stages of E-Governance Maturity Models*

## III. RESEARCH METHODOLOGY

This research focuses on the importance of developing the E-government Maturity Models to get Sustainable E-government Services, to contribute to SDG indicators monitoring and to achieve the goals of sustainable development.

In this research the current situation for E-Government Maturity will be assessed in Egypt, we will develop a maturity model for e-government services to obtain sustainable e-government services and we will present a proposed framework for a new sustainable e-government service to ensure that the new service conforms to the developed maturity model and achieves the required return.

**3.1 E-Government Maturity in Egypt: -**

Great efforts are made by the Egyptian government to develop an appropriate framework for the digital transformation in all ministries and government agencies. Most of Egypt Ministries have web sites, provide E-Government services and has a lot of citizen data that is not collected in one database. So, important steps are being taken in developing E-government services and E- payment methods.

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Currently, Egypt has a lot of service providers that are available to citizens. Egyptian governmental websites became more sophisticated and contain much more information on Laws, Regulations, and policies. It has initiated enact many laws and policies that contribute in the process of digital transformation and enabling e-government services such as, law No.15 of 2004 regards to Organize the E- signature (54) and Law No. 175 of 2018 regards to combating information technology crimes (55) .

The determinants of "Sayantan Khanra & Rojers" study's findings were matched with the maturity of e-government and the current state of e-government in Egypt. The following are the result :-( as shown in Figure 4 - The maturity of e-government and the current state of e-government in Egypt )

- Egypt achieved Online Presence, Facilitating Interaction and Online Payments.
- Egypt didn't achieve Integrated Ecosystem and Participatory E-Democracy.
- The Egyptian e-government perfusion model did not match the model for "Sayantan Khanra & Rojers" study in the order of an investigation (Integrated Ecosystem - Online Payments).
- The Egyptian e-government achieved Online Payments and didn't achieve Integrated Ecosystem.

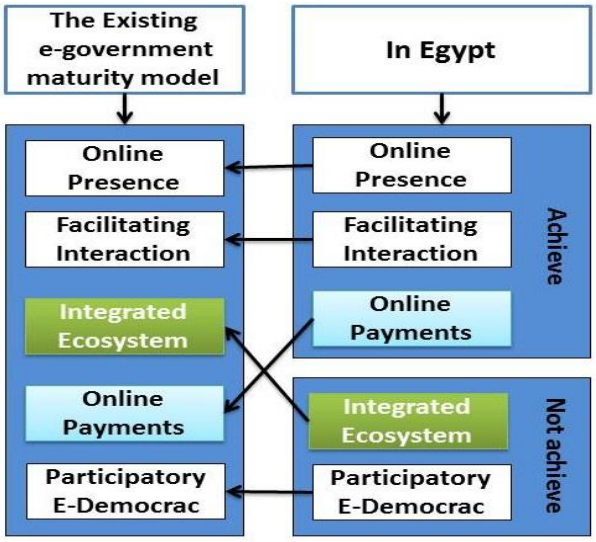


*Figure 4 - The maturity of e-government and the current state of e-government in Egypt*

### 3.2 Developing the E-government Maturity Model

E-government maturity models play a key role in designing sustainable e-government services by assessing the context of e-government project implementation, and by providing appropriate strategic plans to execute the projects (56).

Sustainable e-government services should be capable of supporting governments to achieve their goals, E-government services should have a long lifespan and should be flexible to bring in changes when required by the technology.

A sustainable e-government service is the ability of stakeholders-centric trustworthy e-government services that adopt state-of-the-art technology to deliver a cost-saving, resilient, and effective service, and to support active participation and satisfaction for stakeholders.

The proposed model was based on the determinants mentioned in the research background in order to deliver sustainable e-government services. Two determinants were considered ( Efficiency of Government Activities - Stakeholders Satisfaction And Involvement). One of the key differences between the proposed model and existing models was the inclusion of adoption stages to acquire participation from stakeholders. (As shown in Figure 5 - Determinants of Sustainable E-Government Services ).

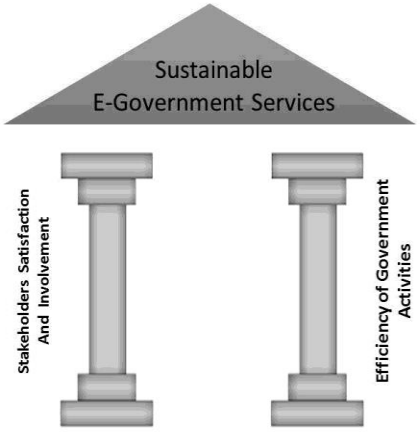


*Figure 5 - Determinants of Sustainable E-Government Services*

To achieve these two determinants, it is necessary to go through three stages. (As shown in *Figure 6*)

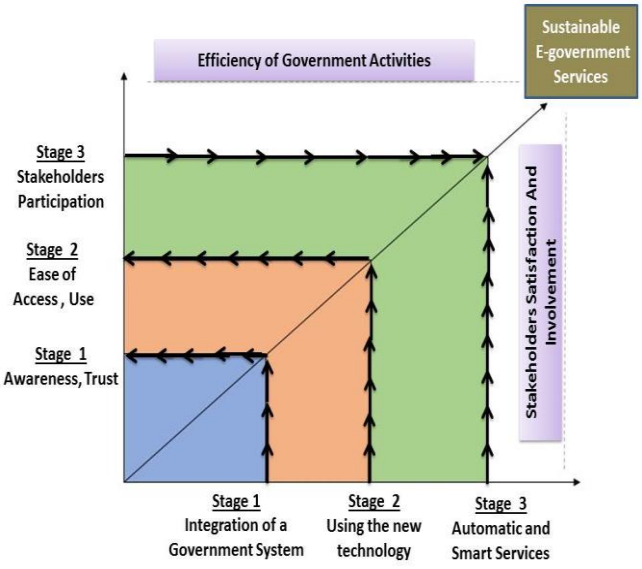


Figure 6 - Stages of Implementation of Determinants

- **Efficiency of government activities:-**

**Stage1: Integration of government system.**

At this stage, government data must be collected, whether at the level of departments in the same ministry or in all government ministries, and also the provision of E-payment systems.

**Stage 2: Using new technology.**

At this stage, the government must use the new technology, both in the Integration of the government system stage or for ease the use and access the service from stakeholders.

**Stage 3: Automatic and continuous services.**

Sustainable e-government services must operate automatically, continuously and smartly.

- **Stakeholders satisfaction and involvement:-**

**Stage 1: Awareness and trust.**

All sustainable e-government services must be characterized by awareness and trust. and we must assure of the legitimacy and authenticity of e-government services, and that personal details processed online are secured with confidentiality remaining intact.

**Stage 2: Ease of access and use.**

All sustainable e-government services must be flexible, ease of access and use.

**Stage 3: Participation stakeholders.**

All e-government services must be characterized by sustainable commitment to stakeholder participation.

### 3.3 The proposed sustainable government services" My info".

E-citizen, E-citizen data or" My info" is a service that enables citizens to manage the use of their personal data simply online.in this service users can control, consent sharing their data and view a record of their past usage. This service is available in Poland, Spain, Turkey, Czech Republic, Qatar and Singapore. (57) (58) (59) However, its name differs in many countries. but it is similar in type and natures of the service provided. In this research, this service will be called "My info".

"My info "users will enjoy less need for form filling and for providing verifying documentation during online transactions. That means users will need only providing personal data once to the government instead of repeatedly providing data for every online transaction. So, "My info " can be used with all E-government services in Egypt's E-portal.

"My info " serves as the Profile of National Digital Identity for the citizen. So, it cannot be deleted it. If the citizen does not want to use his "My info" Profile in his digital services transactions, he should choose the required data manually and he will need to submit supporting documents for verification.

This service based on the determinants of the developed maturity model.

***Efficiency of government activities.***

The integrated of a government system stage ecosystem involves two types of integration processes. First, the integration of systems at various levels within one ministry. Second, integration and sharing the data in all ministries for full integration of all e-Government services.

Online payment gateways should be included in the e-government services to ease the users perform financial transactions as per their requirements.

To create a citizen database based on "My Info", citizen personal data should be collected from various participating public and ministries agencies into the digital service form then the collected data will be linked to be available on "My Info" portal (As shown in Figure 7 )

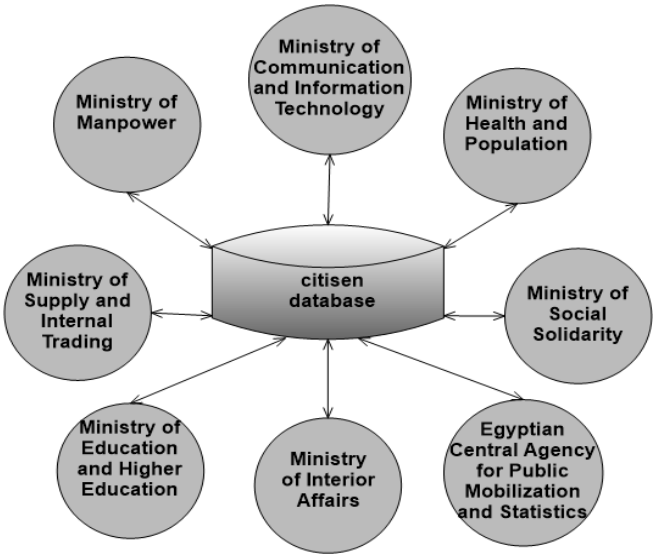


*Figure 7 - Citizen Database*

***Stakeholders satisfaction and involvement.***

Stakeholders E-participation stage comes after the Integration of government system stage. in which, the citizens or businesses will be login via "My Info" portal from the user to authenticate (personal data or businesses data) then they will give consent to enter or they will display requirements for entry. after that, the data will be completed and reviewed to verify that the information in the form is accurate and submit the edit application to collected data management in case of an error in the personal data.

The collected data form citizen profile includes the data from participating government ministries and government verified data verified by citizens and business.

The following chart (***Figure 8*** ) shows E-participation steps to achieve citizens profile Services in Egypt "My Info".

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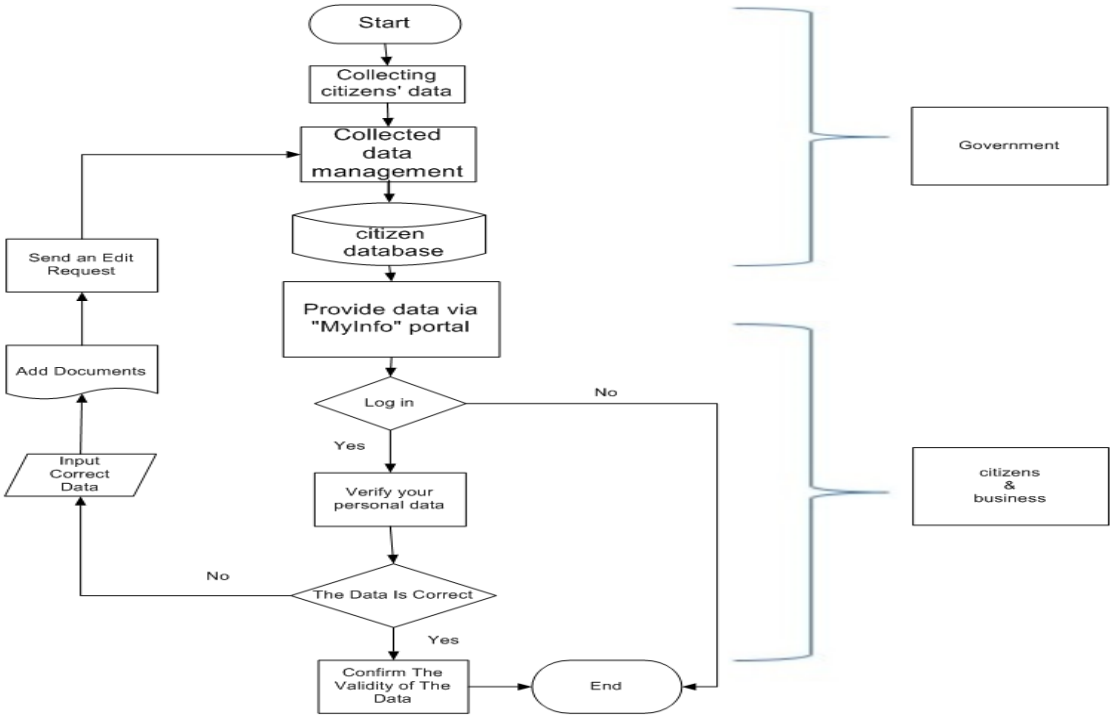


**Figure 8- The action methodology to E-Participation**

### 3.4 Discussion

To obtain sustainable electronic government services, the developed model identified three steps from the government and three from stakeholders. This service was applied as follows: -

The aim of the first step is to collect citizens' data from various ministries and government agencies, increase the awareness of stakeholders to the importance of the service provided and increase obtaining their confidence.

The aim of the second step is using the latest technologies in dealing with the collected, processed, analyzed, and secured data and information, as well as in portals and websites in order to facilitate access and use of the service provided.

As for the third step, it is the stage of real participation of stakeholders and ensuring that the service provided is a sustainable service that provides automatic, smart and continuous services. and leaves no one behind.

The basic idea of this research is achieving the stakeholders E-participation between government, citizens, and business to achieve sustainable e-government service.

As the scope of this research is achieving sustainable e-government service, a citizens' profile service has been proposed in Egypt "My Info" to prove the basic idea of the research and evolve the ecosystem of government data. as shown in the figure below ( **Figure 9** ).

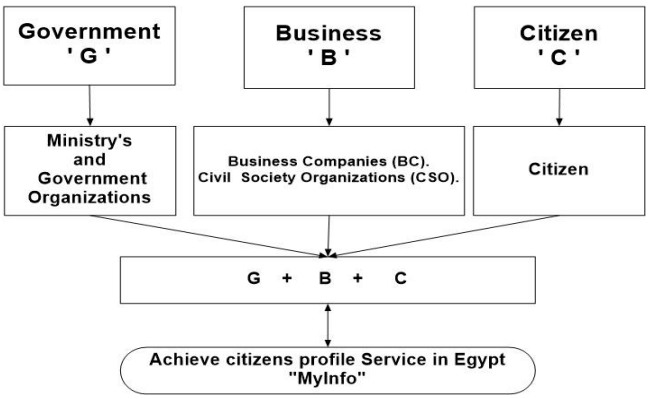


***Figure 9 - E-Participation between G&B&C***

The following is the benefits of using citizen profile "My info":

- **For Government: -**

1. Verification of data citizens.
2. Provide information to the government agencies and ministries involved in the "my info" project.
3. The possibility of correcting errors" if any ".
4. Knowledge of the target group and inventory of beneficiaries of services.
5. Evaluate available E-government services.
6. Save time, money and staff.
7. Integration of the government system and Interconnecting E-services
8. More responsive E-government services to citizens' needs.
9. More transparent, accountable and monitored institutions
10. Bridging the digital divide and Digital transformation.
11. It is the evidence of partnership, cooperation with other parties to provide services, co-financing, investing in

technology and opening new markets for technology and applications.
12. Upgrading the E-participation Index of Egypt in the United Nations E-government survey.

- **For Stakeholders: -**

1. Awareness, trust, ease of access and use.
2. No more repetitive filling of personal information for multiple online transactions.
3. Reduce the incidence of human errors.
4. Do away with the need for physical documents as verifications to complete transactions.
5. View and edit the profile: the personal information can be updated for the user-provided data fields.
6. View the transaction history: the transactions and the consents associated with the profile can be viewed.
7. Manage the settings: the information in "MyInfo" can be displayed as well as when and how to be you notified with your transactions.

- **For SDGs : -**

1. The Continuous provision of data leads to sustainability and updating of data, easy inventory and measurement of the SDGs indicators (targets achieved - targets to be achieved).
2. It is the evidence of citizen engagement to improve E-government services, raise satisfaction, E-consultations and E-decision making "SDG 16 ".
3. Achieving partnerships between citizen, business and government "SDG 17".
4. Itis the first step towards citizen participation in providing advice for education" SDG 4 ", Health" SDG. 3", Social Welfare" SDG. 1, 2", Employment and finance" SDG 8" and Environment "SDG 6, 7, 13, 14, 15".
5.

## IV. CONCLUSION

Egypt is a very ambitious country to achieve SDGs, it provides a lot of E-Government services and sought to the digital transformation in order to improve E-Government services.so, challenges need to be addressed regarding a lack of open data, government capacity, political leadership, incompetent infrastructure and human capital.

By following the steps in the proposed e-government Maturity model, the government will be able to provide many sustainable government services that are commensurate with the areas of the SDGs whether social, economic or environmental. in order to contribute to achieving the SDGs and to prove the E-participation between government, business and Citizens. as that leads to upgrading the e-government index.

After implementing the proposed e-government service " My info ", which is a good example of sustainable e-government services in Egypt, the following will be available: -

1- Improving the ability of organizations within the national data ecosystem to be more effective in producing high-quality data.
2- Collection all citizens' data from different entities and organizations in a unified database.
3- Measuring and monitoring the indicators of sustainable development goals to determine the percentage of achieved goals and goals to be achieved.
4- A lot of benefits of e-participation for the government, citizens and companies, and their contribution to enhancing e-government services and achieving sustainable development goals in Egypt.

Eventually, this research considered as a knowledge that will be added to the existing body of literature related to e-government maturity models and its development, sustainable e-government services, benefits of e-participation in general, and to achieving the SDGs in Egypt in particular.

Future researches based on the suggestions provided in this study may help to provide many sustainable e-government services contribute to achieving SDGs.

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## Appendix

Table 1 - UN –SDGs - Goals - Target - Index of SDGs

| Goals number | Description | Target | index | Notes |
|---|---|---|---|---|
| 1 | No poverty | 7 | 11 | Measured by: ( Percentages - Spread rates - Post rates - Assistance –amounts - Averages ) |
| 2 | Zero hunger | 8 | 14 | |
| 3 | Good healthy and well-being | 13 | 26 | |
| 4 | Quality education | 10 | 11 | |
| 5 | Gender equality | 9 | 14 | |
| 6 | Clean water and sanitation | 8 | 11 | |
| 7 | Affordable and Clean | 5 | 6 | |
| 8 | Decent work and economic growth | 12 | 16 | |
| 9 | Industry innovation and infrastructure | 8 | 12 | |
| 10 | Reduced inequalities | 10 | 10 | |
| 11 | Sustainable cities and communities | 10 | 14 | |
| 12 | Responsible consumption and production | 11 | 12 | |
| 13 | climate action | 5 | 6 | |
| 14 | Life below water | 10 | 10 | |
| 15 | Life on land. | 12 | 12 | |
| 16 | Peace justice and strong institutions | 12 | 22 | |
| 17 | Partnerships for the goals | 19 | 25 | |
| 17 | Total | 169 | 232 | |