The Utilization and Effectiveness of Intranet: A Case Study at Selected Malaysian Organizations

Ramlah Hussein, International Islamic University, Kuala Lumpur, Malaysia, <u>ramlah@iiu.edu.my</u> Mohamad Noorman Masrek, Faculty of Information Management, Shah Alam, Malaysia, <u>mnoormanm@gmail.com</u> Nor Shahriza Abdul Karim, International Islamic University, Kuala Lumpur, Malaysia, <u>shahriza@iiu.edu.my</u>

Abstract

This study was undertaken with the purpose of investigating the effect of intranet utilization modes on effective intranet utilization at user level perspectives. In addition it also seeks to investigate the influence of effective intranet utilizations on individual effectiveness. Based on the analysis of 359 responses collected from four organizations operating in Malaysia, it was confirmed that utilizations modes consisting of transacting, interacting and searching were predictors of effective intranet utilizations which comprised of decision support and knowledge sharing. Results also showed that effective intranet utilizations were precursor to individual effectiveness measured in terms task productivity, task innovation and individual sense of accomplishment. Findings of this study have contributed into the body of knowledge from three perspectives namely theoretical, methodological and practical.

Keywords

Intranet, utilization modes, decision support, knowledge sharing, individual effectiveness

1.0 Introduction

Intranet is a term used to describe the use of internet technologies internally within an organization rather than externally to connect to the global Internet. Within the intranet computing environment, individual utilization can be a combination of purely volitional and mandatory. Mandatory utilization occurs when organizations enforce the usage of certain functionalities of the intranet such as functional business information systems. Intranet, in its full functionalities can be utilized as publishing application, discussion applications and interactive applications. Within the scope of publishing application, users have the freedom to publish any memos or notices. Within the domain of discussion applications, users have the liberty to interact with their colleagues and partners via the virtual forum, e-mail and chat room. Within the breadth of interactive application users have the opportunity to transact with any on-line services or to record their knowledge onto the intranet systems. With these functionalities being equipped in most Malaysian corporate workplace environment, questions regarding users' utilization behavior still remain unanswered. Not much is really known as to what extent do Malaysians exploits intranet technology

for the purpose of enhancing their performance and productivity. Against this background, this study seeks to understand the utilization behavior of users in an intranet computing environment in selected Malaysian organizations. In addition the study was aimed at investigating the impact of utilization behavior on users' performance.

2. Literature Review

In an intranet computing environment, three utilizations modes prevailed i.e. transacting, interacting and searching. Based on these combinations of utilization modes, users exploit intranet for the purpose of decision support and knowledge sharing. Accordingly, as intranets are being utilized for these two purposes, that would certainly impact individual performances or effectiveness.

2.1 Intranet Transacting

Today, many organizations have integrated their intranets with functional business information systems such as Human Resource Information Systems, Financial Customer-Relationship Information Systems, Management Information System, e-commerce systems etc. This integration makes the intranet as the universal front end and facilitates users with single sign-on. Studies have demonstrated that the most commonly found systems that are integrated into the intranet is the Human Resource Information Systems [11]. Within the systems lie the Employee Self Service Applications (ESSA) that enable employee to monitor and update their records effectively. The ESS applications also allow employees to commit to numerous on-line transactions such as training request, leave request, expense reimbursement request and individual profile update. Other studies that revealed intranet as being integrated with functional business applications include [1], [5], [18], and [14].

2.2 Intranet Interacting

The literature suggests that one of the main functions of utilizing IT is for work integration ([12],). Work integration denotes that IT can be exploited for enhancing and promoting collaboration with colleagues, superiors or subordinates. In the context of intranet, studies have shown that intranets have been utilized to serve this purpose ([4], [5], [27]). Intranet functionalities

such as e-mail, e-group, forum room, mailing list and discussion list can be utilized not only for communication purposes but also for workgroup cooperation and collaborations. According to [1], in the interacting mode of utilization, people share information with the goal of being able to modify them and send them back; hence this configuration allows a bidirectional flow of information.

2.3 Intranet Searching

Prior to the arrival of the intranet, organization information searching has always been very cumbersome task to many employees especially those working in large organizations. The difficulty of locating required information has caused great problems not only to individual but also groups, departments and even organizations. Timely information has always been critical in situation where decision has to be made instantly. With the implementation of the intranet, information searching and retrieval is no longer seen as problematic. Just by a click of a button, the required information is readily available. This is because a huge amount of organizational information such as organization profile, reports, minutes of meetings, job manuals, ISO documents is usually loaded unto the intranet and the search functionality within the intranet allows users to easily search and locate required information. Studies such as [1], [5], [24], and [25] have demonstrated that information searching has been one of the primary purpose for users utilizing the intranet

2.4 Decision Support

The utilization of IT for decision support purposes has been widely discussed in the IS literature ([9], [12]). In the case of intranet, scholars and researchers have also explained on its function and utilization for serving similar purposes ([2], [8]). Hirschhorn & Farduhar [9] categorized the components of decision support as being problem solving and decision rationalization. Problem solving is defined as the extent that IT is used to analyze cause and effects relationships (i.e. to make sense out of data). Decision rationalization is defined as the extent that IT is used to improve the decision making processes or explain/justify the reasons for decisions. To accomplish both objectives, the decision maker must be equipped or supplied with sufficient information which can exist in the form of structured (residing in database) or semi-structured (e.g. memos or video clips etc). The utilization of intranets has obviously facilitated the information access procedures to these two types of information and thus impacting the decision making or problem solving process. Based on the three utilization modes discussed, above it is hypothesized that:

H1: Intranet transacting mode is significantly related with decision support

H2: Intranet interacting mode is significantly related with decision support

H3: Intranet searching mode is significantly related with decision support

2.5 Knowledge Sharing

Realizing the importance of knowledge sharing, many organizations have deployed or exploited intranet as part of their knowledge management initiative programs. The literature indicates that there exist diverse studies that specifically address the role of intranet in facilitating knowledge sharing ([17], [18], [22], [23]). Other studies such as [5], [6] and [20] not only addressed primarily the role of intranet in supporting knowledge management initiatives but also stressed equal emphasis on knowledge sharing. According to Lichtenstein, Hunter & Mustard's [17] knowledge sharing in an intranet computing environment takes in following form: a sharer who chooses to provide knowledge to be published, and provides that knowledge which is then published on the intranet, thereafter a potential receiver will search and finds the required knowledge, retrieves it then relates it to his/her existing knowledge before it can be applied as required. Apparently, in order for the knowledge to materialize, the three utilizations modes discussed earlier exercised. should be Accordingly, the study hypothesized that:

H4: Intranet transacting mode is significantly related with knowledge sharing

H5: Intranet interacting mode is significantly related with knowledge sharing

H6: Intranet searching mode is significantly related with knowledge sharing

2.6 Task Productivity

Task productivity refers to the extent that an intranet improves the user's output per unit of time. As discussed in the preceding chapter, past researches have shown the contribution of intranet in improving employee task productivity ([15, [16]). Apparently, intranet utilization promotes users to be actively engaged in multitasking and hence saves a lot of time. While working on their job using the computers that are connected to the intranet, users can concurrently interact via e-mails, transact with certain information systems, search specific information or publish certain information over the intranet. As such, by physically being in one location, users can virtually work with many people across departments. Hence, as more work can be done, productivity would certainly increase. Following [10] that IS utilization should determine individual effectiveness, it is therefore postulated that:

H7: Decision support is significantly related with task productivity

H8: Knowledge sharing is significantly related with task productivity

2.7 Task Innovation

According to Torkzadeh & Doll [27] when studying the impact of information technology, we cannot just study what workers do, but rather how innovative they are in what they have to do. Following their suggestion, this study would also assessed individual effectiveness from the perspective of task innovation. Task innovation signifies the extent the intranet helps user to try out new idea in their work. New innovative ideas can germinate from various means and avenues. As the intranet is a rich source of organizational information, the access to this information would possibly trigger innovative ideas. Similarly, the frequent communication among colleagues via the intranet could also contribute towards idea generation. These new ideas do not necessarily confined to inventing new organizational products of services, rather they include such as new approach or method in handling work task, solutions to work problems, plan for departmental social activities etc. Model such as information systems success [7] suggests that IS utilization should predict individual effectiveness. To this effect, it is therefore hypothesized that:

H9: Decision support is significantly related with task innovation

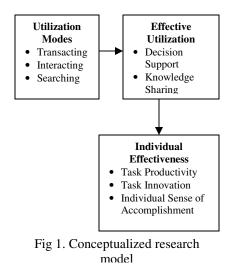
H10: Knowledge sharing is significantly related with task innovation

2.8 Individual Sense of Accomplishment

Personal sense of accomplishment denotes the user's feelings of self-esteem as the results of using the intranet. In particular, it also relates to the extent to which the intranet helps in attaining individual objectives. Every individual varies in their goal settings. Some goals are meant for short-term while others could be established for long term. Some short term goals could be something like completing short term project or even solving personal contingency problems. In contrast, individual long term goals could be something like personal career objectives i.e. personal targets along their career path. In either case, both still relate to individual personal development. Nevertheless as one achieved his or her personal objectives, that would definitely boost their personal self-esteem which can be further translated into great feeling of personal success. In this respect, intranet is seen as mediator or tool for facilitating individual in accomplishing individual goals and increasing feelings of self-esteem. Individual with high self-esteem tend to have higher degree of personal satisfaction that would eventually lead towards better work commitment and better performance. Recent study [3] discovered that intranet creates sense of closeness and togetherness, promotes sense of belongings and reduces power distance between employees and senior management. Weber [28] hypothesized, validated and empirically verified that intranet effectiveness is significantly correlated with employee commitment. Following the model of [7] and [10] that IS utilization is a precursor to individual impact, it is therefore hypothesized that:

H11: Decision support is significantly related with individual sense of accomplishment

H12: Knowledge sharing is significantly related with individual sense of accomplishment



3. Research Method

Several organizations were contacted to participate in the survey. However, in order to be eligible, the intranet being used should be of high maturity i.e. being integrated with organizational information systems. Consequently, four organizations were found to fulfill the criteria and therefore chosen to participate. After a lengthy discussion with representatives of these organizations, it was decided that the respondents of the study should be the executives in the headquarters only. The rationale being that majority of the staff ranging from the executives to top management were located here and furthermore, staff working here directly involved in the core-business and core-functioning such as human resource, marketing, finance and service operation in the organization. Hence, in the course of such activities the use of ICT such as intranet would be very rampant. Accordingly, 700 questionnaires were distributed to these participating organizations, upon which 423 were returned but 359 were usable. Other than demographic information, the questionnaire contained open-ended questions with seven point Likert Scale. To measure intranet utilization modes i.e. transacting, interacting and searching, single item measure adapted from [5] was adopted. To measure decision support instrument adapted from [9] was developed. To measure knowledge sharing an instrument comprising of six-item measures adapted from [6] was developed. Both task innovation and task productivity

measures were developed based on the work of [26] while personal sense of accomplishment, were adapted from an instrument prepared by [29].

4. Findings

Based on 359 usable responses, data were analyzed using SPSS version 14.0. Non-response biases were checked by comparing early responders and late responders using independent sample t-test. Apparently the results showed that the responses were free from non-response biases. ANOVA test were also performed across organizations to check whether significance differences could be observed on all the research variables. Evidently, no significant difference could be observed and following the results, responses from the four organizations were treated as one sample in subsequent analysis. Factor analysis was then executed on multi-items measures and findings unveiled that all items were cleanly loaded into conceptualized variables. Upon further investigation on reliability analysis discovered that Cronbach's alpha for decision support, knowledge sharing, task productivity, task innovation and individual sense of accomplishment were .858, .907, .924, .885 and .948 respectively. Clearly, these values suggest that the instrument used in the study were highly reliable.

4.1 Demographics

Table 1.0 presents the demographic profiles of the research samples. Between male and female, the former seemed to outnumbered the later with 54.9% as opposed to 45.1%. Age group between 31 and 35 was most dominant and contributed to 29.5% of the sample. This finding is consistent with studied by [13] that was done involving users of e-government systems. In terms of qualifications, 284 respondents indicated to have gotten first degree while 23 indicated to have obtained Masters. 306 respondents indicated as holding executives posts while 53 were holding middle management post. The average length of service was 7.62 while intranet experience recorded a mean of 6.92.

	Gender	Freq	%
Gender	Male	197	54.9
	Female	162	45.1
Age	20 - 25	33	9.2
	26 - 30	91	25.3
	31 – 35	106	29.5
	36 - 40	85	23.7
	41 – 45	33	9.2
	46 - 50	6	1.7
	> 50	5	1.4
Qualifications	Master	23	6.4
	Degree	284	79.1
	Diploma	28	7.8
	Others	24	6.7
Job Level	Executive	306	85.2

Table 1.0: Demographic Profiles

	Mid. Mgt.	53	14.8
Length of	< 1 – 5	142	39.6
Service	6 – 10	148	41.2
	11 – 15	36	10.0
	16 - 20	24	6.7
	21 – 25	8	2.2
	> 25	1	.0
Intranet	> 1 - 2	29	8.1
Experience	3 – 4	61	17.0
	5 - 6	69	19.2
	7 - 8	74	20.6
	9 - 10	88	24.5
	11 – 12	38	10.6

4.2 Relationship Between Utilization Modes and Effective Utilizations

In an attempt to investigate whether utilization modes consisting transacting, interacting and searching are significantly related to effective utilizations, correlation analyses were performed. Subsequently bivariate linear regression analyses were separately executed between each of the utilization mode variables and effective utilizations as to examine the strength of the relationship. Result of the correlation analysis is shown at Table 2.0. The value of Pearson's r range between .303 and .581 indicating a mixture of low and moderate relationship. However, as all the p values were significant at 0.001 level, the formulated hypotheses H1, H2, H3, H4, H5, and H6 were fully supported.

Table 2.0 Correlation matrix between utilization modes and effective utilizations

	Decision Support	Knowledge Sharing			
Transaction Mode	.345**	.556**			
Interacting Mode	.303**	.575**			
Searching Mode .304** .581**					
** Correlation is significant at .001 level (2 tailed)					

Upon further analysis using regression techniques, it was found that transacting mode single handedly explains 11.9% variations in decision support; interacting mode singly explains 9.2% variations in decision support; searching mode alone explains 9.3% variations in decision support.

Table 3.0 Summary of regression analysis between utilization modes and decision support

Dependent Variable	Independent variable	R	R Square	Adjusted R Square	
Decision support	Transacting	.345	.119	.117	
	Interacting	.303	.092	.089	
	Searching	.304	.093	.090	

Table 4.0 presents the result of the regression analyses between utilization modes and knowledge sharing. Transacting mode by itself explains 30.9% variations in knowledge sharing. Interacting mode singularly explains 33.1% variations in knowledge sharing. Searching mode single-handedly explains 33.8% variations in knowledge sharing.

	Dependent	Independent	D	R	Adjusted	
	Variable	variable	R	Square	R Square	
	Knowledge Sharing	Transacting	.556	.309	.307	
		Interacting	.575	.331	.329	
		Searching	.581	.338	.336	

Table 4.0 Summary of regression analysis between utilization modes and knowledge sharing

4.3 Relationship Between Effective Utilizations and Individual Effectiveness

Table 5.0 depicts the results of the correlation analysis between effective utilizations and individual effectiveness. The lowest correlation value was between task innovation and task productivity (r = .464) while the strongest was between task productivity and knowledge sharing. Nevertheless all the Pearson's r values were significant at 0.001 level hence supporting the formulated hypotheses i.e. H7, H8, H9, H10, H11 and H12.

Table 5.0 Correlation matrix between effective utilizations and individual effectiveness

	Decision	Knowledge			
	Support	Sharing			
Task Productivity	.533**	.572**			
Task Innovation	.464**	.526**			
Ind. Sense of Accomp481** .546**					
** Correlation is significant at .001 level (2 tailed)					

As discussed earlier, in an intranet computing environment, users engaged in varying utilization modes such as transacting, interacting and searching for the purpose of decision support and knowledge sharing. As a result of transacting with various organizational information systems via the intranet. various organizational information could be retrieved in the form of reports summary etc. This information would certainly be very useful inputs in the decision making process. Likewise, via transacting mode, users may either donate their knowledge or retrieve certain knowledge from the intranet. In terms of interacting modes, users could engage in diverse and intense communication among organizational members. By means of interacting, users could query or participate in various on-line discussion and consultations. Similarly, by means of interacting, information needs of users, either for job-related or personal usage would be better fulfilled. Essentially, by means of interacting users can always seek the help of others in the organizations. As such, help can always be acquired either for job related or personal matter. The searching mode of intranet utilization enables users to access and retrieve diverse organizational information and knowledge for the purpose of decision support or knowledge sharing.

Upon running the regression analyses, it was found that decision support single handedly explains 28.4% variations of task productivity; 21.5% variations of task innovations; 48.1% variations of individual sense of accomplishment. Detailed results are shown in Table 6.0.

Table 6.0 Summary of regression analysis between

decision support and individual effectiveness				
Independent	Dependent	R	R	Adjusted
Variable	variable	К	Square	R Square
Decision support	Task Prod.	.533	.284	.282
	Task Inov	.464	.215	.213
	Accomplish	.481	.231	.229

Finally, the regression analysis between knowledge sharing and individual effectiveness unveiled that knowledge sharing single handedly explains 32.8% variations in task productivity, 27.7% variations in task innovations and 54.6% variations in individual sense of accomplishment.

Table 7.0 Summary of regression analysis between knowledge sharing and individual effectiveness

Knowledge sharing and mutvidual effectiveness				
Independent	Dependent	R	R	Adjusted
Variable	variable	к	Square	R Square
Knowledge Sharing	Task Prod.	.572	.328	.326
	Task Inov	.526	.277	.275
	Accomplish	.546	.298	.297

Infamous model such IS literature Success [7] and Technology to Performance Chain Model [10] postulate that IS utilization should lead to individual performance or effectiveness. Evidently, the findings showed that effective utilizations measured in terms of decision support and knowledge sharing were found to be predictors of individual effectiveness.

In the course of completing work task, users would certainly deal with crucial decision making or problem solving. In certain circumstances, decision making or problem solving could not he handled by oneself and hence suggestions or inputs from others are seen very critical. By means of utilizing the intranet, users could either search critical information required for the decision making or problem solving. Alternatively users could also seek the help or assistance from organizational members via means of intranet. In the process, various ideas could be germinated and once the problems were solved and decision had been made, new knowledge (i.e. the solution or decision) had also been created. In due course, users would definitely felt relieved and satisfied as their mission of problem solving have been accomplished.

Individual varies in knowledge, skills and competencies. Via means of knowledge sharing among peers and colleagues or even among subordinates and superiors, one's skills and knowledge could be enriched and deepen. In an organizational context, intranet has always been considered an effective tool in maximizing knowledge sharing. By sharing knowledge with others, new knowledge would possibly been created. Also, by sharing knowledge with those who are in dire need of that knowledge may even help them in improving work productivity, especially when the knowledge relates to task or job performance. Similarly, when the required knowledge are obtained, for instance by means of intranet, that individual would be surely delighted and pleased and his or her needs are fulfilled and accomplished.

5. Conclusion

The execution of this study has been to determine whether utilization modes predict effective utilization. In addition it also seeks to determine whether effective utilization predict individual effectiveness. Based on the results, this study indeed confirmed that utilization mode is a predictor of effective utilization which in turn predicts individual effectiveness. Despite being successful in achieving the research objectives, this research suffers from several limitations. Firstly, the chosen research method was using survey and selfreported perceptual measures. Secondly, the crosssectional approach of data collection which only collects data at one point in time. Future studies should consider adopting objectives measures such as installing software tracking systems to gauge utilizations. Alternatively, longitudinal approach should also be considered as it will better explain individual utilization across times. Nevertheless, findings of this study have contributed into the body of knowledge from three perspectives namely theoretical, methodological and practical. From theoretical standpoint, it has developed empirical based framework in an intranet utilization settings. From methodological standpoint, it has developed validated instrument which can be applied in diverse IS research settings. From practical standpoint, the instrument can be use as a tool to measure intranet utilizations and their corresponding impacts.

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