Benefits for ICT shared services: observations from the Malaysian the HE sector

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Abstract

Universities are considering cooperating or sharing in a wide range of areas, in order to function effectively and efficiently, and to be responsive to changing marketplace demands. Studies suggest that a wide range of services could be shared across Higher Education Institutions (HEIs), offering many potential benefits. Shared services is considered most appropriate for support functions, and is widely adopted in Human Resource Management, Finance and Accounting; more recently being employed across the Information Systems function. IS applications and infrastructure are an important enabler and driver of shared services in all functional areas.

While shared services is deployed with the expectation of various benefits, a deeper review of what the actual intensions or objectives of shared services are (especially in relation to IS and/ or the higher education sector), is an area requiring further investigation. A deeper understanding of shares services benefits and objectives will give direction and focused attention in practice and is also vital for the progression of the field.

Through a series of case studies of shared services from the Malaysian Higher Education sector, 5 key categories of benefits, namely; (i) Economic, (ii) Technical, (iii) Process Improvement, (iv) Strategic and Organisational, and (v) Political benefits have been identified and validated in this study. The potential inter-relationships between these categories are also investigated through the case data to form an early theoretical framework on the complex associations between these different benefit categories.

The contributions of this paper are that we show that the shared services in the Higher Education sector strive for the same, broad set of benefits as earlier identified in literature, but that the emphasis is more on the combination of economic and technical benefits than on economic and strategic/organizational benefits. Moreover, we specified the interrelationship between the different benefit types, which is important for organizations that want to realise their shared services benefits.

INTRODUCTION

Shared services is an organization redesign option that gives primacy to the efficiency of corporate functions and can be seen as an alternative to outsourcing (Sako, 2010). Traditionally, shared services entails the consolidation of replicate

business functions; predominantly support functions like Finance, Human Resources or Information Technology (IT), into a separate unit, which provides customer oriented services to the originating business units (e.g. Bergeron, 2003; Schulman, Harmer, Dunleavy, & Lusk, 1999). Nowadays, we see a broader conceptualization of shared services, also including sharing across organizations (e.g. Janssen & Joha, 2006; Wang & Wang, 2007) and sharing without a separate unit (e.g. Bækgaard, 2009; Gibson & Arnott, 2005). For the purpose of this paper, we adopt the more contemporary and inclusive definition of shared services as adapted from Fielt et al., (2013); "*an organizational arrangement whereby multiple organizational units collaborate in the concentration of resources to provide services that support their business activities*".

While such research has yielded valuable insights for both academe and practice, there is yet the need to better understand those contingencies that would influence organizations' to move to shared services; to understand the underlying motives and anticipated benefits behind these decisions (adopted from Baldwin, Irani, & Love, 2001 - who makes a similar argument for the outsourcing domain). An understanding of anticipated benefits of shared services and managing these, help organizations to better achieve target goals of implementing shared services, ultimately contributing to better exploitation of the arrangement (adopted from J. Braun, Ahlemann, & Mohan, 2010). As warned by Braun et al. (2005), many IS/IT projects fail to deliver the desired benefits, as a result of most organizations focusing on the implementation of technology rather than on the realization of anticipated benefits.

While shared services is deployed with the expectation of various benefits, a deeper review of what the actual intensions or objectives or motives of shared services are (especially in relation to IS), is an area requiring further investigation. Specifying organizational objectives/motives is known to be valuable, as specific objectives give direction, and focus attention and resources. The introduction of shared services is a highly consequential, strategic decision requiring long-term commitment and entailing substantial complexity and risk (Janssen & Joha, 2006). Industry analysts stress the importance of understanding the objectives of shared services, e.g. Gartner (2008, p. 1) stating "*Make sure you know why you're implementing shared services*". A thorough understanding of its objectives/motives is vital for the progression of the field and will be the foundation for its advancement in practice and research. For example, shared services objectives/motives form the key input

when designing a shared services decision support framework or for benefits-realization and evaluation of shared services initiatives.

Universities are looking to 'shared services' as one means of improving organizational performance (Wagenaar, 2006). The Higher Education (HE) sector has much potential to further exploit shared services arrangements, but is a poorly understood and under researched area. The primary goal of this paper is to address the research question; '*What are the benefits of ICT shared services in the Higher Education context?*' This paper reports on shared services benefits, as observed from a series of case studies of ICT shared services in the higher education sector from the Malaysian public education context.

The paper commences with a literature review and then describes the research approach employed, which is followed by presentation of the findings. The paper concludes with a summary discussion, acknowledgement of limitations, and several pointers to future work.

LITERATURE REVIEW

This is a summary literature review effort which aims to; provide further substantiation for the suggested prospective of shared services in the higher education sector, demonstrate the scarcity of prior research in this domain, and present an overview of studies (in general) conducted to better understand shared services benefits. Overall, it demonstrates how different objectives of shared services are discussed across many papers from different contexts in a scattered manner, lacking a consolidated overview of why organisations would choose shared services, a gap that this study aims to address from within the (Malaysian) Higher Education context.

Overview of the Higher Education sector: a unique context

The emerging global Higher Education (HE) market challenges all universities to reconsider their mission, in order to function effectively and efficiently, and to be responsive to changing marketplace demands. The comparatively homogenous business requirements of universities (compared to many other sectors), combined with strong impetus to respond to a raft of common influences across the Higher Education (HE) sector worldwide, suggest potential for the sharing of related activities and resources via shared services (Deloitte Touche Tohmatsu, Flinders University of South Australia, & University of South Australia, 2001; KPMG, 2006; Miskon, Bandara, Fielt, & Gable, 2011).

Environmental drivers that influence the interest for shared services from Higher Education Institutes (HEIs) include: continuing growth in student numbers, changes in the nature of academic work, increasing competition between institutions, government pressure to improve operational efficiency, and generally diverse and shifting expectations of

stakeholders (Deloitte Touche Tohmatsu, et al., 2001; KPMG, 2006). These substantial and continuing shifts in the sector demand more efficient and improved processes. Universities thus seek to identify services that can be managed more effectively and at a lower cost and to determine the most effective means of delivering those services. In order to achieve sought after cost savings and improvements in performance, they are considering co-operating or sharing in a wide range of areas. Furthermore, there is also a growing desire and willingness within universities to share information, solutions and skills amongst each other (Boyle & Brown, 2010; Hoffman, 2009; KPMG, 2006; Millet, Te'o, Rhodes, Clarke, & Carswell, 2005).

Information technology is an important driver and enabler of shared services. Moreover, one of the areas where shared services is gaining prominence is the IT function itself. Universities are examples of organization that use an enormous amount of IT systems within a single organization or across universities. Thus, there is an opportunity for universities to share duplicate IT systems with one another, saving costs through economies of scale (Yee, Tan, & Chan, 2009).

Shared services studies in the Higher Education sector: an under-researched domain

Studies conducted about shared services in the HE are scares and often limited to the practitioner reports such as; the Australasian shared services study (2001) by Deloitte, report from KPMG (2006) and Joint Information Systems Committee (JISC, 2008) in the UK, and the study by the University of Georgia (2008) from USA.

Two universities in Australia; University of South Australia and Flinders University carried out a joint initiative to consider the feasibility of adopting shared services between them as a model for administrative service delivery (Deloitte Touche Tohmatsu, et al., 2001). KPMG's report from UK details the range of existing shared services in HE. The JISC (2008) reported the awareness, likely responses of key stakeholders, prevalence, extent of and attitudes towards shared services in the UK. The KPMG study (KPMG, 2006, p. 23) attempt to list the benefits gained from shared services, and discuses such around cost savings and other benefits such as; "*Improved service, leading to improved customer experience,... improved morale amongst staff..., and the opportunity to reorganise services around the customer..., senior management focusing their attention on adding value, rather than transaction processing activities..., greater resilience from a wider base..., more staff with key skills for the specific services..., and shared training and development opportunities for staff*".

Prior work on shared services benefits: forming the theoretical foundations

The anticipated benefits are often in alignment with the actual objectives/ goals. If thought of from a project lifecycle view, objectives/ motives are the reasons an organization may consider shared services (which is at the start of the lifecycle), where as the benefits are the outcomes (hence, are towards the end of the lifecycle) of such an initiative. Hence, while the focus of this work was to gain insights to the benefits of shared services, prior work that discussed motives/ goals of shared services were also integrated, as these highly aligned to anticipated benefits. It is also acknowledged that anticipated benefits are not the same as actual achieved benefits, [Janssen and Joha (2006) also state so through empirical evidence]. Yet, any evidence of anticipated benefits were considered in this exploratory study that attempted to understand benefits of shared services (differentiation of anticipated and actual benefits is proposed as future work).

The implementation of a shared service can be viewed as "*a particular kind of sourcing arrangement with long term and strategic impact*" (Janssen & Joha, 2006, p. 102). It is often driven by a series of complex, interrelated motives that should be well understood (Janssen & Joha, 2006). Managing the benefits for shared services can be complex and challenging. First "*the promise of the SSC comes from a hybridization of traditional models aimed at capturing the benefits of both centralized and decentralized arrangements*" (Bergeron, 2003 cited in Janssen & Joha, 2006, p. 104). Shared services should ideally combine the advantages of both centralization and decentralization, and this can create conflicts. Best practices associated with one motive can be in conflict with the best practices prescribed for other motives (Hirschheim & Lacity, 2000). Furthermore, "*the perceived expectations of SSCs are often high and go beyond realism as it is difficult to accomplish all motives*" (Janssen & Joha, 2006, p. 104).

Prior studies that have looked at shared services benefits and or motives are limited. One such study is the work by Jansen and Joha (2006), where they look at the motives of introducing a shared services centre in public administration. This had 4 categories of shared services motives, namely; (1) strategic and organizational, (2) political, (3) technical, and (4) economical. Janssen and Joha's benefits framework was derived based on a single case study, and was primarily aimed at; identifying the motives of introducing a shared services centre. They compared anticipated motives with those that were actually achieved using the results of Baldwin et al. (2001) which looked at motives for outsourcing. Janssen and Joha (2006b) in this study, also make a comparison between shared services and outsourcing motives. Fielt et al., (2013) takes the Jansen and Joha (2006) shared services benefits framework and further respecifies and validates it with evidence from an archival analysis. They present a

revised framework with the 5 main categories, basically decomposing the strategic and organizational, to two segments; namely; strategic and organizational and process objectives. This study has used the revised Janssen and Joha's benefits framework as presented in Fielt et al. (2013) as the a priori model for the investigation of shared services benefits in the HE sector.

RESEARCH METHOD

A study of shared services benefits, specific to the HE sector is warranted as a means to further test and re-specify existing frameworks, while also assessing its validity and generalizability to this new context. Studies that extend a model/framework, by altering the context, contribute to cumulative knowledge by reconfirming existing findings (Brown, Kelley, & Schwarz, 2006). Such "*studies contribute to an associated stream of literature via confirmation of existing knowledge and expanding cumulative knowledge*" (Brown, et al., 2006, p. 11)

Lorence and Spink (2004) argue that motives affecting outsourcing decisions are influenced by the contextual elements of the domain, and Yang and Huang (2000) conclude that different organizations will have different motives for outsourcing. Given that shared services and outsourcing have many similarities (Janssen & Joha, 2006, 2008; Ulbrich, 2006), the research team, infer that the HE sector, with its unique features (Burke, 2005), will have HE specific motives and thus warrants separate in-depth investigation.

The multiple case study approach employed, emphasizes qualitative analysis, and facilitated the study in a natural setting to generate theory from practice, simultaneously enabling understanding of the nature and complexity of the phenomenon investigated (Benbasat, Goldstein, & Mead, 1987; Yin, 2009). It is an approach particularly suited to researching an emerging area in which few previous in-depth studies have been conducted (Lee, 1989; Yin, 2009). A multiple case design is desirable when the intent is to build and test theory (Yin, 2009). A single pilot-case study and subsequent multiple case studies were employed in this research. The pilot case study was conducted solely to prepare for the multiple case studies round (and hence is not reported here). The primary goal of the multiple case studies was to inductively identify issues of ICT shared services identified from the case data, and later substantiate them with observations from the literature (for theoretical triangulation purposes).

The study focused on ICT related/ supported shared services within the Higher Education context. A literal replication approach (Yin, 2009) was employed, where similar organizational settings are considered; public universities in Malaysia. Like universities elsewhere, Malaysian universities were experiencing many environmental drivers

encouraging a shared services approach (e.g. increased competition, reduced funding, pressures for operational efficiency improvements). The HE sector in Malaysia was already actively considering shared services as a nationwide strategic imperative, as evident in the "Knowledge, Information Communication Technology Strategic Plan (KICTSP) for Malaysian Public Higher Education" [1]. The study team had good access to public universities in Malaysia, who were interested to participate. Three public universities in Malaysia were included in the study. The main study site was UTM[2] (Universiti Teknologi Malaysia), where majority of the data collection took place. UTM was chosen as the primary site as; they had been implementing different sharing arrangements for a while, UTM ICT project leaders held leading roles in relevant inter-organisational sharing arrangements at national level, and also for feasibility reasons (i.e access to people through networks known to the research team). Interviews were also conducted at UMP[3] (Universiti Malaysia Pahang) and UTeM[4] (Universiti Teknologi Melaka).

A thorough investigation into the anticipated benefits of shared services, require insights from those who are directly involved with the area of study (in this case; ICT shared services). Hence, institutional and department heads who are responsible for providing and managing IT in each organization were sought as candidate case study participants. Interviews were planned with the major decision makers and executors of these decisions – those who influence, or are influenced by, existing and potential sharing arrangements in ICT projects. A total of 9 interviews were conducted (see Table 1).

Table 1: Overview of case study participants

	University	University Name	Role	Years of experience in current role
1	UTM	Universiti Teknologi Malaysia	ICT Director	3 – 5 years
2	UTM	Universiti Teknologi Malaysia	Deputy ICT Director	5 – 10 years
3	UTeM	Universiti Teknikal Malaysia	ICT Director	More than 10 years
4	UTeM	Universiti Teknikal Malaysia	Deputy ICT Director	3 - 5 years
5	UMP	Universiti Malaysia Pahang	Deputy ICT Director	5 – 10 years
6	UTM	Universiti Teknologi Malaysia	ICT Project Leader	5 – 10 years
7	UTM	Universiti Teknologi Malaysia	ICT Project Leader	5 – 10 years
8	UTM	Universiti Teknologi Malaysia	ICT Project Leader	5 – 10 years
9	UTM	Universiti Teknologi Malaysia	ICT Project Leader	5 – 10 years

A case study protocol was designed, carefully documenting all procedures relating to the data collection and analysis phases of the study (Benbasat, et al., 1987). Qualitative data

[1] This is an unpublished Malaysian Government report. This has been cited by other studies as well (e.g. Ismail, 2008; Ismail et al., 2008)
[2] See www.utm.my for further details.
[3] See www.ump.edu.my for further details.
[4] See www.utem.edu.my for further details.

collection mechanisms including in-depth interviews, and content analysis of existing documentation were used to collect 'rich' evidence about the shared services initiatives and the respective higher education institutions investigated. Observations and documentation were used to augment and corroborate interview data, which was the main input to data analysis. The interviews were semi-structured; each completed within 60-90 minutes, conducted in the Malay language and later transcribed and translated into English. All interviews followed the same structure and format (as pre-specified by the case protocol), commencing with an open discussion on understanding and perception of shared services and perceived potential benefits, followed by their perceptions of success/failure factors for shared services.

All relevant data (interview transcripts, research memos, documents about the sharing arrangement, etc.) were maintained in a 'case database' (Miles & Huberman, 1999; Yin, 2009). Throughout the analysis, close linkages between the research questions, evidence, interpretations and conclusions were maintained with the support of the qualitative data analysis tool (NVivo 9.0) applied.

A deductive approach was used when analyzing the shared service benefits (note that the interviews were however collected in an open ended, inductive manner). The research team sought to use prior shared services frameworks to support coding and analysis of benefits identified from the case data. As described under the literature review, a shared services benefits framework presented by Janssen and Joha (2006) was identified, which was later re-specified and validated by Fielt et al. (2013). Fielt et al.'s (2013) framework was used as a basis to code the data from the case study.

Coding and analysis took place in multiple rounds. The main categories of the shared services benefits framework from Fielt et al. (2013) were used as the primary classification categories in the detailed coding- enabling any new categories to also emerge – if supported with case evidence. Thus, the content captured under the 'Benefits' high level node, were mapped (coded) against the categories of the a-priori framework. This was done by two coders, maintaining inter-coder reliability of >85%. No new categories emerged. While coding at this level, re-occurring sub-themes that supported the observations were also grouped together (which were later discussed and confirmed by both coders - with an agreement percentage of 90%). In general, an agreement percentage of 80% or more is considered acceptable in most situations, as are kappa coefficients of .80 or greater (Lombard, Snyder-Duch, & Bracken, 2010). Construct validity was strengthened within the study through the use of multiple sources of evidence, establishing a chain of evidence with a well-structured case database, and by having key informants review draft case study reports at the completion of data analysis at each case site. Predictive validity was increased

through data analysis techniques such as pattern matching and explanation building (Yin, 2009). External validity, or extensibility of the findings, has been improved through the conduct of multiple cases studies. The following section presents the findings of this phase.

STUDY FINDINGS

This section presents the findings from case study analysis, reporting on the observed benefits of ICT shared services in the HE sector. It first presents the different (anticipated) benefits for shared services, and then discusses how these different benefits are inter-related.

Anticipated Benefits for Shared Services as Observed in the HE Sector

Overall, five main categories of benefits were identified from the case study data, as graphically summarized in Figure 1.

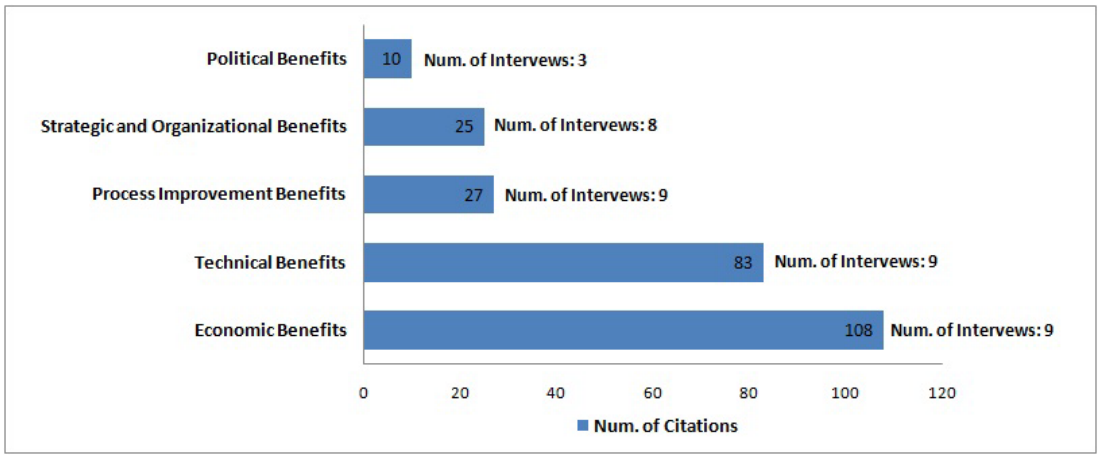

Figure 1: Overview of the shared services motives as observed from the case study data

As anticipated, Economic benefits were the most mentioned in the interviews. Financial and cost benefits are often put forward as the key reasons why organizations decide on various sourcing options (Baldwin, et al., 2001, p. 15). The case data also suggested that shifts to shared services are motivated by not only financial considerations, but also socio-technical reasons - as illustrated by the other (non-economic) benefits instantiated by the case data. The following section discusses each of the different benefit categories. Table 1 provides further insights – illustrating the sub-themes that were mentioned frequently within each category (see columns 2) with supporting evidence from the case data (see columns 3-5).

Table 1: Summary of benefits identified through the case data

1	2	3	4	5
ID	**Shared Services Benefit**	**Interviewees**	**Citations**	**Sample Evidence**
1	**Economic Benefits**	**9**	**108**	
i)	Cost Advantages	9	71	***"****for me the main benefits are reduced cost, able to control my resources"* ***(ICT Director, CICT – UTeM)*** ***"****we are able to avoid certain costs for the development of ICT projects when done through shared services... also able to avoid the cost of training and also time... We are able to lower the university's cost in terms of deploying and implementing the systems"* ***(Deputy ICT Director, Computer Centre – UTeM)***
ii)	Leverage Resources	8	53	***"****Reduction can be seen as one of the benefits and can be viewed in many ways. One of them is reduce cost - in terms of cost, we can reduce the operating cost. We can reduce cost through better utilization of resources. We also can reduce the duplication of efforts"* ***(Deputy ICT Director, CICT – UTM)*** ***"****No need to transfer the resources and no need to add extra resources. Whatever resources that CICT have, other units can use it.... it is lower our cost too as we don't have to maintain anything on our own such as hardware maintenance"* ***(ICT Director, Computer Centre – UTeM)***
iii)	Transparency in costs	1	2	***"****we are able to provide transparent budgeting and expenditure reporting for ICT across the university"* ***(Deputy ICT Director, CICT – UTM)***
2	**Technical Benefits**	**9**	**83**	
i)	Standardise IT application development processes	4	20	***"****The key excellent in information delivery is to standardize the central system and customize the delivery. From the view of system development, this means consolidating all your data into a central database and integrating it to allow users to access content through any application. Information delivery improvements from shared services arrangements may result from increased use of cross functional applications by enabling the integrated data... For those universities that use vendor products as their system, the systems were not integrated – I can observe that they have different interface environments from one system to another system. For me, in a sharing environment – standardization plays important role. Service is more reliable through standardization - easily to customize and configure in the future according to your specific needs and document flows"*

				(ICT Director, Computer Centre – UTeM)
ii)	Access to Technology and IT expertise	5	18	***"…*** *latest technology obtained by them can be applied in the system development processes. In addition it help them to develop the system more effectively by sharing the knowledge and develop the systems that will meet the user requirements – kind a pooled experience here"* ***(ICT Director, Computer Centre – UTeM)***
iii)	Better alignment of IT with business needs	3	13	***"****In terms of sharing capability, this is looking at how the ICT projects will fit to your business objectives and how it will support the university strategy".* ***(Deputy ICT Director, CICT – UTM)*** *"The resources of many computers can be cooperatively and synergistically harnessed and managed as a collaborative tool towards one common objective - to serve the business needs"* ***(Project Leader 1, CICT – UTM)***
iv)	Improved IT Opportunities	2	9	***"****I think I can see that shared services organization is an option for the organizations to manage, control, maintain and update the cloud infrastructure... by sharing their resources, network bandwidth and storage can be consumed real-time in a more efficient manner by a number of users"* ***(ICT Director, Computer Centre – UTeM)*** *"I would say the main benefit is much more on the efficient use of idle resources. Jobs can be send work out to idle servers or even idle desktops.. Policies can be in place that allows jobs to only go to servers that are lightly loaded or have the appropriate amount of memory/cpu characteristics for the particular application... Jobs can be executed in parallel speeding performance"* ***(Project Leader 4, CICT – UTM)***
3	**Process Improvement Benefits**	**9**	**27**	
i)	Removal of duplicate processes and related resources and tasks	9	16	***"****We are able to avoid wasting time and available resources on redundancy effort... We also can reduce the duplication of efforts...and eliminate overlapping forms and paperwork"* ***(Deputy ICT Director, CICT – UTM)*** *"sharing avoids unnecessary duplication of effort during the maintenance process"* ***(Deputy ICT Director, Computer Centre – UTeM)***
ii)	*Standardization of processes and functions*	6	8	***"****Service is more reliable through standardization - easily to customize and configure in the future according to your specific needs and document flows"* ***(ICT Director, Computer Centre – UTeM)***
4	**Strategic and Organizational Benefits**	**8**	**25**	
i)	Enable Collaboration	5	24	*"However, at one point universities in Malaysia should use sharing as a strategy to maintain independence for competitive advantages, but at the same time pursue collaboration for products and*

				services that do not present a significant competitive differentiator… through sharing initiatives, we are able to engage with stakeholders across the university, including faculties and other departments and staff to create a collaborative, integrated ICT environment" ***(Deputy ICT Director, CICT – UTM)*** *"it give opportunities for UTeM to collaborate with other universities and this might be able to improve cooperation for other matters"* ***(Deputy ICT Director, Computer Centre – UTeM)***
ii)	Professionalized service delivery	3	13	***"****Where practicable, we need to consider options for streamlining the administrative operations <through sharing> to maximise the level and quality of administrative service, achieve cost savings, and look for ways of improving the quality of service in support of their teaching and learning, and research activities... sharing with integrated systems minimize the chances for data entry errors and conflicting data*" ***(Deputy ICT Director, CICT – UTM)*** *"This also improves the quality of services through improvement of cross-functional coordination. For example – by using such systems, we are able to reduce the manual processes from 4 to 3 steps. This will reduce the time to get job done (i.e. cycle time) and avoid the duplication of effort. Furthermore it might also increase in percentage of tasks with no errors"* ***(Deputy ICT Director, Computer Centre – UTeM)***
iii)	Customer Orientation	3	6	*It improves customer service and help universities make more informed decisions*." ***(Deputy ICT Director, CICT – UTM)***
5	**Political Benefits**	**3**	**10**	
				"*when UTM developed a product/ service that can be applied to all universities ... the ministry will recognized UTM as an outstanding university compared to others"* ***(ICT Director, CICT – UTM)*** *"sharing moreover indirectly promotes UTM's name – when a system developed by UTM has been adopted by all public universities in Malaysia, in this case the MyLine System. This made UTM as the first public university as a reference …that has been developed an in-house system that can be disseminated to other users - external to UTM…this has brought honour to UTM… The benefits are; successfully introduced UTM in Asia"* ***(Project Leader 1, CICT – UTM)***

Economic benefits

Economic benefits were the most cited (108 citations), with all nine interviewees mentioning this as a primary targeted aim of shared services. The data pointed to three specific sub-themes; Cost Advantages, Leveraging Resources, and Transparency in costs. *Cost Advantages* included general reduction of costs and overall cost efficiencies due to economies of scale. *Leveraging Resources* captured how costs can be reduced through better utilization of existing resources (e.g. pooling them), especially for operational tasks. *Transparency in costs* was the ability to show how and where costs occur, and was discussed almost as a side effect of having shared services.

Technical benefits

Technical benefits related to the objectives associated with Information and Technology which forms an important aspect in ICT shared services (the focus of this study). This, the second most cited category (83 citations), was also mentioned by all nine interviewees. The data suggested advantage from a *standardised IT application development process,* within shared services environments – and how this can facilitate data and information integration, and common interfaces, while at the same time reducing costs of ICT development and maintenance. *Access to Technology and IT expertise* was another main technical benefit that was mentioned, where applications, infrastructure and expertise are pooled through the sharing efforts. Sharing/ shared services also enables the institutions to *better align IT and its functionality to business requirements* and presents *improved IT opportunities;* like making use of cloud computing and grid computing.

Process improvement benefits

Implementation of shared services can have substantive impact on the business processes of involved parties, with improved processes noted both in the study (27 citations) and in prior research (Boh & Yellin, 2006; Goh, Prakash, & Yeo, 2007) as an important target goal of shared services The *removal of duplicate processes and related resources and tasks* is one of the main process improvement related benefits. Shared services also encourage the *standardization of processes and functions,* which contributes to cost savings, improved services and better control over processes.

Strategic & organizational benefits

Strategic & organizational benefits were mentioned by eight interviewees. As Table 1 depicts, three main sub-themes emerged for this category. The case data showed that *enabling collaboration* through shared services has direct and indirect strategic intent. *Professionalized service delivery* was also mentioned as a strategic imperative, where core and supporting processes and services can be delivered more efficiently and at a high standard. *Customer orientation,* where a customer focus can be maintained for service delivery, was discussed as well within the case data. A number of other sub-themes were also mentioned, but seemed already to be encapsulated within the above mentioned three sub-themes (evident through analyzing the coded content in detail, where the same content was

captured under different sub-themes). Due to this, and also as they were not highly instantiated, we did not consider them as separate sub-themes. Examples of such included; competitive advantage (1 source - 2 citations), engagement with stakeholders (2 sources - 2 citations), and HR development (2 sources - 2 citations).

Political benefits

Political benefits were the least mentioned (10 citations) in the case data. When mentioned, 'Good will' was emphasised, and it was more from the perspective of leading a sharing initiative (by developing services/ products that can be shared) - than from adopting shared services; being a shared services user.

Interrelatedness of Benefits

As Janssen & Joha (2006) state, shared services are often driven by a series of complex, interrelated motives. These lead to and influence (anticipated) benefits, hence should be well understood. Once the benefits were identified and confirmed via case data coded by two coders (and inter coder reliability achieved- as discussed in the approach section above), potential interrelationships were investigated.

The case study data was searched to identify: (1) potential positive relationships, where fulfilment of one benefit can influence the fulfilment of another, (2) potential negative relationships, where realization of one benefit may conflict with the fulfilment of another benefit, and (3) potential reciprocal effects between two benefits, each of which can positively influence realization of the other. Table 2 provides summary results derived by running matrix intersection[5] and proximity[6] queries using the NVivo tool. Investigating interactions between benefits suggested the preliminary shared services benefit-chain in Figure 2.

Though literature e.g. (Hirschheim & Lacity, 2000) suggests some (anticipated) benefits can conflict (negative relationship), hence increase the challenge of managing benefits, analysis herein did not reveal such conflict. Rather, all relationships identified were positive - either one-way or two-way (reciprocal). It must be acknowledged that case study participants were not specifically asked about interrelationships and that results are limited to observations made from inductive data. Nonetheless, similar with Janssen & Joha's (2006) motives study, shared services are here seen (Figure 2) to be driven by a series of complex, interrelated target benefits, prior understanding of which can usefully inform benefits priorities and management.

[5] A Matrix Intersection ('AND') search is a two-dimensional type of Boolean search made available through NVivo. It takes the searched feature from two collections at a time, and finds passages in the documents or nodes in which the search term is contained in both- thus indicating possible overlap and/ or relationships.

[6] A proximity search is a special kind of Matrix search within Nvivo, which allows the candidate to seek associations between nodes, *"A proximity search finds passages with specific features which are close to each other"* (Bandara, 2007, p. 377). Basically, proximity searches seek items that are near, precede or surround other items.

Table 2: Potential inter-relationships amongst the benefits - summary results

Motive Category	Economic	Technical	Process Improvement	Strategic & Organizational	Political
Economic					
Technical	✓ **(a)**				
Process Improvement	✓ **(b)**	o **(d)**			
Strategic & Organizational	✓ **(c)**	✓ **(e)**	✓ **(f)**		
Political	-	-	-	-	

✓ A potential positive relationship, where fulfilling one benefit can subsequently influence fulfillment of another

o A potential reciprocal relationship between two benefits, each of which can positively influence realization of the other

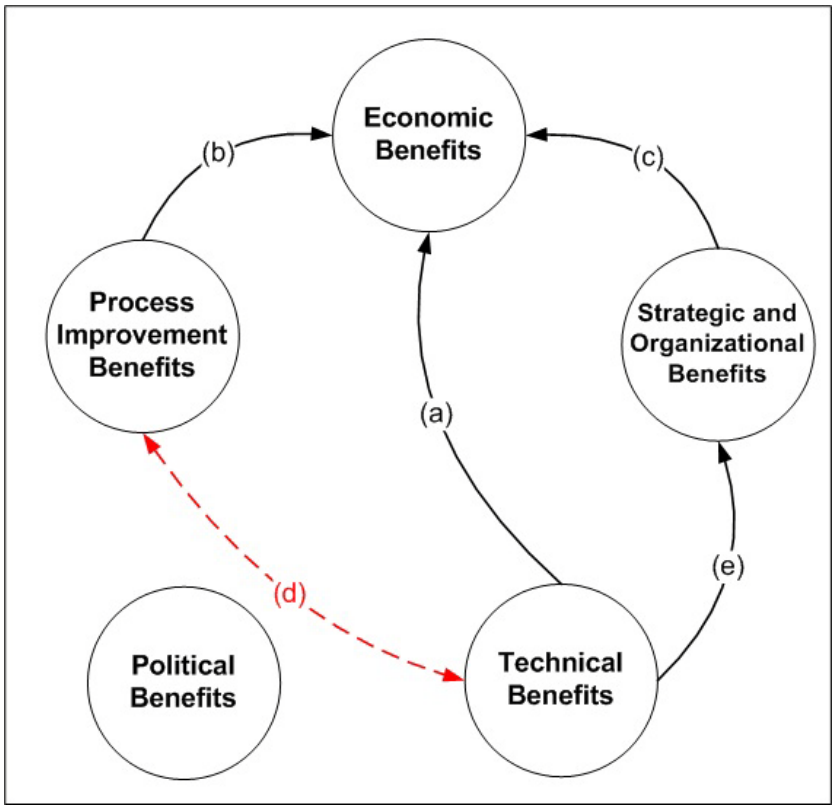

Figure 2: A preliminary shared services benefit-chain

A relationship [see path (a)] was observed between 'economic' and 'technical' benefit categories; where participating entities can reduce costs through technical efficiencies, such as not having to create and maintain IT services and infrastructure:

> *"Save cost which the faculties/units do not have to develop the same application to manage their staff information needs...this improves utilization of resources in terms of hardware, software and also staff*

(Project Leader 3, CICT – UTM)

> *"the university no longer needs to develop the same application. The University may continue to use existing applications, thus saving costs"*
>
> ***(ICT Director, CICT – UTM)***

> *"other public universities also can save their cost. They can use existing resources. Existing resources provided by the UTM. What I mean here, resources refers to hardware and software, no need to develop a similar system, and they also can use the services of staff that is responsible for maintaining the systems"*
>
> ***(Project Leader 1, CICT – UTM)***

The analysis showed how 'process improvement' can in turn influence the achievement of 'economic' benefits [see path (b)]. Interviewees referred to possible cost savings from elimination of duplication:

> *"Cost can be reduced by identifying the redundant effort...in terms of cost, we can reduce the operating cost. We can reduce cost through better utilization of resources"*
>
> ***(ICT Director, CICT – UTM)***

Comments also pointed to cost savings due to the better utilization of related resources within different processes such as systems maintenance and development:

> *"the most important thing is make better use of existing hardware – this will save cost.*
>
> ***(Project Leader 4, CICT – UTM)***

> *"In addition, there is no cost incurred by any university or UPU (one of the units in MOHE) in this project - can save a lot of cost by the use of existing infrastructure"*
>
> ***(Project Leader 2, CICT – UTM)***

Collaboration identified as a 'strategic & organizational' benefit, can also promote cost reduction [see path (c)]

> *"Easier to collaborate with other organizations and the most important thing is make better use of existing hardware – this will save cost"*
>
> ***(Project Leader 4, CICT – UTM)***

The data implied how 'technical' benefits (such as standardization and utilization of IT resources) and 'process improvement' benefits (such as standardization of processes and functions and removal of

duplicate processes and related resources and tasks) work hand-in-hand, thus illustrating a reciprocal effect [see path (d)] between these two:

> *"the faculties/units do not have to develop the same application to manage their staff information. At the same time, this effort is able to avoid duplication in terms of developing the same application to be implemented in each faculties/units.... the shared HR system was able to promote the standardization of common processes"*
>
> ***(Project Leader 3, CICT – UTM)***

> *"for example migrating to a common standardization system — reduces the number of system setups, interfaces, security profiles, and manual workarounds, all of which streamline control design and testing processes*"
>
> ***(ICT Director, Computer Centre – UTeM)***

As path (e) illustrates, the case study data described how shared IT systems can contribute towards obtaining strategic & organizational goals...

> *"shared systems like the grid can solve larger, more complex problems in a shorter time. Easier to collaborate with other organizations"*
>
> ***(Project Leader 4, CICT – UTM)***

... thus, implying a potential link between 'technical' benefits (i.e. to share complex IT systems) and strategic & organizational intentions, in particular to harness collaboration. The case data showed that streamlining operations (via process improvements) enabled collaboration and professional service delivery which are core aspects of strategic & organizational benefits [see path (f)]

> *"Where practicable, we need to consider options for streamlining the administrative operations to maximize the level and quality of administrative service, achieve cost savings, and look for ways of improving the quality of service in support of their teaching and learning, and research activities."*
>
> ***(Deputy ICT Director, CICT – UTM)***

DISCUSSION

This section provides a summary discussion on the observations of the findings. It also discusses anticipated contributions of the study, illustrating progress to date and pointing to future work.

The case study findings show that for shared services in the HE sector, economic benefits are most prominent, similar to the observations made in Fielt et al.'s (2013) literature review about shared services in the IS literature. In our study, technical benefits are more prominent than in the Fielt et al.

(2013) literature review. This may be specifically influenced by the HE context. Moreover, we go beyond prior research on shared services benefits by also addressing the interrelationships between the benefits. We noticed that economic benefits are positively influenced by the other benefits (except political benefits) and that technical benefits can contribute to the other benefits (except political benefits). Understanding these interrelationships has important implications for realizing the benefits from shared services.

This study agrees with (Doherty et al., 2008, p. 85) who state "*it is unlikely that benefits will simply emerge, as if by magic*" from the introduction of shared services, and hence their realization needs to be carefully planned and managed. This study has the long term goal of developing a benefits realization framework for shared services within the HE sector. A benefits realization framework in this context is defined as; *the process of, and guidelines for, organizing, managing and realizing potential benefits arising from the implementation of shared services* (adopted from Ward and Elvin (1999).

"Identifying and Structuring"[7] benefits is the first critical task in a benefits management process (Ward, Taylor, & Bond, 1996, p. 216). This paper was dedicated to understanding the core benefits of shared services. Anticipated benefits and primary motives for implementing ICT shared services in the HE sector were used in this exploratory study, to identify benefits of shared services (both actual and anticipated). The case data was analyzed based on the benefits framework presented in Fielt et al (2013), which was an extension to the shared services benefits framework of Jansen and Joha (2006). The case study confirmed that the ICT related shared services benefits from the HE sector (see Table 1 and Figure 1) were within the categories of: (1) Economic ; (2) Technical; (3) Process improvement; (4) Strategic & organizational; and (5) Political benefits.

A major problem with most prior work is that "they tend to be oriented towards the 'what', rather than the 'how': they focus on identifying the benefits that the project team anticipate the resultant system will deliver, rather than attempting to understand how these desired outcomes will be realized" (Doherty, et al., 2008, p. 84). The study commenced by deriving a clear understanding of what benefits can be expected from shared services initiatives in the HE sector. This having been established (which was the scope and focus of this paper), development of a comprehensive benefits realization framework to guide HE institutions in the management and realization of such benefits can proceed. The preliminary benefits chain derived from analysis of interrelationships observed in case evidence is a further step in this direction. It starts to capture the complex,

[7] As stated in the Cranfield Benefits Management process model, "*one of the most widely used and cited models outlining the scope and nature of benefits management*" (J. Braun, et al., 2010, p. 3).

interrelated nature of shared services benefits, which can inform benefits prioritisation and management.

CONCLUSION

This paper presented the benefits for ICT related shared services as observed from the HE sector. The main purpose of this paper was to address the research question "*What are the benefits of ICT shared services in the Higher Education Context?"* The paper presented the approach employed, followed by the findings, and concluded with a discussion and several pointers to future work (work beyond the intended scope of this paper).

We acknowledge inherent limitations in the study, starting from the case study design and conduct. The results presented here were limited to 3 case sites, where analysis was based on interviews of selected stakeholders (i.e. the directors and higher level ICT managers of the selected universities). The study was also prone to the more general limitations of case study research such as case selection bias, analysis limitations due to only 9 interviews, and researcher bias in data collection and analysis, although mitigated by multiple coders and inter-coder reliability. It is acknowledged that this could have impacted the completeness and accuracy of the findings presented from the case study data.

While the data in this study was collected in an inductive manner; primarily based on the responses to a single open ended question within the case study interview protocol, the analysis was done deductively. This study used Fielt et al.,'s (2013) shared services benefits framework [an extension of Jansen and Joha's (2006) framework]. While this assisted in the overall analysis, this could have also influenced extraction and interpretation of the benefits discussed in the case data. This was somewhat mitigated by the two coders independently coding the full content until consensus was reached.

This paper presented benefits and a benefits-chain of ICT related shared services from the HE sector. This work can be further extended by investigating further how to measure benefits, and how the identified benefits may differ based on the contextual factors around shared services. Following a similar approach to Jansen and Joha (2006), one can also use this study's shared services benefits as a base to study how the initial motives may differ from those already obtained (and explain why), in particular understand why initially anticipated motives were not achieved. Prior Literature encourage this kind of further study, for example Braun et al. (2010, p. 3) state; *"benefits have to be identified, evaluated (ex-ante), realized and evaluated again (ex-post)"*. As stated in the discussion section, identifying the benefits is (only) the first step towards a detailed benefits realization plan, this can be extended to deriving and evaluating a detailed benefits realization plan, where resources to achieve benefits should also be investigated. Braun et al. (2010, p. 5) argue resources that supports the benefits management process *"increase the organization's capability to exploit"* related initiatives and resources and argue for the need to derive three basic types of benefits management resources: (1)

resources supporting benefits identification, evaluation and measurement (benefits measurement resources), (2) resources supporting benefits realization planning, and (3) resources supporting benefits implementation. Deriving such resources for ICT related shared services benefits realization has been recommended as an extension of this work. We also recommend that future work in this space will look at the benefits in relation to potential risks and disadvantages of shared services.

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