

Unified Identity Based Single Window System

Under E Governance Initiatives - A Review

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Abstract: In this age of modernisation and globalisation, dependence and utilisation of ICT is a promising driving force for social progress and economic development. This scenario is more considerable for the developing countries as compared to developed economies, in the domain of commerce, health, education and governance. As more and more countries are moving towards collaborating openness and transparency, technological tools offered by ICT must be utilized to carry out reforms in the governmental processes. The aim of this paper is to gain insights into the need to create a centralized database of all the citizens to generate a single, unified identity for using several E Government services via a 'One Stop Shop' portal. This would improve the reliability of Government services. The paper emphasizes the need to create common core services used by all Government departments for delivering integrated E services at the doorstep of the citizens. The duplication of processes is removed by the common platform for all services. SCOPUS indexed journals have been used to obtain the systematic research literature. It is concluded that such Digital Government Transformation would effectively provide timely, uniform services all at one place for all strata of the society to benefit from.

Keywords: E Governance, Single Window System, Unified Identity, Centralized Database, Digital Government Transformation

1. Introduction

The quick advent in various types of new age information technologies, social media and information networks are increasingly affecting societies globally. This is the Information Age which strongly influences science, social relations, economies and governance too. E-Government is much more than simply "Electronic" Government. It is truly an "Enabled" Government, which delivers better and efficient programs and services. It is about people with new mindsets and skill sets working under progressive leadership.

Government operations require vivid interaction and communication with various stakeholders like employees, citizens, businesses and other government agencies [1]. E Governance needs the involvement of all participating stakeholders for its success. A lot of research done on E Governance indicates the use of an E Business idea or some Information System modified in some way to suit the public administration framework [2]. Governments worldwide are constantly developing their capabilities to provide enhanced public services equipped with Information and Communication Technology. ICT has great potential to help government organizations to promote good governance. On the contrary, this potential has greatly been unexploited in the developing countries. Digitization of the government cannot take place overnight. Thus developing countries are slowly and steadily moving towards digitization of government organizations. This would make over the states into digitally empowered knowledge economies by transforming traditional business processing and providing government services in new ways which are optimized around real-time system.

2. Benefits of Digital Government Transformation

Digital transformation is currently a public sector necessity. The goal of digitization of government is to produce a more comprehensive society where citizens can benefit from 24X7 availability, low costs, faster transaction processing and greater efficiency in delivering government services. Use of digital technology would help government in the following ways:

- Enhanced, effective and consistent delivery of government services to all stakeholders
- Superior interaction with diverse groups of society
- Citizen empowerment via round-the-clock access to updated online information
- Proficient government management
- Easy realization of Right to Information
- It is a two-way process – both citizens to Government and vice versa.
- Understand citizens better for custom-designed better services and policies
- Implement daily activities of government agencies more efficiently and effectively
- Find innovative solutions to policy challenges
- Connect with businesses, citizens and external partners to create new delivery models, services and policies
- Function more transparently and accountably in order to improve government authenticity and reduce corruption
- Commercialize some public services and hence develop new sources of revenue
- Optimize return on public investment
- Improve skill capability of public sector and thus create future workforce

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- Provide smart online infrastructure to help the economy work better
- Reduce human involvement and costs
- Improve privacy and security of public data

3. Research Objective

Currently in developing countries like India, there are many websites providing various E Government services separately. Considering a large population of India still being illiterate, it is very difficult, especially for the rural masses to get easy access to the desired E Government services. In this direction, a single window access system would be highly beneficial where a user can access all services at one place. This research is focused on a state named Punjab of India. The government departments of Punjab have maintained separate databases which are not connected to its other departments at the same local level or central government level. This creates barrier for organizations in terms of data transmission and communication, for the implementation of a single E-Government portal. Consequently the integration of government database systems, applications and processes will play a significant role as E-Government depends to a large extent on providing transparency of government data, existing processes and existing systems. There is a need for developing a centralized, web based database for policy planning. It will decrease the overall effort and cost, increase accuracy, access and improve emergency response and provide a multitude of other government services anytime, anywhere.

4. Review of Literature

A review of literature can be used to get a bird's eye view of the conclusions drawn by other academic researchers. One can get familiarized with the work done in a certain area, which would eliminate unnecessary duplication of effort and would further help in improvising precious information on research techniques. The systematic literature review presented here is not intended to cover whole of the relevant literature available, but is meant to provide an indication of the literature covering significant attributes to E Governance related to following heads: Digital Government Transformation, Centralized Government Database and Single Window E Governance Services.

4.1 Digital Government Transformation:

More Ickson Manda and Judy Backhouse, 2017 [3] presented a case study of South Africa, which embraced the 'Smart' agenda by promoting digital transformation of business, society and government among other things. The opportunities and challenges faced by South African government in materialising policy reforms aimed at utilising benefits of the digitally driven 4th industrial revolution were explored using Institutional Theory. **Dan Swedberg and Judith Douglas, 2003 [4]** identified a new approach for implementing E-Government. It put forth the use of "Transformation by Design" procedure along with a step-by-step approach to modifying existing business infrastructure and innovation to accelerate progression towards transformation in the Digital Economy. In doing so, it addressed the competing requirements faced by government institutions for simultaneous

incremental and radical change posed by E-Government implementation.

Ines Mergel et al., 2019 [5] provided an insight into the way public administrators define digital transformation in their day-to-day practices, their approach to digital transformation projects and their expected outcomes. They provided an empirical-based definition of digital transformation resulting from expert interviews and created a conceptual framework and expected outcomes of digital transformation in the public sector.

Tomasz Janowski, 2015 [6] presented a Digital Government Evolution Model consisting of four stages viz. Digitization (Technology in Government), Transformation (E-Government), Engagement (Electronic Government) and Conceptualisation (Policy Driven E-Governance). The base for this model was the literature on Digital Government in Government Information Quarterly between the years 1992 and 2014. The Digital Government evolution was explained by a Stage Analysis Framework.

F. Luis-Reyes and J. R. Gil-Garcia, 2014 [7] presented a theory of the co-evolution of organisational networks, technology and institutional arrangements in the Digital Transformation of Government. The theory used grammars of system dynamics and was built upon institutional approaches to understand interactions within all the variables in the progress of information and communication technologies in the government.

Janji Nograsedk and M. Vintar, 2014 [8] examined the interdependence of E-Government development and organisational transformation in public sector organisations and proposed a clearer explanation of the role of ICT as a driving force for organisational transformation to further E-Government development. They specified the main characteristics of organisational transformation in the E-Government era through the development of a new framework. This framework described the organisational transformation in two dimensions, viz. the 'nature' and 'depth' of changes and specified the key attributes related to the three typical organisational levels.

B. Erkut, 2020 [9] concluded that Digital Governance as a process consisted of the design and use of Digital Government, digital business issues, and digital democracy—this multifaceted process goes beyond the mere concept of providing government services digitally. It was suggested that future research should focus on how digitalization can be used for direct democracy by considering the challenges of Digital Government and identifying which aspects people found problematic when considering a transformation towards digital democracy.

Ali AlEnezi et al., 2018 [10] classified Smart Governments which are extensions of E-Government built on Internet and Internet of Things (IoT), into two categories viz. new generation and extended Smart-Government. A framework for implementation of Smart Government was put forth. Major challenges in implementation of Smart Government were identified to be security in the US, investment in India and mindscaping in Kuwait.

Jenny Huang and Achim Karduck, 2017 [11] presented studies of many Digital Government initiatives world-wide and proposed a methodology for transformational change in government into

digital businesses to provide better citizen-centric services. It was observed that governments are still far from extracting the full benefits of digitization.

Kolsoom Abbasi Shahkooh et al., 2008 [12] reviewed nine E-Government maturity models for comparison using qualitative meta-synthesis approach. Further an E-Government maturity model was proposed with five stages viz. 1.online presence, 2.interaction, 3.transaction, 4.transformation and 5.digital democracy.

Fadi Salem, 2016 [13] provided an in-depth analysis of the vital first phase of Dubai's mega-transformation into a smart city. It was shown to have triggered significant cross-government cultural transformations and infused a practice of collaborative governance. It indicated that after Dubai's Smart Government initiatives, over 1000 government services were made available online, which amounts to about 95 percent of all public services, till the year 2016.

Soon Ae Chun et al., 2010 [14] presented the evolution of E-Government as different stages described by the patterns of interaction of Digital Governments with the general public. Four stages of E- Government were defined where the fourth stage was yet to be achieved fully. The concept of 'Open Government' or Government 2.0 was introduced. The current use of social media and adoption of Government 2.0 in the US was surveyed and research and application topics on this issue were introduced.

Mohamed Mahmood et al., 2019 [15] presented an empirically tested conceptual model using exit-voice theory to study influence of ICT-enabled Government Transformation on the citizen trust in government. It was based on 313 survey responses obtained from citizens of Bahrain, the top-ranked country in ICT adoption in the Gulf Cooperation Council region. The study helped to extend the understanding of how ICT-enabled transformation of Government improved the digital services adoption and government-citizen relationship.

Paul Waller and Vishanth Weerakkody, 2016 [16] presented a Working Paper containing propositions on use of digital technology to transform government which considerably conflicted with conventional wisdom in academia and governments all over the world. It countered assertions made in many political, official and commercial reports produced over past decades.

4.2 Centralized Government Databases:

Velamal Ranga Rao, 2013 [17] proposed a framework for Unified Digital Government having a single view for everyone-Citizens, Employees, Government and Business. It used integrated solution architecture comprising of all activities and functional areas of the government. All core applications were centralized and integrated to use a common platform for different initiatives to help integrate the different functionalities (Vertical and Horizontal) and to avoid duplicities. It explored the need to improve access to Common and Core government services using ICT at all government levels like Local, State and National.

Evangelos Kalampokis et al., 2011 [18] reviewed available literature in Open Government data, E-Government maturity models, linked data and online One-Stop Government Portal.

They presented a prototype implementation and architecture for Open Government data, which enabled linking of decentralised data.

Mitja Decman and Mirko Vintar, 2013 [19] suggested a solution for digital preservation (short and long term both) for the public sector using a centralised digital preservation repository as a community cloud, which is available to every public administration organisation. It linked the concept of digital preservation with the idea of cloud computing for better digital preservation. The paper argued that all levels of digital preservation need to be considered and matched with adequate policies to create successful, manageable preservation solution for public sector and suggested actions to achieve such a goal.

Abubakar Mohammed and Bashir Maina Saleh, 2017 [20] highlighted the need for adoption of Centralised Database by Government organisations to control data inconsistency and redundancy in the records of citizens. Implementation of a Centralised Database would harmonize the data collected from various agencies and organizations. Centralized Database was suggested to help in the sustainable development of a country as statistical reports obtained about the citizens of the country could improve developmental decision making viz. education policies, health, budget and other related issues.

Wui-Gee Tan et al., 2007 [21] presented the initial findings of their in-depth study where they examined the experience of a government agency (the largest state agency in Queensland) -Queensland Health (QH), in implementing a centralized IT service management model which was based on the IT Infrastructure Library (ITIL) framework. The major success factors listed in their paper were the centralisation of IT services, outsourcing of some tool requirements and activities to vendors, effectual technology transfer to in-house staff, commitment of senior management and recognition of the necessity for successful change management to alter the organisational culture to one having service-oriented focus.

Avinash Ramtohol K.M.S. Soyjaudah, 2016 [22] presented a paper which highlighted the fact that information security necessities for E-Government can be addressed fully only when they are approached holistically, that is from strategic perspective to all the way to operational processes and policies. E-Government systems need information security management, authentication and user management to be centralised so that the public can access various E-Services (Government-to-Government, Government-to-Business and Government-to-Citizen) using a single login operation. Further an Information Security Governance Model was proposed which used an underlying Centralised Database to store information of citizens, companies and other main entities of the E-Government infrastructure.

Sun Sun Lim et al., 2009 [23] presented a survey paper on Internet users across five cities (having varied use of national ID cards and different experience of government surveillance) – Seoul, New York, Singapore, Sydney and Bangalore. It was suggested that the existence of a Centralised Government Database does raise privacy concerns and public consultation and transparency can alleviate them too, if not managed properly

while formulating the online privacy policies underlying them.

Jeremy Millard, 2004 [24] identified a clear and direct relationship between the improvement in quality, service and transparency for E-Services' users and the benefits resulting from digitising government back-offices. The paper was a result of the first survey done at European level of over 2,500 examples of the best E-Government initiatives across Iceland, Norway and the European Union-15 and identified eight major strategy options being followed in the highly developed initiatives in using ICT to reorganise back-offices and improve services. The eight strategies were the digitisation of the basically unchanged back-offices, thorough reorganisation of the back-offices, centralisation of back-office while de-centralisation of front-office tasks, creation of a back-office clearing house, generic type of interaction between users (front-office) and agencies (back-office), development of portals, offer users pro-active services and user self-service (ie. greater control and responsibility over a given service). All this was made possible when back offices became more integrated and were able to share data and resources.

Keith Breckenridge, 2005 [25] presented a close study of South Africa, which had invested in a massive scheme of creating a national database to record the digital biometrics identity of its citizens for elimination of fraud. Such systems had changed the nature of the state and the association between the commercial domain and individuals. It showed how South Africa was in a full-fledged biometric order that is a society which was characterised by omnipresent biometric identification with a centralised repository of data along with a massive and unrestrained commercial data analysis sector.

Willie Golden et al., 2003 [26] provided helpful insights into how citizen-centred E-Government can be achieved and highlighted the significance of managing processes in the E-Government realization. It presented a case study on planning and discharge of the E-Government strategy of Ireland. The paper detailed how fifty Irish government authorities were synchronized to offer a single point of access to E-Government services (portal). It highlighted how a business network connected local and central systems via a Centralised Database which maintained authenticated data of its citizens.

4.3 Single Window E Governance Services:

Maria A. Wimmer, 2002 [27] presented a holistic development approach to an integrated platform for online One-Stop E-Government system. It put forward integrated process models for delivering online public services. Further it investigated the legal aspects involved and the social impacts in the development of One-Stop Government systems for different user groups.

Dimitris Gouscos et al., 2002 [28] highlighted the need for a One-Stop Service Provision architecture to avoid operational implications of One-Stop Service offerings. The paper presented an abstract layered OSP (One-Stop Service Provision) architecture which combined and invoked the E-Government services uniformly, in the framework of cross-organisational workflows. It also put forth two major issues to be solved, that is firstly, how to abstract the heterogeneity of E-Government services which should be integrated and secondly, how to identify

a suitable cross-organisational workflow control style, within the peer-to-peer and fully centralised extremes.

Sushil K. Sharma and J. N. Gupta, 2003 [29] conceptualized a framework to guide the Digital Transformation process towards an E-Government model and suggested various actions desirable for E-Government implementation. The discussion in the paper indicated that several independent 'fragmented' sites and projects caught up by limited interoperability, mismatched priorities and clumsy interfaces lack the potential to exchange information. The paper also indicated that the concept of E-Governance was still in its infancy stage as a Single E-Government Portal which integrated all truly interactive services offered to citizens was still missing in most of the developed countries too.

Alegandro Cataldo et al., 2018 [30] formulated a novel approach based on mathematical programming to solve the Single Window design problem for E-Government systems. The paper proposed a solution approach by creating and solving a mathematical programming model by determining what procedures must be incorporated in the system, what technology must be used to solve each one of them in a particular period and calculate the timing of their implementation in an attempt to maximize social welfare.

Zakareya Ebrahim and Zahir Irani, 2005 [31] presented an integrated architecture framework for E-Government adoption to serve as a guide for IT managers to recognise the organisational and technological requirements for its implementation in public sector. The framework could assist decision makers to prepare a vision statement and chalk out a strategic action plan for future course in the IT age by identifying key elements and phases for action. They identified and classified the apparent barriers which might complicate the E-Government projects implementation process.

Faiza Allah Bukhsh and Hans Weigand, 2012 [32] indicated SOA (Service Oriented Architecture) as a basic architecture to integrate global services and its quick implementation promoting rethinking of the audit task. It provided a huge prospective of innovation in both government's control function and also within organizations. They developed a SOAu (Service Oriented Auditing) framework which opened up potential for E-Government control. The proposed framework provided suggestions for companies and government agencies to use service-oriented technology for increasing their auditability.

Debjani Bhattacharya et al., 2012 [33] identified seven constructs as findings from the analyses to assess the service quality of government portals as technical adequacy, citizen centricity, usability, privacy and security, transaction transparency, complete information, and usefulness of information. The National e-Government Plan (NeGP) proposed by the Department of Information Technology of the Government of India in 2006 laid stress on a Single Window approach to cater citizens more efficiently and effectively.

Stipe Lovreta et al., 2014 [34] presented the research results of a Single Window (SW) model application in the trade sector Integrated Information Management Model. The paper concluded that SW-concept was user friendly, increased access to preferred data to all stakeholders, simplified data filing process, provided

transparent data management by the owners and superior decision-making process in the public sector. Continuous maintenance was essential for such systems as it was a dynamic system.

Krishna B. Athreya and Monisankar Bishnu, 2010 [35] studied that the procedure of getting government approval for diverse projects needed interaction with multiple government departments at a variety of levels. In the paper the effect of a Single Window Clearance System was studied by re-organization of the approval process and of labour force on the effectiveness of the whole process. It also showed that a Single Window using a single server approval process was more effective than a Single Window using many servers.

Feiyi Wang, 2018 [36] presented a case study of the progress of the Single Window System in Korea to highlight the necessity for institutionalised and improved interagency synchronization to support its development. It also offered some practical ideas for project managers and policy makers. Single Window was considered as an endeavour to beat the disintegration in government activities in the customs administration. This was made possible by promotion of harmonization among different levels of government, allowing information sharing amongst different agencies and developing policy integration to attain more encircling objectives.

5. Concluding Remarks

It is quite evident that as a policy paradigm, E-Governance has witnessed drastic changes over the past two decades. Many reforms have aided in providing more personalized services and deeper citizen engagement. The Digital Government Transformation from E Government to Smart Government is a long process that requires meticulous workout of the Government organizations at grassroot level. In this direction, creating a Centralized Database to generate a unified identity for all citizens and providing access to all Government services using a Single Window System will prove truly beneficial, as indicated by the above research reviews in various countries. This would enable citizen centric E-Government to provide services proactively to all strata of the society and be more of user self-service kind. The public would not have to dig into different websites for different E Government services and would be able to get access to authentic data and services all at one place. Moreover the duplication and redundancy of government data would be avoided by the centralization of their databases. This would in turn enable the actual beneficiaries to get automated access to the E services provided by the government in various sectors like agriculture, health and family welfare, rural development and school education, etc. It has also been observed that the divide between the developed and developing countries is slowly diminishing with developments on the E-Governance front. It is becoming crucial for the policy makers, businesses and governments across the globe to embrace technologies so that we move towards a more inclusive society having lesser divides and more accessibility to online services. This would in turn enable higher quality services, better policy outcomes and greater engagement with the citizens.

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