

Public E-service Sustainability Failure Factors: Project Stakeholders' Views

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Abstract

The basic value of technology comes from the improvements achieved by technology and how these improvements are sustained and enjoyed over time. According to the Malaysian Public Sector ICT Strategic Plan (2011-2015), which was launched on 7th July 2011, one of its targets is towards zero face-to-face service delivery, with 90% of all government services are available online by 2015 and 90% of all transactions for online services are available online by 2015. Currently, the government agencies have transformed their operation and services through the use of ICT; however, most of them have difficulties in sustaining the e-services after their successful implementation. Therefore, it is important to identify and understand the barriers in sustaining the e-service initiatives for future guideline. Based on the interview with 8 respondents involved in e-service implementation and operation, this paper identifies and describes qualitatively fifteen failure factors towards public e-service sustainability.

Keywords: Public e-service, Sustainability Failure Factors, IT Sustainability Dimension

1. Introduction

Since the past few decades, many governments around the world have become aware of the potential of Information & Communication Technology (ICT) in enhancing their service and increasing their efficiency. E-services through e-government initiatives have a large potential in developing and delivering better services for citizens, and in providing possibilities to interact more openly with other related agencies. There is also the potential to transform government structures and processes i.e., the way in which governments offer their services [1];[2]. However, some e-government initiatives face some challenges in terms of complexity and risk, while some others are difficult to manage [3];[2];[4];[5].

The Malaysian Government has so many strategies to realise their government transformation programme; ICT is one of the key areas that support the programme. Thus, there will be many e-service projects introduced by the

Government to support their transformation initiative as stated in their ICT Strategic Plan. One of its targets is towards zero face-to-face service delivery with 90% of all government services are available online by 2015 and 90% of all transactions for online services are available online by 2015 [6]. Therefore, it is crucial to ensure that the e-service projects are successfully implemented and sustained.

The purpose of this paper is to contribute to a better understanding on the failure factors in sustaining the public e-services in Malaysia as a guideline to deliver effective service to the citizens through the implementation of e-services projects. The perspectives are mainly based on [7], [8], and [9]. Views from experienced project stakeholders who managed and monitored e-services projects in government agencies are discussed and categorised in this paper.

1.1 Public E-service

Electronic services are services that disseminate information or perform work, achieve tasks, or complete transactions partially or completely through any electronic means. Rowley [10] defines e-service as “deeds, efforts or performances whose delivery is mediated by information technology (including the Web, information kiosks and mobile devices). Such e-service includes the service element of e-tailing, customer support and service, and service delivery”.

In Malaysia, Electronic Services Delivery (e-Services) is among the e-government projects besides Generic Office Environment (GOE), Electronic Procurement (eP), Human Resource Management Information System (HRMIS), Project Monitoring System (PMS), E-Syariah, and Tax-Self Assessment System (STS). The e-services project allows citizens of Malaysia to engage in transactions with government and to make utilities payment such as telephone and electricity bills, police summons, road and

transport department services, etc. This project is accessed via many channels such as the Internet and kiosk machines.

1.2 Sustainability Failure

Sustainability is a concept and strategy for integrating and balancing three bottom lines (TBL). According to Reynolds and Stinson, sustainability implies maintaining something that already exists over time and is often equated with being 'self-sustaining' or 'self-sufficient', implying that no outside support is needed to continue its existence [11]. Moreover, according to [12], a sustained programme or project is defined as a set of durable activities and resources aimed at programme-related objectives. Next, [13] define sustainable IT as "technology that is capable of being maintained over a long span of time independent of shifts in both hardware and software".

Sustainability has increasingly become an important issue for both management scholars and practitioners. In the perspective of ICT projects initiative, sustainability is a critical issue due to the increased rate of failure of these projects [14]. Some analysts have noted that e-service through e-government projects often fail, either totally or partially, in achieving their objectives, despite the initial successes [15], due to long-term sustainability problems [16].

Considering assessing the success or failure of ICT projects is somewhat subjective, [7] categorises different levels of project failure as follows:

- i. Total Failure. Any ICT projects that are not implemented at all or any new projects that have been implemented but eventually abandoned.
- ii. Partial Failure. The major goals of the ICT project have not been attained or significant undesirable outcomes are experienced. A reasonably clear form of partial failure is sustainability failure where a project succeeds initially, but then fails after a year or so.
- iii. Success. An ICT project attains its major goals and does not experience significant undesirable outcomes.

This paper will categorise the failure factors of the ICT projects into three types of failure according to [8] and [9], which are as follows

- Project failure. The project does not meet the specification agreed upon including the functional requirements, budget, and completion deadline.
- System failure. The system does not work properly including expected performance, not being used in the way intended, and used as

intended but does not deliver the expected benefits.

- User failure. The system is not used because of such reasons as recalcitrance, lack of training and ability of staff, and the complexity of the new system [8].

1.3 Sustainability Dimensions

Sustainability in ICT is more than issues in project failures such as 'not meeting user requirements'. Even when a project is successfully implemented, users might still not use the systems for other reasons. Therefore, there is a need to identify and understand the dimensions of sustainability in order to support the sustainability of an ICT project initiative. [17] group the dimensions according to five sustainability dimensions:

- Social and cultural dimension: This dimension considers the social and cultural context in which a project operates, and the response of the ICT project to this context. As the ICT project takes into account the social and cultural aspects of the community, people in the community feel empowered by the project and hence become active in seeking ways in which to keep the project running, as it is in their own vital self-interest [18].
- Institutional dimension: Institutional sustainability is achieved when prevailing structures and processes have the capacity to perform their functions over a long term [19]. Aspects of institutional sustainability that need to be put in place include well-defined ICT laws, participatory policy-making processes, and effective public and private sector organisations that develop a framework in which the livelihoods of the community can be continuously improved.
- Economical/financial dimension: This is associated with the level of expenditure that can be sustained in long term [19]. E-service initiatives in the government agency are initially funded by development organisations; however, these initiatives need to expand and sustain the electronic services provided in the long term.
- Political dimension: An ICT project is often confronted with political challenges that hinder the progress or sustainability of a project. Political sustainability is important for a project to be accepted by the main governing bodies of a community or country. A politically sustainable project therefore means that local and national politics, policies, and individuals can influence a project in a positive way [20].

- Technological dimension: This dimension considers the ability to choose a technology in an ICT project that can serve for an extended period of time [20].

2. Methodology

The methodology used in this study was qualitative method. The factors contributing towards the public e-services projects failure were the subject examined in this study. There were three steps in this study as depicted in Figure 1. The figure also shows the purpose and outcome from each step.

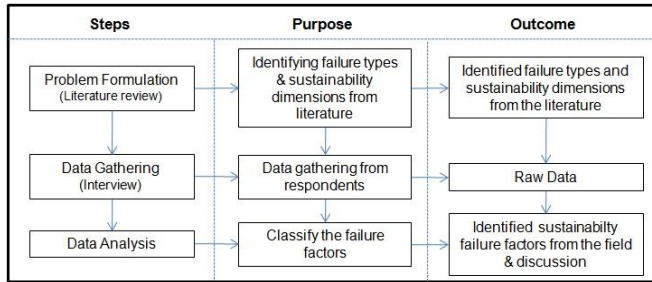


Fig. 1 Research Framework

A stakeholder's analysis was done and four groups of e-services project stakeholders were identified, which are: user, regulator, implementer, and service provider. Eight respondents who were the e-services project stakeholders were interviewed as depicted in Table 1. The respondents were selected using purposive sampling method.

Table 1: Stakeholder Analysis of E-service in Malaysian Public Sector

Stakeholders	Stake in e-service implementation & operation	Potential Impact	Responsibility	Number of Respondent (s)
User	Citizens who use the e-service application system that directly inputs the data.	High	User	-
Implementer	Agency that owns and operates the e-service application system.	High	Project champion, Project manager	1
Regulator	Policy and process owner who determines institutional	Medium	Policy maker, Project controller	5

	administrative policy and procedures.			
Service provider	Organisation that supplies, installs and maintains the e-service product and its documentation as soon as the contract is signed.	Medium	Provider/Vendor	2

Five respondents who were the regulators of e-service project initiatives were interviewed. Three of them were the senior officers of public sector who managed and monitored ICT projects including e-services projects for the past seven years. The other two were officers of public sector who had more than ten years experience in monitoring the e-government projects. The two respondents under the category of service provider or from the vendor side had more than ten years experience in managing public e-services project. The last respondent was the implementer of an e-service application. He was the Deputy Head of ICT Department and had five years experience in managing and maintaining an e-service application. Data were interpreted based on the respondents' experience and examples given during the interview sessions. To ensure consistency, this study adopted the definition of failure used by [7].

From the interview, the data of the e-service issues and problems were mapped using rich picture based on four stakeholders in e-service projects and initiatives. The interviewer's interpretations of the sustainability failure factors were then classified according to [17], as introduced in the previous section.

3. Results and Discussion

Figure 2 shows the rich picture of the interview session with the eight respondents. The picture qualitatively highlights on issues and problems related to e-service sustainability.

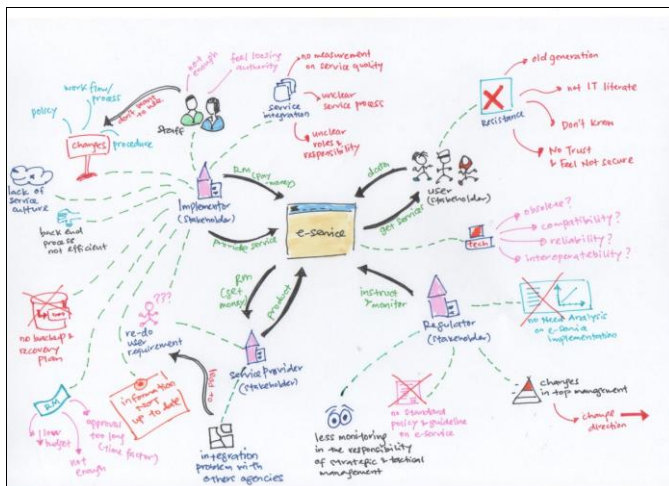


Fig. 2 E-service Issues and Problems

Explaining on the lack of service culture in government agencies, one of the respondents highlighted: *"The involved agencies did not have a clear policy and procedure on service provided. They even didn't have a clear definition of organisation service. They didn't have a defined measurement or regular survey on organisation services. They should have clear and standard roles and responsibility, and a regular review on problem and performance related to electronic services."* Next, according to another respondent, lack on service culture was the biggest contribution to the sustainability failure: *"...to me, the biggest problem is lack of service culture and service mentality in the organisation; it means how important the service is in the organisation. In many organisations that I have experience been in, to them the service is not important. Their manager was not qualified, and the same goes to the service agents... no one looked at it... It was just a place to dump complaints... they were not well supported by the rest of the organisation. In other words, it's how the whole organisation, besides the service unit, emphasises on serving the customer internally and externally.."*

The issues of not meeting the user requirement were common in most of the projects. According to one of the respondents, redoing requirement gathering was caused by ineffective communication between vendor and users during requirement gathering. One of the respondents said that: *"Sometimes, the real end user does not involve in the user acceptance process. It happens when the user who is involved in the requirement process is different from the user or officer who verifies the UAT (User Acceptance Test), and sometimes the UAT is not signed and the verification process is not complete. But, the implementer puts the project in operation anyway."* Another issue that contributed to redoing requirement or not meeting

requirement was when there were changes in organisation setting. The changes influenced the agency's direction thus led to the changes of the policy and procedures, and the work process. This scenario could also be caused by changes of the government's top management or its leadership.

Many projects did end successfully, while many others were outright disasters. However, usually projects ended up in the gray area on the project sustainability scale. Before the project work began, the project champion must make sure that the work was properly understood and agreed by the project sponsor and key stakeholders. As said by the respondents: *"The project champion needs to work with the sponsor and stakeholders to ensure that there is a common perception of what the project will deliver, when it will be complete, what it will cost, who will do the work, how the work will be done, and what the benefits will be. The larger the project, the more important it is for this information to be documented formally and explicitly. All projects should start with this type of upfront planning to prevent future problems caused by different viewpoints on the basic terms of the project. However, there are cases where such upfront planning is not prepared, and this is one of the factors causing unsustainable e-services projects."*

Furthermore, the issue above was verified by another two respondents who agreed that, in several projects, the vendor did not get user involvement especially during the user acceptance test. As a result, users did not use the systems after it had been implemented. This happened because the systems did not meet their requirements and work process. In addition to that, users also complained that the vendor failed to follow their expectations. One of the respondents said as follows: *"Among the users or staffs who interact with the back end of the e-service systems are the old generation. They don't have any exposure on ICT before and they do not know how to use the computer. They are not confident and feel that the computerised systems cannot help them to do their work efficiently. And there is a scenario where the staffs feel that they have lost their authority when they use the e-service application because there's no more interaction with the public face to face."* User resistance is a factor that prevented full integration of ICT in the e-service implementation and operation. This resistance can be seen in terms of unwillingness among the staffs to change their routine practices, and in terms of agencies as institutions finding it difficult or unable to reorganise their work process in ways that facilitated innovative practices involving ICT.

According to one of the respondents: *"We have difficulties in integrating the new e-service application with the current systems. The new e-service application does not fit with the current systems, so we just use the new application as our front-end system and do it manually at the back end... where we manually key-in the data captured by the new e-service application into the current systems..."* Integration from the perspective of this study refers to the merging or combination of two or more systems components or configuration into a higher level system element. Integration also refers to ensuring that the logical and physical interfaces are satisfied and the integrated systems satisfy their intended purpose. According to a respondent who worked as consultant in implementing e-service for more than 10 years, e-service was a channel but ultimately somebody must lead. He agreed that some e-services were fully automated, but some others needed humans to do it. So, this is where integration with other department was needed. He said that: *"Another big issue is many of the service units need to work with other units. This is where the integration problem comes... For example, if the public want to report a problem, this unit can receive the problem but they cannot solve the problem... Yeahh.. Sometimes they can solve simple ones, but most of the time they can't. They need to get technical department or logistic department, for examples, to look at the problem.. So, if integration with other departments is poorly defined, and roles and responsibility are not clear, it will be difficult..."* Thus, it can be concluded that the organisation supporting e-service and other supporting organisations must be very clear of how to work together smoothly. The roles and responsibility, and the process must be clearly defined. In addition to that, there must be a standard to the measurement of the service delivery, or else it will lead to the failure to sustain it.

To ensure the benefits of e-service delivery are shared with the citizens, this e-service initiative requires doing more than just implementing a successful project. It also entails establishing key performance measures, setting baselines and targets for those measures, and tracking performance after go-live. This is one of the ways to maximise the benefits of e-service and to prolong its sustainability. From the interview, one of the stakeholders agreed on the importance to have a standard measurement in e-service initiatives: *"...measurement is also another vital factor. How do you measure service excellent? How do you measure service delivery... clarity and standard? I mean, the measurement must include clarity and standard. In most organisations I had helped to implement their e-services, they didn't measure their service delivery. They didn't have the standard..."* Another insight from the interview confirmed that there was an absence of

measurement that eventually affected e-service sustainability. The interviewee mentioned: *"I admit that, we as planning and approving agencies for ICT projects, had successfully implemented the projects but so far we failed to do impact study or at least to do a project review or assessment... in spite of the fact that it was very important to guide us in sustaining the initiatives..."*

Poor e-service project monitoring and control were another factor mentioned by the respondents. The monitoring process should start from the strategic planning stage of an e-service implementation until the operational stages. It should provide understanding into the project's progress so that appropriate corrective actions can be taken when the project performance deviated significantly from the plan. As said by one of the interviewees: *"...if you don't know what's going on, corrective action can't be taken early when it's least expensive... but sometimes it is not easy to monitor every agency progress. For example, there are low usage issues of an e-service implemented by a small agencies... the monitoring bodies of government ICT initiatives must identify the related factors contributing to this scenario... and they should do something to help..."*

Change in government leadership could be another issue in sustaining e-service. If there was change in government leadership, there were always changes in their direction and aspiration. One respondent clarified that: *"...there's a possibility where a minister could change the ministry policy... it could be due to security issue or privacy issue at a certain time... it could possibly happen... Last time for example... every agency must have a website, so we made it compulsory... and they (the agencies) developed it... then we asked them to update... update, so they did it although they were small agencies and they didn't have personnel to do it... and sometimes they got nothing to update... and then the government asked them to close the website... why? because the websites were not updated and it gave bad reputation to the government... so they closed the website. The latest one was... many agencies were asked to close their websites.. Why? Because the government said.. too many websites.. and they said, the direction has been changed..."*

Inefficiency in back end process is another issue highlighted during the interview session. More than one respondent agreed that inefficiency in back end process contributed to the failure to sustain an e-service. As said by one of the interviewees: *"Another issue is the e-service process itself – this e-service must have a starting point and end point. Starting point could be - I have a problem... I want to find out... or could you tell me something... or I'm requesting a service... while the end point is the closure of the request... If you want to know the product*

then it ends up giving you the product. If you want a service, it ends up with the service being delivered. If you report me a problem, then it must end up with the problem being solved. So, there must be good clear process... from initiation to closure. After you do the closure, there must be good process to review the nature of the problem to prevent the problem from happening again... to do more improvement. So, the processes of handling it... the processes of managing it, must be there...". Another remark: *"...from my experience, some organisations didn't have this. They didn't clearly define the process — who has to do what, after you have the transaction, what to do... how long it should take to handle... no standard, no policy, no procedure..."*

A plan should be clear and specific about the organisation's recovery sequence and priorities in the event of various kinds of disasters. The respondents agreed that a solid backup recovery plan would ensure the e-service continuity. Among the opinions transcribed was: *"When an agency has an e-service, they will be expected to handle the service efficiently 24/7... They must maintain the e-service efficiently – and to do this, they need people to do it, need technology, need money. Other than that, they must have a proper backup plan... because when somebody wants to use your service at 8 p.m., then suddenly it is down... this will give bad reputation to the agency, the service fails to serve to the public. So, they must have a proper backup and recovery plan... they cannot leave the e-service unattended... however, currently they have problem to ensure this. If you notice, there are a few e-service applications with a message – under construction..."*

Usually, a project needs to have a budget and deadline before the business requirements are completed. From the interview session, there were cases where the definition and planning were not done ahead of time and the project team started off with inadequate resources and time. Later, these projects, which could be successful and sustained, were viewed as failures because they overshot their budgets and deadlines, and they did not meet the expectations of project sponsor and key stakeholders. This situation was often caused by the project champion dealing with allocated budgets that are too low, based on the lack of up-front planning and then there was no budget flexibility for budget re-allocation. As said by one of the interviewees: *"Insufficient budget from the government to the implementation agencies due to poor cost estimation is one of the factors those projects could not be sustained. When this happens, it is not easy to sustain the initiatives due to insufficient fund. In addition to that, in the government, it is full of bureaucracy especially for decision making related to funds allocation. The flexibility*

in terms of budget re-allocation and approvals is very important to implement ICT projects nowadays."

Another issue highlighted was the technological issues i.e., when the developers failed to align the system design and technology used with the current technology. It resulted in inappropriate systems with old design and obsolete technology, or the systems were not reliable and not compatible with current technology. This always occurred in overextended project. Apart from that, low quality of the end product was also mentioned during the interview. This was related to the technological factors and the fact that the personnel responsible and accountable for the project did not possess appropriate ICT background. Another complicated technological factor was that ICT systems that often had to be connected to other systems already in operation. Compatibility between ICT systems, which is already a major issue within an agency, is even more complex when a number of agencies are involved. One respondent from regulator group mentioned: *"...interoperability is very important in e-service initiatives... the systems must have the ability to communicate, as needed, on demand, and as authorised at all levels of government or across all public agencies and their customers... and this will ensure its sustainability..."*

The findings from this study contribute to the identification of 15 sustainability failure factors that influence the public e-services projects of the Malaysian government, as shown in Table 2. These factors have been further classified into three failure types and five sustainability dimensions.

Table 2: Classified Sustainability Failure Factors

Classification of Sustainability Failure Factors into Sustainability Dimensions	Classification of Sustainability Failure Factors into Sustainability Dimensions		
	Project Failure	Systems Failure	User Failure
Social & Cultural	Lack of service culture		User resistance
Institutional	Lack of proper plan on e-service initiatives	Integration Issues	
	No measurement or standard	Redo user requirement	
	Lack of monitoring	Inefficiency of back end process	
	Not enough competent ICT staffs	Lack of backup recovery plan	

Economical/financial	No budget flexibility		
Political	Changes in government leadership		
Technological		Compatibility	
		Reliability	
		Interoperability	

4. Conclusions

The number of successful implementations of government's e-services projects in developing countries is noticeably low [14, 21]. Yet, there are few studies that focus on the long-term sustainability of such projects. Therefore, it is important to analyse and understand the different factors behind the sustainability failure of the e-service initiatives. This paper presents the views based on the experience of the e-service stakeholders and most of the respondents were from regulator and service provider groups. 15 sustainability failure factors have been identified. In general, the findings showed that most of the failure factors can be classified into two types namely project failure and systems failure. The findings also clearly indicated that more than half of the sustainability failure factors were from the institutional dimension. These sustainability failure factors and dimensions will be further investigated in our next study on sustainable e-services.

The failure factors identified in this study showed that there were close relationships between many of the identified factors with e-service sustainability; any factors influencing one barrier are likely to also influence several other barriers. For example, the absence of proper policy in e-service implementation and operation directly affected the clear definition of roles and responsibility, the process itself, the levels of available competent staffs, and the availability of measurement standard—all of which can be seen as critical barriers to the e-services sustainability. For further study, the failure factors should be investigated in more details to understand how they can be categorised better and the specific actions that may be taken to overcome the barriers. This could then lead to the trialling of possible interventions that might help to increase the e-service sustainability.

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