Critical Success Factors for Knowledge Transfer via a Malaysian Government Education Website

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Abstract
This paper presents the critical success factors (CSFs) for knowledge transfer via a Malaysian government education website, from the perspective of provider. The research explores CSFs from a case study at Department of Education in Malaysia that is known as MASED. The research adapted Szulanski’s four stages, namely initiation, implementation, ramp-up and integration that is known as intra-organisational knowledge transfer model to identify CSFs for knowledge transfer via government education website. The research has employed an interpretive case study approach, applying qualitative data capture and analysis methods. Primary data were derived from the interviews with 15 government officers that are involved in the development and management of government education website. Qualitative content analysis by inductive approach was used as analysis technique. From the analysis, 14 CSFs were identified and grouped into six themes, namely management role, user focus, employee focus, content focus, technology focus and organisational focus. Then these CSFs were validated in a focus group with the same 15 respondents to finalise the CSFs for knowledge transfer via Malaysian government education website. This research used a single study of one government agency in Malaysia. The research provides practical guidance to practitioners particularly to the government website providers. In order to increase the level of knowledge transfer to users, the CSFs can support government website providers in taking strategic decisions related to the internal operation of their website’s content development and delivery activities.

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INTRODUCTION

The aims of this paper are to explore critical success factors (CSFs) for knowledge transfer (KT) via a Malaysian government education website, from the perspective of provider. This research contributes the application of Szulanski’s (2000) four stages model in e-government context and contributes to the information systems (IS) practitioners on the CSFs for KT via government education website. The management of knowledge, particularly that generated by government, is increasingly important, as nations face the challenges of the knowledge economy (Santinha & de Castro, 2010). The website, however, provides both opportunities and challenges to government - not merely to mount a website able to deliver knowledge resources, but to ensure that the website delivers in a form that addresses user needs; facilitates the transfer of requisite knowledge and provide users with what might be termed a “self-service” technology that facilitates the relationship between government and website users, by allowing users to address their knowledge needs without a requirement for government agent intervention (Hsu et al., 2010). In this study CSFs are defined as “the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organisation” (Rockart, 1979, p. 5).

In undertaking this study, a conscious decision has been taken to focus on the insights of the website provider. Government education website providers have substantial established processes and infrastructure in place to assess user responses to the websites that they provide, and the present researchers have been able to tap into these insights by focussing data collection upon the more readily accessible groups of government website providers.

In this paper, the researchers present findings from a case study of a government agency in Malaysia (referred to in this paper as MASED). The users in this research includes the citizens, business entities, other government agencies and employees. This research has adapted Szulanski’s (2000) KT model as a lens to study CSFs and the analysis is based on the association of CSFs with specific stages of the KT process (Cooper et al., 2006).

The structure of this paper is as follows: the next sections briefly review the relevant literature, including the generation of a list of some potential CSFs for KT via a government education website, by reference to extant studies in what might be relevant, related areas; the subsequent sections discuss the
research methods used, for data capture and analysis; the penultimate sections reports and discusses the key findings; followed by a short conclusion that explores the significance of the results and possible further work.

**DEFINITION**

For the purpose of this research, electronic government (e-government) is defined as the utilisation of websites, to improve government operations (Benefit view), to disseminate government information and services (Service view), to acquire knowledge through the website (Objective view), and to establish relationships between governments and their stakeholders (Relational view) (Azizan et al., 2011). Although many studies have explored the perspectives of government providers this has not been any such research related to CSFs for achieving KT in the public sector. Various research is about CSFs in e-government such as Chircu and Lee (2005), Gil-Farcia and Pardo (2005), and Papantoniou et al. (2001) but they did not focus on KT. Various provider perspectives that have been explored relate to e-government development and delivery issues (Gagnon et al., 2010), challenges and opportunities (Signore et al., 2005) and the provision of web-based services information and internet-based transactions (Tolbert & Mossberger, 2006). Other studies have developed e-government frameworks for success implementation (Ghapanchi et al., 2008); interactions among citizens through e-government (Lee et al., 2008); interoperability, privacy and security (Pankowska, 2008); e-participation with the citizens for policy making (Alharbi & Kang, 2014); technology adoption (Kamal & Themistocleous 2006); implementation of e-procurement in the government (Jidda, 2014); government capacity to administer and procure services online; political visions and claims regarding e-government transformation and service delivery; and processes and phases of e-government development (Anderson et al. 2010).

The emerging challenges of the knowledge economy have promoted increasing government commitment to knowledge management (KM), with KM now a priority on the policy agenda of many nations (Santinha & de Castro, 2010). Governments are investing in e-government as a means of promoting the knowledge society.

Knowledge can be viewed as a key organisational control mechanism (Santinha & de Castro, 2010). Organisations that manage their knowledge effectively can improve their functioning in many dimensions. Definitions of knowledge proliferate the literature. Specifically, Alkasasbeh (2014) sees knowledge as a form of corporate memory. Polanyi (1962) and Nonaka
(1991) classify knowledge as tacit (personal and hard to formalise) and explicit (formal and systematic) and argue the need to manage knowledge of both forms. Allahawiah and AlSaraireh (2014), on the other hand, argue that all knowledge is tacit and that what can be made tangible is information. Of interest also in this study is the work of Safar and AlKhezzi (2014) who classify knowledge according to its codification and personalisation strategy. Knowledge has been conceptualised within a hierarchical structure, from data, seen as facts, becoming meaningful information as a result of the provision of context, then becoming knowledge when interpreted, and applied in context (AlKhuraiji et al., 2014). Al-Aama (2014) on the other hand, has modelled the hierarchical structure of knowledge on a continuum from data to truth: data, information, knowledge, intelligence, wisdom and truth.

Drawing upon the above, for the purposes of this research, knowledge is defined and scoped to include government knowledge resources (information and services) made explicit and available for users via a government website, which becomes meaningful to website users when they interpret and apply it in context (see Santinha & de Castro 2010).

SZULANSKI’S KNOWLEDGE TRANSFER MODEL

This research seeks to view CSFs through the lens of KT (Cooper et al., 2006). Specifically, an adapted form of Szulanski’s (2000) intra-organisational KT model has been employed to facilitate identification of CSFs for KT via a government website (Cooper & Lichtenstein, 2010). This model has been chosen because it is widely recognised and supported through application over many studies. It should be appreciated, however, that Szulanski’s original KT model is designed to describe internal KT (i.e. within an organisation). Cooper et al. (2006), however, have adapted the model to studies of CSFs for external KT in business-to-business (B2B) contexts. This research has extended application of Szulanski’s KT model, so adapted, to identify CSFs for both internal and external KT in an e-government context.

Szulanski’s (2000) intra-organisational KT model consists of four stages, namely initiation, implementation, ramp-up and integration. The initiation stage begins when the website user has recognised a need for knowledge and starts a search for knowledge to fulfil that need. Once the need for that knowledge is identified, the feasibility of transferring that knowledge is explored. The implementation stage begins with knowledge resources flow between the source and the recipient. The implementation related activities come to an end after the recipient begins using the transferred
knowledge. The ramp-up stage begins when the recipient starts using the received knowledge. During this stage, the recipient will be concerned with identifying and resolving unexpected problems that arise while using the new knowledge. Finally, the integration stage begins after the recipient achieves satisfactory results with the transferred knowledge. The use of the transferred knowledge becomes routinised. Integration is completed when old knowledge is replaced by new knowledge or practices.

GOVERNMENT EDUCATION WEBSITES AND KNOWLEDGE MANAGEMENT

As stated earlier, knowledge in this research is defined and scoped to include government knowledge resources (information and services) made explicit and available for users via a government website, which becomes meaningful to website users when they interpret and apply it in context.

By using the website to transfer knowledge in the sense defined above, government seeks to reduce service processing costs and improve e-service delivery. Further, the website becomes a key priority for e-government to support the development of relationships - government-to-citizens (G2C), government-to-business (G2B), government-to-government (G2G) and government-to-employee (G2E) - as well as to promote citizen-centric e-government (Sagheb-Tehrani, 2010).

A substantial body of e-government research focuses on the importance of information and communication technology (ICT), in particular the role of the website in transforming relations between a government and its citizens. There is, however, little focus on KM per se. Santinha and de Castro (2010) state that there is a need for government to focus on KM in order to face the challenges of the knowledge economy. Dali, Meiyun and Xuefei (2015) note the need for research in KT. Similarly, Traunmuller and Orthofer (2007) assert that attention to KT can support building better e-government solutions.

According to Dali, Meiyun and Xuefei (2015), users are having difficulties to search information via websites. They found differently from what they intend to find in the first place. This lead to the unsuccessful of transferring of knowledge from the organization to users. Xiaohui et al. (2015) assert that for the organizations side, a failure by organizations to appreciate and facilitate knowledge transfer via websites can adversely affect the time spent by those seeking knowledge, increase the costs associated with knowledge transfer errors and result in an adequate flow of essential knowledge to recipients.
All these portray the gaps for this research to fulfil and the significance of this research to be conducted.

**Potential Critical Success Factors for Knowledge Transfer via Government Education Websites**

To seed the identification of CSFs from the rich data set collected in this study, potential CSFs have been derived from three associated extant literatures: KM; customer service (CS) and web-based self-service (WSS). Some potential CSFs sets that have been identified are summarised in Table 1, with reference to the relevant literatures, and will be revisited in the discussion of results later in this paper.

Table 1: Potential CSFs for KT via a government website (KM: Knowledge Management; CS: Customer Service; WSS: Web-based Self-Service)

<table>
<thead>
<tr>
<th>Potential Groupings &amp; CSFs</th>
<th>Description</th>
<th>Associated Concepts &amp; Authors</th>
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<tbody>
<tr>
<td><strong>1: Management</strong></td>
<td>The productivity of an organisation depends on the management of valid knowledge through the exercise of various forms/styles of leadership.</td>
<td>(KM: Singh, 2008; CS/WSS: Santinha &amp; de Castro, 2010)</td>
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<tr>
<td>• Leadership</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2: Website Users</strong></td>
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<tr>
<td>• User’s knowledge needs</td>
<td>The government provider needs to aware of the knowledge resources that are critical to users.</td>
<td>(WSS: Cooper, Lichtenstein &amp; Smith, 2006; CS: Liu &amp; Lee, 2006; KM: Phusavat &amp; Anussornnitisarn, 2008)</td>
</tr>
<tr>
<td>• User’s level of ICT literacy</td>
<td>Management must be aware of the ICT literacy levels needed to use WSS. ICT literacy is a driver of CRM.</td>
<td>(WSS: Cooper, Lichtenstein &amp; Smith, 2006; CS/KM: Liu &amp; Lee, 2006)</td>
</tr>
</tbody>
</table>
• User’s need for training and education

Knowledge sharing among employees is an important element in an electronic KM framework for government organisations. The government provider should provide professional training and education to employees, and assistance to users of a WSS system. (KM: Alharbi & Kang, 2014; WSS: Cooper, Lichtenstein & Smith, 2006; CS: Liu & Lee 2006)

• User’s perceptions of usability

An appreciation of usability must include how a user perceives and interacts with a website, and navigates and searches. Creating a positive experience for users is important. (KM/CS: Barnes & Vidgen, 2006; WSS: Cooper, Lichtenstein & Smith, 2006)

• User’s need to have website awareness and to receive update notification

Users need to receive notification services from the website for any updates. They should show initiative, to be aware of organisational knowledge and be willing to institutionalise it. The government provider on the other hand, needs to establish awareness and market programmes in order to promote WSS to users. (KM: Alharbi & Kang, 2014; CS: Barnes & Vidgen, 2006; WSS: Cooper, Lichtenstein & Smith, 2006)
### 3: Development Employees

- **Required employee roles and competencies**
  
  Human resource division should match work participant qualifications with the requirements of process work tasks and as determined by the work participant role model for smooth process execution in an administrative environment. Additionally, management should provide training to support agents in order to promote KT and reuse.

(WSS: Cooper, Lichtenstein & Smith, 2006; KM: Staniszkis & Staniszkis, 2006; CS: Siddiquee, 2008)

### 4: Content/Presentation

- **Required knowledge content**
  
  The government provider must ensure that required knowledge resources are available to the users, whenever and wherever they want.


- **Appropriate knowledge presentation**
  
  Knowledge presented through the web interface must be readily accessible. A website with an attractive, simple design can facilitate access.

(WSS: Cooper, Lichtenstein & Smith, 2006; KM/CS: Millard, 2006)

### 5: Technology

- **ICT infrastructure**
  
  A government provider should ensure that knowledge resources are available to users, whenever and wherever they want. This requires an appreciation of appropriate supporting ICT infrastructure.

Critical Success Factors for Knowledge Transfer via a Malaysian Government Education Website

- **Interactive platform functionality**
  Knowledge presented through the web interface must be readily accessible to users. A website with an attractive and simple design facilitates access. (KM/WSS: Alharbi & Kang, 2014; CS: Liu & Lee, 2006)

- **Search engine functionality**
  Knowledge assets should be stored in an electronic medium to enable efficient and access and retrieval. The government provider must ensure that website navigation is functioning in order for users to access intended knowledge. (KM/CS: Alharbi & Kang, 2014; WSS: Alkasasbeh, 2014)

- **Security requirements**
  The government provider must seek to ensure system security and data privacy. (WSS: Cooper, Lichtenstein & Smith, 2006; CS/KM: Smith, 2008)

6: Organisational Culture

- **Change management support processes**
  The government provider must engender an environment where teamwork is embraced, to scan the environment for potential opportunities and threats in order that the organisation is prepared to exploit the situation to its advantage, administer and maintain the KM portal and its contents so that it is geared to meet the demands of users. (KM/WSS: Alharbi & Kang, 2014; CS: Liu & Lee, 2006)
RESEARCH METHODOLOGY

This research has employed an interpretive case study approach, applying qualitative data capture and analysis methods. The case study research method enables examination and scrutiny of the rich organisational situation and supports the use of multiple data capture and analysis techniques so facilitating the triangulation of analysis outcomes (Cooper & Lichtenstein, 2010).

The case study was conducted at one government agency in Malaysia, referred to in this paper as MASED. MASED is an education-based organisation, chosen because this sector provides a rich environment in which to investigate CSFs for KT via government education websites (see the following Results section). United Nations (2008) argues that the education sector provides fertile ground for the provision of government services. Further, access to education-based organisations in multiple countries was available to the researchers, so facilitating future comparative CSF studies as part of a wider research program. In this research, an adapted form of Rockart’s CSF method (Rockart, 1979; Cooper, 2009) was adopted for data collection, including an introductory workshop, interviews and a focus group.

In the introductory workshop the contact official was briefed on the purpose of the study and the research process. Following the workshop, semi-structured interviews with 15 respondents were conducted. The respondents were selected from the staff involved in the development and management of the Malaysian government education website, including top, middle and operational management level appointments across the organisation. In undertaking this study, a conscious decision has been taken to focus on the insights of website providers. Government education website providers have substantial established processes and infrastructure in place to assess user responses to the websites that they provide, and the researcher has been able to tap into these insights by focussing data collection upon the more readily accessible groups of government website providers. This offsets the need to also access a wide range of website user stakeholders. That said future studies could seek additional validation of the CSFs determined in this study by seeking direct recourse to website users.

The respondents were requested to identify the CSFs for KT via the government education website, at each stage of the KT process (Initiation, Implementation, Ramp-up and Integration). The interview transcripts were then analysed, using inductive qualitative content analysis techniques (Creswell 2009). The potential CSFs (see Table 1) were available to seed this analysis, supplemented with the outcomes of the qualitative analysis
which allowed the researchers to code category names that emerged from the data (Hsieh & Shannon 2005). Subsequently, a focus group was conducted, involving the same respondents as in the interviews. The purpose of the focus group was to validate the CSFs resulting from the interviews. In this session, the list of the CSFs from the interviews was tabled. Respondents then shared each others’ experiences and a confirmed list of CSFs was generated.

**CRITICAL SUCCESS FACTORS (CSFS)**

Drawing upon the analysis of the interviews, respondents identified 14 CSFs for KT via the Malaysian government education website. Subsequent reflection on these, suggested six themes (management role, user focus, employee focus, content focus, technology focus and organisational culture), which can be related to the CSF areas identified in the potential CSFs identified in the extant literature from potentially relevant literature, as presented in Table 1. The CSFs were subsequently validated in a focus group. During the focus group, respondents agreed the identified CSFs, definitions and themes, with only minor adjustments (e.g. they suggested that CSF 14 – security should be classified under Theme 5: technologies focus, rather than under Theme 6: organisational culture). Table 2 presents the final CSFs for KT via the Malaysian government education website grouped under the six themes. The following sub-sections briefly discuss each of the CSFs grouped according to the themes.

**Table 2: CSFs for KT via the Malaysian Government Education Website**

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<th>CSFs MASED</th>
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**Theme 1: Management Role**

Management, especially senior officers, heads of unit and directors of division should support and encourage usage of the website (CSF 8 – Leadership). They should provide exemplars, create awareness, explain to users the online services and encourage users to follow rules and regulations that have been implemented for the website. As mentioned by the Assistant Director ICT: ‘Enforcement and commitment to follow the rules and regulations. Also support by top management is important’.

**Theme 2: User Focus**

MASED promotes their website to the public by advertising the uniform resource locator (URL) on television and in local newspapers (CSF 1 – Awareness and notification). MASED also organises an education carnival during school holidays to inform users of the website. For teachers, MASED
sends e-mail to inform them of extensions to the website content, with a link to that information.

MASED pays attention to usability, in particular the functionality and navigation of the website (CSF 2 – Usability: Functionality and navigation). Attention is paid to the interface to ensure a user-centric design. For example, consideration of design issues such as font size to cater to users with disabilities is important. MASED also ensures accurate and complete links, and that knowledge resources are easy to access with minimal “clicks”.

MASED always makes user satisfaction a priority (CSF 3 – User focus: Understand needs of recipient). For example, they provide users with basic information such as staff information for contact purposes, online services available and other information about the organisation. As stated by the Chief Assistant Director ICT: ‘Basic information such as information about organisation, online services, staff information for contact purposes should be there’.

MASED ensures that the website presentation is engaging (CSF 4 – Presentation of knowledge). This includes the links and design of the website. The links should be directed to the correct knowledge resources, and functioning. The design should not be crowded or include inappropriate animations. As highlighted by the Assistant Director ICT: ‘The website needs to be interesting. No broken links and the items that can be downloaded are not too big, and the appearance of the website is not too crowded with unnecessary animations’.

MASED should be aware of the differences in ICT user capability (CSF 9 – User ICT literacy: Awareness). Drawing upon that, MASED presents knowledge to cater to all user levels. According to one of the respondents, users, especially staff, need to learn how to use the ICT equipment provided. They should always communicate with the officer in charge regarding any difficulties while using the equipment.

MASED provides training for staff to use online services (CSF 10 – Education, training and knowledge sharing). Training is conducted in small groups. Individual coaching is also available upon request. Due to limited time and resources, staff who have attended the training are encouraged to share what they have learned among their colleagues. In addition, MASED provides procedures and instruction manuals supporting the online services on websites. Users can also contact MASED, to obtain help to access knowledge resources on the website.
**Theme 3: Employee Focus**

Management, in particular human resource management (HRM), should be aware of the job tasks of the website providers (CSF 11 – Employee focus). Management should provide sufficient staff to develop and operate the website. According to the respondents, currently content managers for each division must handle all tasks that related to ICT. As a consequence, website management tasks sometimes drop in priority. The respondents also stated that MASED needs an officer who is primarily in charge of updating the website. The updated website can improve the reliability of the knowledge provided, and hence can attract users to refer to the website.

**Theme 4: Content Focus**

MASED ensures that the website includes content that is relevant and regularly updated (CSF 5 – Content). The content should be simple and easy to understand. For example, the language used for students should be simple compared with that for teachers. The officer in charge needs to schedule content checks so that the website remains up-to-date. Content should include both the name of the content author and their division. It should also contain advice on update schedules so that users can organise their revisit times.

**Theme 5: Technology Focus**

MASED ensures that knowledge is easy and fast to download from the website (CSF 6 – Accessibility). Downloadable items must not be too large and must adopt formats that facilitate download. Internet access and speed are important factors, particularly in the implementation stage. These factors are not only important for KT via government websites, but also important for government to provide services online. Some staff have chosen to access the Internet at a cyber café because they report problems with access. Some staff also have their own Internet line at home. As one of the respondents asserted, in order to successfully transfer knowledge, the provider must make high quality Internet connections available. Only then will users refer to the website. Participants argued that without satisfactory Internet connection users will prefer to contact MASED directly to fulfil their knowledge needs. Staff can apply for support to upgrade the Internet speed for their division, but funding is limited. Given users consistently complain about a lack of Internet access, the provider has a dilemma as to whether to upload all knowledge resources to the website - or to make these available primarily in hardcopy. In fact, the providers themselves report problems with the slow speed of Internet access while uploading to the website.

MASED needs to provide ICT infrastructure (hardware, software, network and servers) to users and ensures that the website is compatible with that infrastructure (CSF 7 – ICT infrastructure: Availability and functionality).
MASED has to ensure that the infrastructure is reliable through appropriate maintenance and management. According to respondents, the availability and functionality of ICT infrastructure is especially important in the ramp-up stage, as then users are applying received knowledge, but might be facing difficulties in applying it. They need to refer to the website instantly in order to solve difficulties.

MASED should design the website as an interactive platform that facilitates users providing feedback to the website developers (CSF 12 – Interactive platform). MASED can then be responsive to identify website problems.

Although the website does not require users to input personal information, MASED still needs to create an environment where users feel safe and confident when accessing the knowledge resources provided (CSF 14 – Security). MASED needs to ensure the website follows policy regarding security, to protect users.

**Theme 6: Organisational Culture**

MASED employees should seek to improve the way they work, and management needs to encourage these improvements (CSF 13 – Attitude and change management). Employees need to learn and explore the website and be aware of any new updates on the websites. MASED employees need to become proactive in providing current knowledge. If the website is replete with knowledge resources, is current and up-to-date, the website will attract users. The respondents also stated that teamwork is important to provide effective content.

**DISCUSSION**

In this section, the researchers unpack the 14 CSFs reported highlighting instances where a CSF was the first-mentioned by a respondent when considering each KT stage. It should be noted that when discussing each KT stage, respondents tended to mention many factors. The subset of first mentioned CSFs at each stage provides some insight into which CSFs were at the front of each respondent’s mind. The use of the first-mentioned response in this way has been previously used by researchers to capture what is seen as most important to study respondents (e.g. Krause & Jay 1994).

Some initial observations, drawn from these results, include:

i. CSFs have been identified almost uniformly across the four stages: 10 CSFs in each of Stage 1 – Initiation, Stage 3 – Ramp-up and Stage 4 –
Integration, and 8 CSFs in Stage 2 – Implementation. This indicates that the respondents have no difficulty in appreciating critical factors across all stages of the KT model.

ii. Overall, the most frequently cited CSFs are: CSF 3 – User focus: Understand needs of recipient; CSF 7 – ICT infrastructure: Availability and functionality; CSF 5 – Content; CSF 13 – Attitude and change management; and CSF 9 – User ICT literacy: Awareness. MASED acknowledges that in order to successfully transfer knowledge to users, the government provider must be responsive to users’ needs. In addition, MASED must provide ICT infrastructure to users, especially to staff, and ensure that the infrastructure is functioning properly. MASED must also be aware of users’ ICT literacy.

iii. During the Initiation Stage respondents report CSF 3 – User focus: Understand needs of recipient most frequently, followed by CSF 1 – Awareness and Notification and CSF 7 – ICT Infrastructure: Availability and functionality. MASED must know users’ needs and prepare accordingly so that users’ needs can be met. MASED must also inform users at initiation of the availability of government knowledge on the website. Also, MASED must ensure that the ICT infrastructure that is provided for staff is functioning correctly.

iv. During the Implementation Stage respondents report CSF 7 – ICT infrastructure: Availability and functionality most frequently, followed by CSF 9 – User ICT literacy: Awareness and CSF 6 – Accessibility. During the implementation stage, users are starting to download knowledge from the website. Correct website operation is critical. MASED must also be aware of the level of ICT literacy of users and prepare the knowledge in many formats, including allowing users to contact officers for assistance.

v. During the Ramp-up Stage respondents report CSF 13 – Attitude and change management most frequently, followed by CSF 9 – User ICT literacy: Awareness and CSF 10 – Education, training and knowledge sharing. During the ramp-up stage, users are applying the knowledge that they have downloaded from the website. Attitude, supported by an understanding of change management principles, is critical if commitment to exploit the acquired knowledge is to be sustained. If ICT literacy is poor, users must be supported to acquire the necessary literacy.

vi. Finally, during the Integration Stage respondents clearly report CSF 5 – Content most frequently. If the content on the website is reliable and updated, users will return to the website.

vii. If one focuses only at each stage on the first-mentioned CSF the most important CSFs at each stage are:
The above highlights that at Initiation stage, which involves the knowledge provider preparing knowledge content for the website and the potential user recognising a need for knowledge and commencing a search for that knowledge, the respondents see as critical that the website content should be prepared with the recipient in mind, including the choice of meaningful and simple language (CSF 3 – User focus: Understand needs of recipient). In short, the user perspective must be understood.

At Implementation stage, this begins with the decision of the knowledge recipient to proceed to acquire the knowledge, focus shifts to the basic ICT infrastructure which must be available to users. It should function properly and respond quickly to support users to access and use the knowledge (CSF 7 – ICT infrastructure: Availability and functionality).

At Ramp-up stage, which begins when the knowledge recipient starts applying the received knowledge, the respondents see as critical that the whole organisation should be keen to learn and adopt new work practices and new ways of processing and performing tasks (CSF 13 – Attitude and change management).

Finally, at Integration stage, when the knowledge recipient has received the transferred knowledge and moved to integrate its use with their needs, the respondents see that it is critical that the website should contain content that is accurate, relevant, regularly updated and which meets user requirements. It should also contain advice on update schedules so that users can organise their revisit times (CSF 5 – Content). At this stage, the content itself is seen as critical – a lack of accuracy, relevance, currency and a failure to meet user requirements, will be exposed as the user seeks to integrate the acquired knowledge with their ongoing needs.

CONCLUSION

This research has demonstrated that theory of Szulanski’s (2000) four stages of KT model, namely Initiation, Implementation, Ramp-up, and Integration can be applied in the e-government context to both understand the processes for KT via an e-government website and as a theoretical lens to identify CSFs.
In identifying CSFs for KT via government education websites, this research has filled the gaps which is ICT practitioners involved in developing and managing organisational websites, particularly government websites, have been provided with insights that can contribute to making a website a successful channel for the delivery of government knowledge resources (information and services) to users. Specifically:

i. The research has identified CSFs for KT via e-government websites. The CSFs can be of practical value to practitioners as a planning tool prior to implementing an e-government website strategy for KT and for established websites as a tool for reviewing of an existing strategy. Further, other government agencies might learn from and use the findings to improve their own websites. Non-government organisations might also consider these if seeking to emulate the practices of government agencies to enhance their websites to better support KT to users.

ii. The initial work reported on the association of CSFs with each KT stage may be helpful to e-government website planners and managers, when reviewing website strategies. It is noted however, that the first mentioned responses technique applied to identify individual CSFs associated with each stage should be treated with some caution. As such, practitioners might better consider the wider range of CSFs identified as being associated with each of the various stages.

It is recognised that this study, built upon a single case study of an educational agency of the Malaysian government, may not necessarily be applicable to other contexts (i.e. educational agencies of other national governments and/or other forms of government agency). Ongoing studies of educational agencies of other national governments are in progress, to gain insight into the extent to which the CSFs reported are shared in different national government contexts.

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