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## **E-GOVERNMENT DEVELOPED SYSTEM PROTOTYPE ABOUT USA AND JORDAN**

*The use of the Information technology, in the improvement of the e-government is considered as another territory related with the use of the ICT for conveying the legislative administrations to the citizens of the country. The e-government framework contains different advancements including the web and wide area networks, mobile computing for providing constant government services for the natives. Demonstrated that the United Nations portrayed e-government as the application and use of the "Data and Communication Technology" for provisioning general society administrations and data to people in general. The following report consists of discussion about the features and challenges in implementing e government. In addition to that, this paper also proposes a new architecture for the e governments that may improve the functionalities of e government whereas reducing the overhead of maintain it.*

*Key words: E-government, system architecture, E-government services, E-government model, E-government of Jordan.*

**Introduction.** The information and communication technology is developing rapidly in Jordan and offering the administration to convey numerous conveyance administrations with various qualities among E-government supported organizations. The Jordanian government has put vigorously in E-government activities throughout the last few years to change from the traditional government service delivery to the more viable and productive support of convey top customer driven and execution driven services.

With the increasing change and advancement in the internet technology the E-government has turned into a well-known concern for the government endeavors in numerous nations around the globe (Cordella&Tempini, 2015). Increasing number of governments have actualized and presented e-government systems in order to reduce the costs, enhancing administrations, saving time and expanding adequacy and proficiency for the services they provide to the citizens of that nation. E-government and web has rolled out a fundamental improvement in the entire society structure, qualities, culture and the ways of completing different tasks by using the capabilities of ICT (Information and Communication technology) as a tool to manage the routine operations. The reason for e-government is not just the change of customary data into bits and bytes and making it reachable by means of the web sites or giving government authorities PCs or computerizing old practices to an electronic stage, however it additionally asks for reexamining ways the administrative processes are completed today so that this procedures can be improved by integrating them with the internet.

**E-government readiness.** The EGDI or E-Government Development (Readiness) Index is a composite measure of the willingness and capacity of a certain country to utilize e-government for ICT-drove improvement. The EGDI takes considers the most essential factors to measure the readiness for e-government: (i) quality of the online services, (ii) Tele communication connectivity, and (iii) human capacity of the country.

The EGDI is measured using the following formula

$$= 1/3*(OSI_{normalized} + TII_{normalized} + HCI_{normalized}).$$

In order to measure the success of the e government the following are the measurable goals and objectives.

Enhance the service delivery and the quality and speed of the interaction with the citizens and organizations and in addition among government elements.

Improve responsiveness to client needs by utilizing new methods of contact to give open segment data what's more, administrations.

Increase straightforwardness of government by expanding the accessibility of data and openness to administrations.

Save time and funds by enhancing effectiveness in government handling, to some extent through utilization of normal innovation measures, arrangements and a united design, and additionally adding to budgetary change inside people in general segment (Cordella&Tempini, 2015).

Create positive and encouraging consequences for Jordanian culture through the advancement of ICT abilities improvement inside government, organizations and family units that will reinforce Jordan's economy.

**Challenges in the implementation of the E government.** Most of the researches on E-government have concentrated on some certain factors that act as the challenges in the implementation of the E government. Some of this is centered on the implementation of the E-government in developing nations, and some of those issues are confronted by both the developing and developed nations. Jordan is one of the developing nations. In their research papers the key components and difficulties that influence adoption of the E government in Jordan can generally be sorted in four sections which are political components, social elements, organizational factors and technology.

**Political variables:** Implementing E-government in a country needs immense amount of funds for the project. Accordingly due to the lack of accessible financial assets the top leadership of the country continuously loses their eagerness to execute the E-government project (Cordella&Tempini, 2015).

**Social elements:** People who do not have access to the web get to will be not able preferred standpoint from online administrations which frame an imperative obstruction to E-government.

**Organizational variables:** Successful usage of E-government ought to include rebuilding the current authoritative model, parts, duties, preparing, and representative's needs, hence absence of worker preparing will be an extensive test.

**Technological variables:** Required data technology guidelines to accomplish the user's needs and to leave behind any equipment and framework obstructions that may defer the execution of E-government. A standout amongst the most noteworthy technological difficulties is PC security and data security. Security of E-government driven organizations is critical for accessibility and service delivery and in addition for Building confidences in the users (or citizens of the nation) the system. Also protection is a center test to E-government execution and acknowledgment, it concern sharing data among taking an interest government offices and uncovering or misusing private data.

In addition, they uncover other extra variables influence E-government appropriation, execution, and use in Jordan: enactment and legitimate system; human imperviousness to change, security and security issues; culture issues; confide in E-government; convenience and many-sided quality issues; web architecture issues; get to and IT expertise issues; operational cost; organizational issues; specialized foundation; ease of use, accessibility, furthermore, availability issues (Cordella&Tempini, 2015).

**Recommendations to solve identified issues.** Create ventures that are good with the country's telecom framework.

- It is important to use kiosks and mobile centers if media telecommunication density is comparatively low.

- Introduce telecom rivalry and lift directions on remote and other computerized advancements to quicken their organization.

- Build on the microenterprise model to bring availability to underserved territories and guarantee maintainability of the E-government system.

- Consider the administration's present utilization of innovation and gain from past triumphs and disappointments.

- Establish an activity system toward the start of the procedure to permit for a levelheaded and facilitate the success of the project (Venkatesh, Sykes&Venkatraman, 2014).

In addition to that it is important for the willing government to must serve all individuals from the society independent of their physical abilities (incapacitated individuals: the individuals who are visually impaired, hard of hearing or generally crippled). Online administrations should be planned with proper interfaces to serve them.

**Developed system in USA and Jordan.** This E-government project was propelled by King Abdullah II in the year 2001; which is considered as a part of a bigger national IT project to develop web utilization in the country. The program tries to be a fundamental and dynamic member in the economic and social advancement using the ICT (information and communication technology) to empower easier access to government data and services for all the citizens (users) despite their geographic location or financial status or, professional abilities.

**Proposed functionalities architecture and the of the e government system.** The cloud technology is considered as a viable model for diminishment of aggregated estimation of information system ownership due to the use of the shared resource pool (for instance, PC limits, information storage systems, channel limit and memory) from which resources can be instantly apportioned and sent as per changes made to requirements of the users. The cloud administrations give a chance to clients to keep information (for instance, documents or email messages), utilize programming (for instance, web-based social networking, video and sound records, amusements, and so on.) (Cordella&Tempini, 2015). For organizations, including government offices, cloud administrations can be connected as substitutes to inside server farms.

Mainly there are three types of target audience for these e-government systems that can be recognized as the government, citizens of the country and the business organizations (Venkatesh, Sykes&Venkatraman, 2014). The Government is the essential supplier of every one of these applications, giving its citizens, representatives, state claimed projects and others, access to different applications to get different services.

**G2G services:** It is the online non-business interaction between the different Government authorities, organizations, and experts with the other Government departments, divisions, and experts.

**G2B Services:** G2B is the online noncommercial communication between the central and local government and the business sector of the concerned, as opposed individual citizen, with the motivation behind giving organizations data and counsel on e-business with the best-practices, Tenders (e-tenders) etc.

**G2C Services:** In G2C, the citizen's accesses the system to acquire the services provided from the government and to get the required items and administrations finish the necessities of the citizens.

After analyzing the different platforms, it suggested that the **e-government systems ought to be developed on cloud computing and service oriented architecture.** These two methodologies consolidated together have huge specialized, authoritative, social moreover, temperate focal points. The national government must have an entire perspective of electronic government. This view must be advanced from the worldwide perspective to guarantee interoperability at the level of the entire state. Interoperability is required to empower powerfully making various services covering the entire target audience. The cloud computing has additionally sociological effect. It permits inventive IT answers for be quickly accessible to all open workplaces, divisions and offices paying little heed to their areas or level of specialized abilities.

Again in case of Service oriented design for the proposed system does not require to reengineer the existing framework yet it enables existing structure of the system to be along with new abilities keeping in mind the end goal to manufacture a collection of government services that can then be utilized as the reason for a wide range of target audiences. Along these lines, the web administrations can be produced as freely coupled utilizing to different programming dialects, whatever convention, or any stage. This encourages the supplier of business applications as an administration open to anyone, at whatever time, at wherever, and utilizing any stage (Cordella&Tempini, 2015). In our proposition are utilizing a cloud computing to Platform as a service (PaaS) keeping in mind the end goal to open areas organization their administrations over distributed computing. The advantage of this system using the cloud computing will be:

The government does not have to buy new software, hardware license to use them in implementing their E government services.

Public sector organizations can easily access the system to get the government services they require.

Government can set the approach and work process to consume the provided services

Reduced cost to provide the services from the government to the citizens and organizations of the country.

Easy to manage monitor and maintain the IT infrastructure used to provide the services.

The service oriented architecture technique puts an accentuation on reusability by isolating the interface of a function from its different internal implementation (Venkatesh, Sykes&Venkatraman, 2014). This type of detachment makes benefit introduction a fitting technique for both heterogeneous and distributed structures. Subsequently, it gives all around characterized interfaces for customer applications and isolates the

interfaces from their executions and we can set of standards and arrangements to expend the administration. It encourages collaboration and correspondence among administrations and effective utilization of heterogeneous, topographically appropriated assets. Web Services are required to actualize SOA. The web administrations design has three parts: a supplier, a requestor, and a registry (Cordella&Tempini, 2015). The supplier makes the web administration and makes it accessible to customers who need to utilize it. A requestor is a customer application that expends the web benefit.

Our proposed E government system will consist of three layers. **The front end layer** which will contain all the client interfaces, for example, sites and portals of the different government departments, e-government portals and so on. These websites and portals are the significant points of access to request and get these services offered by the government.

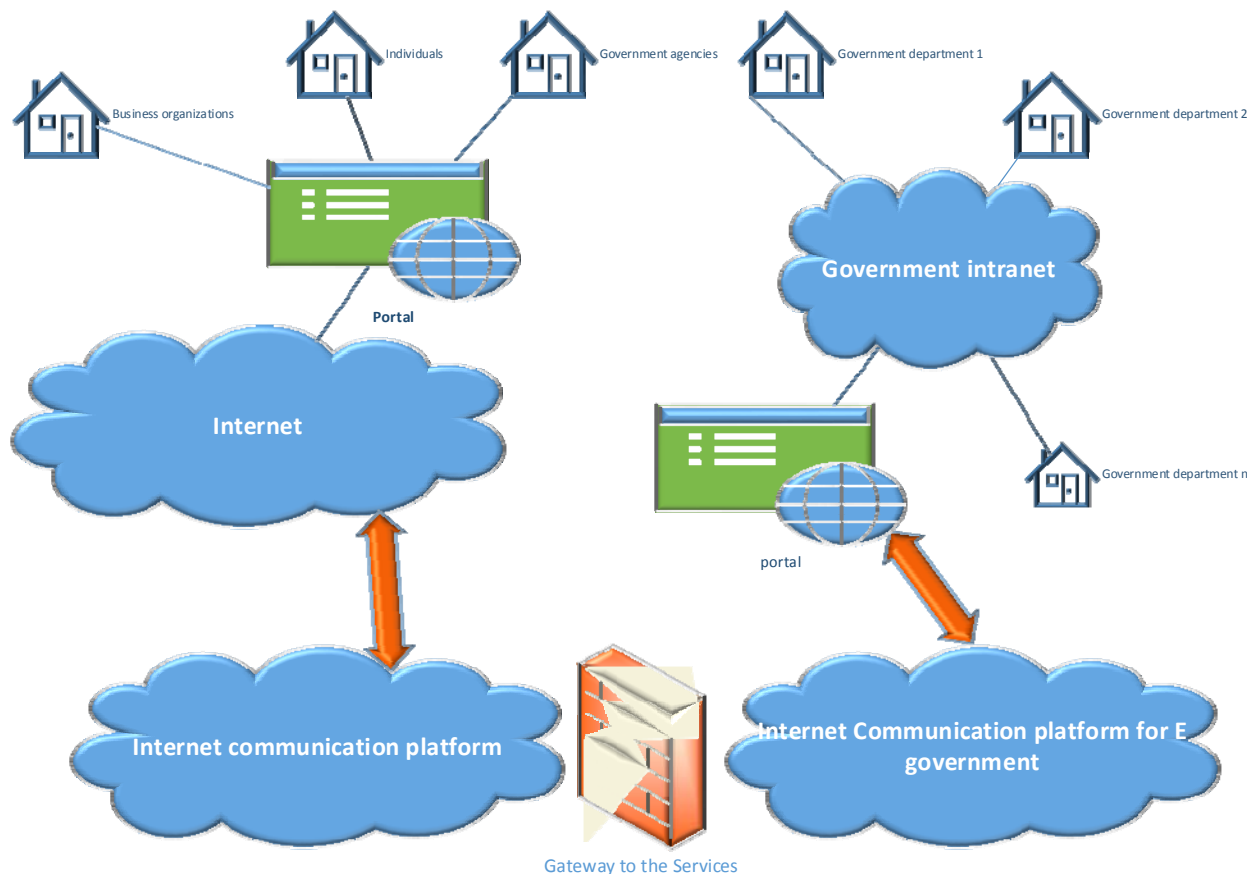


Figure 1: Proposed architecture for new E-government system  
(Source: Created by author using Visio)

The next layer or the middle layer of the architecture will consist of different gateways, integration bus and interaction mechanisms. A client collaboration toolbox builds up mass communication between clients with various e-government supported infrastructures. The integration bus is the e-government empowering framework. In its initial stage, it will give combination stage and access to shared government services, such as shared information, security, tax payment services, furthermore, notification engine (Venkatesh, Sykes & Venkatraman, 2014). The next phases of the integration bus will give platform to access to shared government services, like shared information, security and notification engine. Later stages of the integration bus will give different advance services, like registry and e-forms incorporation for the government services.

The end layer consists of the government agencies related to IT and network infrastructures. These agencies responsible for the clustered systems, servers, mainframes and midrange systems that provide data services to users (citizens or the organizations of the country).

**Conclusion.** The requests and changes in the public demand for the government services will push governments to go facilitate as the basic advantages of executing e-government are really derived from the incorporation of basic procedures crosswise over various levels of government as well as various elements of government. By having comparative offices crosswise over various levels of governments and also by having

distinctive organizations with various usefulness converse with each other, nationals will see the government as an incorporated data base for all its services. Any citizen of the country can get in touch with one purpose of government and finish any level of legislative transaction—using the one stop services. Likewise, from the perspective of all levels of government, this could dispose of redundancies and irregularities in their data bases for residents.

## References

1. Bakunzibake, P., Grönlund, Å., & Klein, G. O. (2016). E-Government Implementation in Developing Countries: Enterprise Content Management in Rwanda. In 15th IFIP Electronic Government (EGOV)/8th Electronic Participation (ePart) Conference, Univ Minho, Guimaraes, Portugal, September 5-8, 2016 (pp. 251-259). IOS Press.
2. Chatfield, A. T., & AlAnazi, J. (2015). Collaborative governance matters to e-government interoperability: An analysis of citizen-centric integrated interoperable e-government implementation in Saudi Arabia. *International Journal of Public Administration in the Digital Age (IJPADA)*, 2(3), 24—44.
3. Cordella, A., & Tempini, N. (2015). E-government and organizational change: Reappraising the role of ICT and bureaucracy in public service delivery. *Government Information Quarterly*, 32(3), 279—286.
4. Elbahnasawy, N. G. (2014). E-government, internet adoption, and corruption: an empirical investigation. *World Development*, 57, 114—126.
5. Irani, Z. (2014). E-government Implementation Factors: A Conceptual Framework. *Journal of Modern Accounting and Auditing*, 10(2), 241.
6. Jaeger, P. T., Gorham, U., Bertot, J. C., Taylor, N. G., Larson, E., Lincoln, R., ... & Wentz, B. (2014). Connecting government, libraries and communities: Information behavior theory and information intermediaries in the design of LibEGov. org. *First Monday*, 19(11).
7. Khamallag, M. M., Kamala, M. A., & Tassabehji, R. (2016). Digital Government Implementation in Chaotic Environment-Case Study of Libya.
8. Moon, M. J., Lee, J., & Roh, C. Y. (2014). The evolution of internal IT applications and e-Government studies in public administration: Research themes and methods. *Administration & Society*, 46(1), 3—36.
9. Norris, D. F., & Reddick, C. G. (2013). Local e - government in the United States: Transformation or incremental change?. *Public Administration Review*, 73(1), 165-175.
10. Solinthone, P., & Rummyantseva, T. (2016). E-Government Implementation. In *MATEC Web of Conferences* (Vol. 79, p. 01066). EDP Sciences.
11. Venkatesh, V., Sykes, T. A., & Venkatraman, S. (2014). Understanding e-Government portal use in rural India: role of demographic and personality characteristics. *Information Systems Journal*, 24(3), 249—269.
12. Wilson, S. C. (2014). e-Government legislation: Implementation issues for programs for low-income people. *Government Information Quarterly*, 31(1), 42—49.
13. Zheng, Y., Schachter, H. L., & Holzer, M. (2014). The impact of government form on e-participation: A study of New Jersey municipalities. *Government Information Quarterly*, 31(4), 653—659.
14. Ziemia, E., & Papaj, T. (2013, June). A Pragmatic approach to the e-government maturity in Poland-implementation and usage of SEKAP. In *European Conference on e-Government* (p. 560). Academic Conferences International Limited. 67788.

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## ЕЛЕКТРОННИЙ УРЯД РОЗРОБИЛО ПРОТОТИП СИСТЕМИ ПРО США І ЙОРДАНІЮ

*Інформаційні та комунікаційні технології стрімко розвиваються в Йорданії. Йорданський уряд активно розвиває Е-уряд протягом останніх кількох років, і планує найближчого часу перейти від традиційної моделі надання послуг до більш продуктивної на основі сучасних інформаційно комунікаційних технологій. Основною проблемою є відсутність цілісної моделі Е-уряду.*

*Е-уряд на даний момент впроваджується в багатьох країнах по всьому світу (Cordella&Tempini, 2015). Практичний досвід впровадження підтверджує значне зниження витрат, підвищення якості адміністрування, економію часу і підвищує професіоналізм послуг, які вони надають громадянам цієї країни. Розгортання платформ Е-уряду цих країн призвело до кардинального поліпшення у всій структурі суспільства.*

*Ця стаття присвячена аналізу готовності (EGDI) країн до впровадження Е-уряду та проблем пов'язаних з впровадженням. Проведено аналіз впроваджених систем в США та Йорданії. На основі проведеного аналізу запропоновано комплексну архітектуру системи Е-уряду.*

*Ключові слова: Е-уряд, архітектура системи, сервіси Е-урядування, модель Е-урядування, Е-уряд Йорданії.*

## ЭЛЕКТРОННОЕ ПРАВИТЕЛЬСТВО РАЗРАБОТАЛО ПРОТОТИП СИСТЕМЫ О США И ИОРДАНИИ

*Информационные и коммуникационные технологии стремительно развиваются в Иордании. Иорданский правительство активно развивает Э- правительство в течение последних нескольких лет, и планирует ближайшее время перейти от традиционной модели предоставления услуг в более продуктивной на основе современных информационно коммуникационных технологий. Именно поэтому они нуждаются в комплексной модели Е-правительства.*

*Е-правительство сейчас внедряется во многих странах по всему миру (Cordella&Temprini, 2015). Практический опыт внедрения подтверждает значительное снижение затрат, повышение качества администрирования, экономию времени и повышает профессионализм услуг, которые они предоставляют гражданам этой страны. Развертывание платформ Е-правительства в этих странах привело к кардинальному улучшению во всей структуре общества.*

*Эта статья посвящена анализу готовности (EGDI) стран к внедрению Э-правительства и проблем, связанных с внедрением. Проведен анализ внедренных систем в США и Иордании. На основе проведенного анализа предложена комплексная архитектура системы Е-правительства.*

*Ключевые слова: Э-правительство, архитектура системы, сервисы Э-правительства, модель Э-правительства, Э-правительство Иордании.*

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