EFFICIENCY OF COMPETITIVENESS PRIORITIES ON ADOPTION OF ELECTRONIC PROCUREMENT (E-PROCUREMENT) SYSTEM TO ENHANCE SERVICE PERFORMANCE

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ABSTRACT

The purpose of this study was to measure the efficiency of competitiveness priorities on adoption of Electronic Procurement (e-Procurement) system to enhance service performance at Universiti Teknikal Malaysia Melaka. A survey was carried out through a set of questionnaires. The sample size is 200, but only 153 respondents participate in this survey. The staffs were from Universiti Teknikal Malaysia Melaka Durian Tunggal, Ayer Keroh and Kampus Bandar. Based on the analysis the result revealed that most of the respondents (49.7%) believed that reduction in cost such as inventory and invoice with e-Procurement. The analysis also established that most of the respondents believed that administrative tasks such as paperwork & manual filing reduce with e-Procurement (59.5%). In terms of quality, 49.7% believed that it was easier meeting the customer's expectation towards product and services increase with e-Procurement. Thus, it showed that it was very important to meet the customer expectation and satisfaction in order to enhance the quality requirement. Apart from that, based on the response associated with competitive priorities and service performance, 67.3% of the respondents assumed that the main priority on using e-Procurement was to increase the quality service of the government sectors. The finding indicated that there was a strong positive relationship between cost (.778), time (.758) and service performance. In fact, result also showed that there was a strong positive relationship between quality (.786) and service performance. The finding also showed that there was a high association between competitive priorities (.865) and service performance. It was stated that the result accept the alternative hypothesis because there was high positive relationship between competitive priorities and service performance in UTeM. .

Keywords*: efficiency, competitiveness priorities, adoption, e-procument system, enhance service performance*

INTRODUCTION

Any organization in a market has to compete with other and building up strategies to increase their competitiveness. Any firm or organization operating in market has to compete and try being unique with other organization in the same market industry.Therefore, they need to gain competitive advantage, by being unique and try to differentiate their products with other competitors. The report from the Innovations in Manufacturing Industries in Turkey Study shown the most important determinants of competitiveness are product quality/performance, delivery lead time and product cost. As companies attempt to become more competitive in the face of more demanding and sophisticated customers, they increasingly look to the promise of information technology to improve their supply chains by automating and digitizing their procurement processes (Gansler *et.al.*, 2003).

Business-to-Business (B2B) e-Commerce technologies and electronic markets are emerging as critical infrastructure and the internet provides cost effective for organizations to engage in search, negotiation, transactions in the global supply chains (Shaw and Subramaniam, 2002). An e-Procument sites, also known as business-to-business (B2B) marketplaces, electronic supply chains, trading hubs, or trading communities, are essentially Web-based procurement networks in which one or more companies try to source their suppliers at the lowest cost possible . An e-Procument approach can also significantly reduce the price of materials and suppliers. Buyers can more easily identify the best value when they have to access to more suppliers. This is not only results in increased competition, but the new visibility also creates new opportunities for small businesses that were previously unavailable. With E-Procument, the process will be efficient and user-friendly system (Gansler *et.al.*, 2003).

Currently, our local governments are moving to be an electronic government in order to enhance the service delivery. The application of information technology in government to citizens, improved interactions with business and industry, citizen through access to information, or more efficient government (Affiso & Soliman, 2006). Therefore, to improve the effectiveness and efficiency of government services, attention needs to be focused on to the electronic government. As explained by Federal Finance Ministry e-Perolehan Project Director, Datuk Mohamedsha Mislam regarding the system enable online sale of goods to government, said the system means every transaction between the suppliers and government departments or agencies would be done through the internet except for the delivery of the goods, which still

has to be done physically and are very common practices among them (http://eperolehan.gov.my).

Our government has improved the service improvement for the improvement of information & processes which involve electronic information centre for information regarding name of licenses, agencies involved, license fees and application forms. Business Licensing Electronic Support System (BLESS) provides speed, reliability, transparency and security. It is one of the service delivery improvements by the Malaysian public service to deliver information direct to the public. Thus, many ministries are allowed to improve the service delivery as to improve the process. This has been the requirement of Malaysia Prime Minister, Dato' Seri Abdullah Ahmad Badawi to increase the quality service of the government sectors. One development, recognized as having an almost immediate return on investment by reducing costs, improving processes, and providing the data required for the digitization of the supply chain, has been procurement (Gansler *et.al.*, 2003).

Electronic procurement or known as ePerolehan was started in Malaysia in 1999 as one of the Electronic Government Flagship. The aim of the government is to make all the suppliers and federal government agencies become electronic procurement enabled users by the year 2010 (Kaliannan & Halimah, 2008). The Chief Executive Officer Commerce Dot Com Sdn Bhd, Datuk Azizan Ayob comments on Prime Minister statements which stated as Pay Up. The Prime Minister call for ministries, departments and agencies to expedite payments for the supply of goods and services is an appropriate move towards improving the end-to-end procurement cycle in Government and to further advance the agenda for an efficient civil service. One of the factors leading up to the implementation of Electronic procurement system in 1999 was the need to transform the Government into a rakyat-serving entity by improving the delivery of services to the people of Malaysia and thus enabling the Government to become more responsive to the needs of the rakyat (http://aktiviti.eperolehan.com.my).

Moreover, E-Procument is an end-to-end electronic procurement system that brings together the government to procure goods and services electronically. An e-Procument influences far more than process efficiencies that create savings from lower operating costs and shorter turnaround time. It facilitates accountability and transparency in Government procurement activities as well as compels Malaysian suppliers to take an important step into the realm of e-commerce thus allowing them to be more competitive and to reach a much broader base of buyers than before. Apart from saving money for the government,

e-Procument, which comes under the e-Government service, will be able to replenish supplies quickly through electronic quotations. According to Datin Nazariah Mohd Khalid, Malaysian Administrative Modernisation and Management Planning Unit Director taken on website e-perolehan Ministry of Finance Malaysia dated 7 November, 2008 mentioned that the system when fully implemented will help the Government become a smart buyer (http://home.eperolehan.com.my/bm/press/).

An e-Procument by its very nature of being electronic and online, facilitates simpler and faster processing and therefore shortens the entire procurement cycle from purchase inquiry to delivery and finally to payment. In e-Procument, the payment process is facilitated as agencies are able to acknowledge receipt of goods or services, perform matching of relevant documents and initate the generation of payment advice in real-time. Furthermore, the final payment to suppliers is done via electronic funds transfer (EFT) which is prompt and secure. Suppliers who have used e-Procument to deal with the Government have reaped the benefits of a shorter payment cycle. With e-Procument, suppliers can look forward to receiving their payments within an average of 14 days (compared to the day 30-day payment cycle before e-Procument was implemented).

The research questions of this study were: What are the key performances that enhance service performance amongst staffs UTeM for a successful organizational assimilation of e-Procument technologies? What are the benefits of e-Procument to organization on costing in order to enhance service performance? What are the advantages of e-Procument to organization on time in order to enhance service performance? What are the impact of e-Procument to organization on quality in order to enhance service performance? And why the efficient of competitive priorities on enhance service performance is important?

LITERATURE REVIEW

Electronic Procurement (e-Procument)

As Turban *et al*. (2008) mentioned that improvement to procurement have been attempted for decades, and usually by information technologies. The real opportunity for improvement lies in the use of e-Procument, the electronic acquisition of goods and services for organizations. There are two types of companies that approaching E-Procument technologies with different strategy based upon the

perceived risks and benefits associated with their competitive position and environment. According to Davila *et al.* (2002), the first type is moving aggressively to adopt e-Procument technologies, frequently experimenting with different solutions. The second type adopts a more conservative strategy by selectively experimenting, typically with one technology. Thus, the e-Procument technologies will become an important part of supply chain management and the rate of adoption will accelerate as aggressive adopters share their experience and perceptions of low risk.
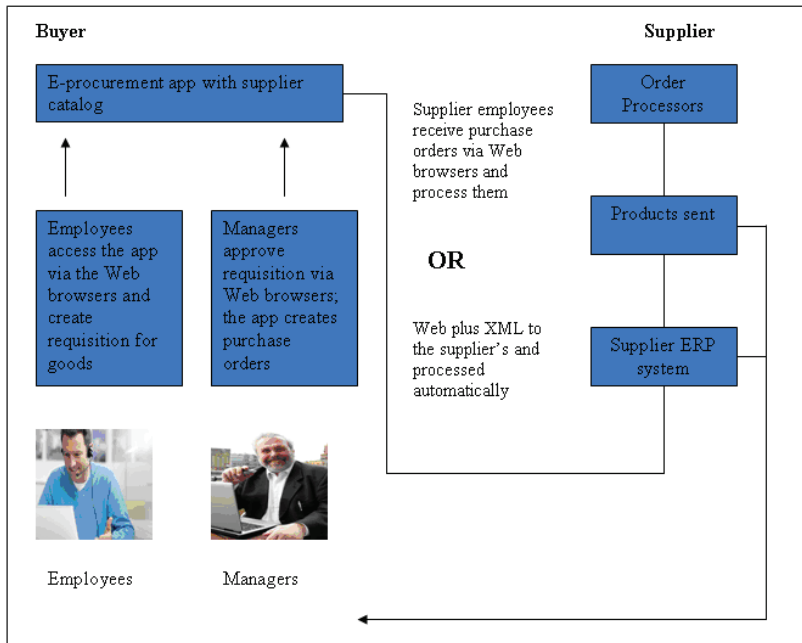

Source: Lambert *et al.*, (1998)

Figure 1: Traditional Order Cycle: A Customer's Perspective

An e-Procument approach can also significantly reduce the price of materials and supplies. Buyers can more easily identify when they have access to more suppliers. This is not only results in increased competition but the new visibility also creates new opportunities for small business that were previously unavailable (Gansler *et.al.*, 2003). Significant improvement has been realized from the introduction of e-Procument. Transaction processing cost and time are reduced (Webb, 2001). An e-Procument transforms procurements procurement by automating the process from searching for a product or service to ordering, submission, approval, tracking, delivery and payment.

On the employee's side, they would look at products on a catalog via the organization's intranet. In Figure 1 shown, the catalogue contains product/services from approved suppliers and includes information such as specifications, guideline for use and delivery lead time. The supplier's product catalogue can be viewed from any desktop. Once the employee knows what they want, they fill out an online form and sent it via intranet workflow to their manager. Once approved, the order is routed to the supplier via the Internet, who can then send back an acknowledgement to the buying organization via the Internet and into accounting system (Rahim *et.al.*, 2004). The supplier is able to submit quotations through E-Procument.
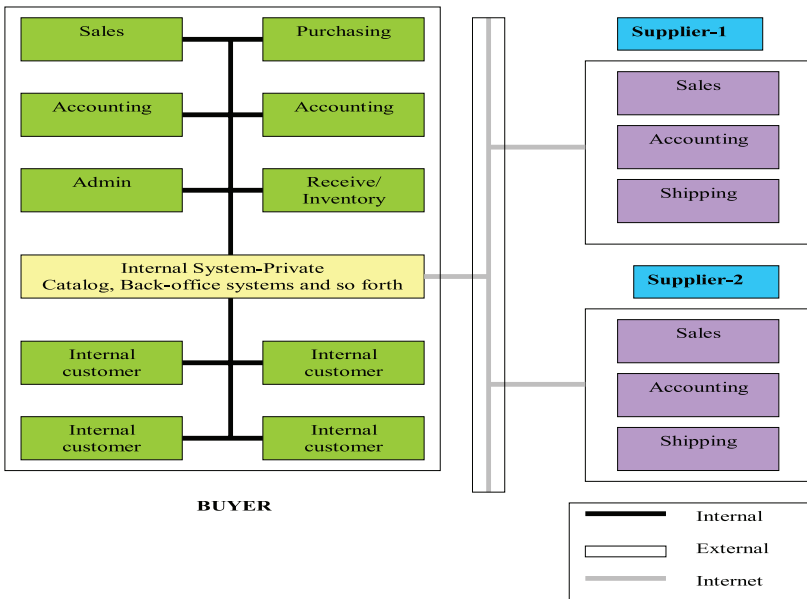
Source: Baron *et.al.*, (2000)

Figure 2: An e-Procument Model: Interaction between Buyer, Suppliers and Internal Customers

The Figure 2 illustrates the integrated between buyer, supplier and internal customers in e-Procument system.The performance measurement provides the means by which a company can access whether its e-Procument system has improved or degraded. There are traditional methods for measuring supply chains performance such as Balance Scorecard, Activity-Based Costing and Economic Value Analysis but the measures do not directly tie to operational effectiveness and efficiency (Lapide, 2000). In the survey relating to the measures of purchasing success, cost and time shows the biggest figure (Segev *et.al.*, 1998). The result shows that these two factors represent a

big opportunity for process improvement. Response time is one of the principal criteria for the design and implementation of an e-Procument (Wrigley, 1997).

The theoretical framework below state how the relationship between the cost, quality and time with the enhancement of service performance. In this Figure 3, shows that the relationship between these two variables are interrelated. The variable that need to achieve is the enhance service performance and this is the relationship is existed due to the efficient of competitive priorities on adoption of electronic procurement system. This is the framework that shown how the e-Procument will bring the effect on the competitive priorities towards the service performance amongst staff in UTeM.
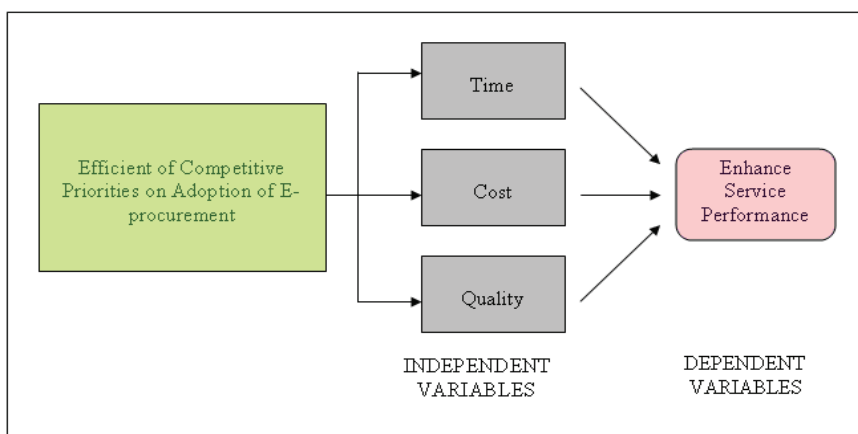

Figure 3: Theoretical Framework on Efficiency
of Competitiveness Priorities on Adoption of E-Procument
System to Enhance Service Performance: A Case Study
in Universiti Teknikal Malaysia Melaka

FINDINGS AND DISCUSSION

Demographic

There are 10 items and the information includes the working department, position, gender, age, education level, years of service, number of computer, how to select supplier, how to negotiate with supplier, and how to issue local order. The majority of working departments was from faculties which represent 124 staff (81%). The result also reveals that only 3 departments had a small participation in this research. This shows that in this survey, most of the staff from faculties had a highest rate and prefer to participate in this survey.

The result indicates that most of the staff with different position participate in this survey. The highest was from academic position with 77 (50.3%) and the second position wass from the support staff with 36 (23.5%). This shows that different positions are involved in this study even though has small portion of participation from Academic & Management with 12 (7.8%). There were male 85 (55.6%) and female 68 (44.4%) involved in this survey. This shown that the biggest number of respondents were males. The majority of respondents range between 18-30 years was 74 (48.4%). Secondly, the range between 31-40 years was 58 (37.9%). It was showed that these range of age are the dominant group in the university. The results also indicate the biggest number of educational level is Master holder. It was stated that 67 (43.8%) of the respondents having Master, while 40 (26.1%) are having degree and 16 (10.5%) are PhD holder.

Most of the staff has years of service around 5-9 years and less. It is stated that 68 staff having 5-9 years of service in the university (44.4%). While, 66 staff having less than 5 years of service (43.1%) and only 2 staff has 20-24 years of service (1.3%). The result illustrates that most of the staff has more than 50 number of computer in the faculties or departments. It is stated that 87 staff has more than 50 computers in the department (56.9%). Meanwhile, there are 37 staff has around 1-10 computer in the department (24.2%). Also, most of the preferable of the respondents to select suppliers are through sales representatives. There are 56 staff prefers to select supplier (36.6%) followed 46 staff select supplier based an old record search (30.1%). By meeting the supplier would enhance their confidence level to buy the product and to gain resistance relationship with supplier. Only 8 staff would prefer to search internet catalogue (5.2%).

From the findings, stated that the negotiation with supplier is the traditional form of communication method. Face to face negotiation 107 (69.9%) and telephone 24 (15.7%) are the frequent used method. It is stated that only 1 (.75) respondent using supplier website, followed with 8 (5.2%) using written document and 13 (8.5%) negotiate using E-mail. From the survey results, face to face is still frequent used method to issue local order 59 (38.6%). Only 36 (23.5%) respondents prefer through mailing to issuance local order. At this point, it is clearly shows that the traditional method is still widely used as compared to electronic mail 30 (19.6%).

ANALYSIS

The Benefits of e-Procument on Costing

The result shows that most of the respondents agreed that costs play an important role in adopting e-Procument in university. This can be seen where 49.7% of the respondents believed that reduction in cost such as inventory, invoice with e-Procument ent (M=3.9, SD=0.81). Apart from, 56.2% of them believe that the use of e-Procument can make the overall search of goods, services, supplier costs reduce with e-Procument (M=4.0, SD=0.78) and 58.2% of the respondents agreed that communication costs reduce while purchasing with e-Procument (M=3.9, SD=0.76).

Also, analysis reveals that 57.5% of the respondents agreed that communication costs reduce while purchasing with e-Procument ent (M=3.8, SD=0.72). They consider negotiation costs with supplier reduce with e-Procument (51.0%). In other words, 52.3% of the respondents are agreed that monitoring costs by the top management reduce with e-Procument (M=3.7, SD=0.79). However, 49.0% of the respondents agreed that maverick purchasing costs reduce with e-Procument (M=3.5, SD=0.83) and 50.3% of respondents are agreed that purchase price of goods and services reduce with e-Procument (M=3.6, SD=0.81).

It is also stated that 54.9% of the respondents agreed that costs of staffing reduce with E-Procument (M=3.7, SD=0.82) and majority of them 51.0% are agreed that budgets for E-Procument training increase with e-Procument (M=3.6, SD=0.82). Based on the result, the responses on cost indicated by the respondents as the benefits of E-Procument on costing (over 50% of the respondent selected scale 4 & 5 and the mean is between 3.5 till 3.9 on a 5 point scale). This shows that the benefits of e-Procument on cost are high to implement in UTeM.

The Benefits of e-Procument on Time

As a result, about 59.5% of the respondents agreed that purchasing time reduce with e-Procument (M=4.0, SD=0.71). Most of them, which is 64.1% perceived that information processing of buyer & supplier increase with e-Procument (M=3.9, SD=0.71). Apart from that 63.4% of the respondents agreed that faster turnaround time from purchase order to payment (M=3.9, SD=0.69). At the same time, 56.9% of the respondents agreed that errors and mismatches reduce with e-Procument (M=3.7, SD=0.82). The data shows that 59.5% of the respondents agreed that administrative tasks such as paperwork and manual filling reduce with

e-Procurment (*M*=3.9, SD=0.77). In addition, 62.7% of the respondents consider that transmission of timely public information on price, volume and execution time increase with e-Procurment (*M*=3.8, SD=0.71). At the same time, 62.1% of the respondents claimed that flexibility to user/buyer's changing needs increase with e-Procurment ment (*M*=3.8, SD=7.1). Apart from that, 62.1% of the respondents agreed that easier tracking and monitoring with e-Procurment (*M*=3.9, SD=0.66).

In terms of time reduce with e-Procurment, 56.7% respondents agreed that completion time reduce with e-Procurment (*M*=4.1, SD=2.46). The result also shows that e-Procurment bring benefits on time to the organization. Besides that, 53.6% agreed that speed and reliability of the work progress increase with e-Procurment (*M*=3.8, SD=0.76). Based on the result, the responses on time indicated by the respondents as the benefits of e-Procurment on time (over 50% of the respondent selected scale 4 & 5 and the mean is rather high between 3.8 till 4.1 on a 5 point scale). This shows that the benefits of e-Procurment on time are high to implement at UTeM.

The interpretation of the result shows that 54.9% of the respondents agreed that quality of the products and services improve with e-Procurment (*M*=3.6, SD=0.77). This is also supported by the fact that 64.7% claimed that information delivery system improve with e-Procurment ent (*M*=3.8, SD=0.70). The respondents believed that quality element is very important for university to go further and compete with other universities especially to improve the quality of the service performance.

Moreover, 49.7% of the respondents claimed that it is easier meeting the customer's expectation towards product and services increase with e-Procurment (*M*=3.8, SD=0.80) and 59.5% agreed that productivity, service performance and efficiency management increase with e-Procurment ment (*M*=3.8, SD=0.74).They agreed that it is important to meet the customer expectations and satisfaction in order to enhance the quality requirement. It is also stated that 60.8% agreed that the visibility of management reporting processes and overall performance increase with e-Procurment (*M*=3.7, SD=0.70).

At the same time, 59.5% of the respondents agreed that ability to identify responsibilities and duties for significant/complex purchases with e-Procurment (*M*=3.7, SD=0.69). It is stated that 64.1% agreed that compliance with relevant delegations increase with e-Procurment (*M*=3.7, SD=0.75). This shows that 58.8% agreed that meet the design specification increase with e-Procurment (*M*=3.6, SD=0.71). 56.2% of

respondents agreed alteration of relationships with the suppliers increase because of e-Procument. Lastly, 64.1% agreed the quality of work increase with e-Procument (*M*=3.8, SD=0.73).). This shows that the benefits of e-Procument on quality are high to implement in UTeM.

The Efficiency Of Competitiveness Priorities on Enhance Service Performance

The respondents assumed that the main priority on using e-Procument is to increase the quality service of the government sectors (*M*=4.0, SD=0.63) and 62.7% of them believed that a majority of the products/ services purchased using e-Procument need to be tailored to the needs of UTeM. Majority of them which is 60.8% agreed that using e-Procument cument facilitates the information sharing to reduce the time (*M*=4.0, SD=6.8). In fact 58.8% of the respondents considered that using e-Procument is perceived favorably by the staffs due to the benefits (*M*=3.8, SD=0.72).

From the findings, 61.4% of the respondents have used E-Procument benefited greatly in terms of delivering service quality of their work (*M*=3.8, SD=0.66), but 60.1% of them accepted that used e-Procument have benefited greatly in terms of time. Besides that 62.7% of the respondents agreed that the staffs adopted and used e-Procument have benefited greatly in terms of reduction of costs (*M*=3.8, SD=0.71). It is stated that 56.2% of the respondents agreed that the adoption of e-Procument can enhance the service performance amongst staff (*M*=3.8, SD=0.77). Besides that, 54.9% of the respondents agreed that the important of e-Procument accelerates the flow of important between the buyer and supplier (*M*=3.8, SD=0.77). And lastly, 51.0% of the respondents agreed that the e-Procument can be used at any of the day (*M*=3.9, SD=0.81). Based on the result, the responses on efficiency of competitiveness priorities on service performance indicated by over 50% of the respondent selected scale 4 & 5 and the mean is rather high between 3.8 till 4.0 on a 5 point scale). This shows that the efficiency of competitiveness priorities on service performance was high to implement in UTeM.

Hypothesis Testing

> Hypothesis 1: Relationship between Costs and Service
> Performance in UTeM

The relationship between costs and service performance in Universiti Teknikal Malaysia Melaka was analyzed using Spearman's rho

correlation. Overall, the result indicated that there is a high association between costs and service performance, (r =.778, p < .000). It is stated that the null hypothesis is rejected then the alternative hypothesis is accepted because there was a high positive relationship between costs and service performance in Universiti Teknikal Malaysia Melaka.

<center>Hypothesis 2: Relationships between Times and Service Performance in UTeM.</center>

This revealed that there was a strong positive correlation between time and service performance, (r =.758, p < .000). This shown that these positive effects of time can enhance the service performance of the staff on e-Procument adoption. It is stated that the null hypothesis is rejected then the alternative hypothesis is accepted because there was a high positive relationship between time and service performance in Universiti Teknikal Malaysia Melaka.

<center>Hypothesis 3: Relationship between Quality and Service Performance in UTeM.</center>

Based on the correlation between quality and service performance shown, it can be found that there was a strong positive correlation, (r =.786, p < .000). This is also supported by the fact that there was a positive response of the respondents towards quality on service performance. In other words, the respondents are confidence that quality elements are strongly accepted and bring benefits to the university. It is stated that the null hypothesis is rejected then the alternative hypothesis is accepted because there was a high positive relationship between quality and service performance in Universiti Teknikal Malaysia Melaka.

<center>Hypothesis 4: Relationship between Competitive Priorities and Service Performance in UTeM.</center>

There was a high association between competitive priorities and service performance, (r =.865, p < .000). This shown that competitive priorities have the strong relationship with service performance. It is shows that there is a significant result between competitive priorities and service performance in UTeM. From the findings, the null hypothesis is rejected then the alternative hypothesis is accepted because high relationship between competitive priorities and service performance in Universiti Teknikal Malaysia Melaka. In conclusion, each element of competitiveness priorities such as cost, time and quality plays an important role in the enhancement of service performance in adopting the e-Procument.

CONCLUSION AND RECOMMENDATIONS

As a conclusions, the benefits of e-Procument to organization on costs, time and quality will enhance service performance in UTeM. An e-Procument has resulted benefits not only to university but e-Procument in Malaysia is developed as one of e-government strategies. The benefits from usage e-Procument in Malaysia include provide more efficient and effective procurement process, reduce operation cost and turn around time, availability of product informationd latest price, creates a more skilled and knowledgeable workforce and enhance level of transparency and accountability. Also, the findings of this study had a significant consensus amongst both the buyer and seller communication is that E-Procument will become an important management tool to enhance the service performance especially in the public sector. We expect that, the university in Malaysia will grab the opportunity and benefits fully from the e-Procument initiative in Malaysia. The benefits to suppliers is to provide facilities for e-commerce, suppliers become global, provide better and larger markets, reduce procurement process, administration and operation costs, fast and safer payment via Electronic Fund Transfer.

There were several recommendations that can be applied to improve and obtain more interesting results based on this research were the accessible population for this study was all staffs include the academician and non academician in Universiti Teknikal Malaysia Melaka. However, by expanding this research through other universities located in Melaka would be logical and accepted, in different atmosphere of the university can have different view and the scope will be wide. The scope of study is focus to one university to identify the benefits and the efficiency of the competitiveness priorities on adoption of electronic procurement. This is to certain aspects will limit the research findings and results. Moreover, there are few universities such as Universiti Teknologi Mara (UiTM) Melaka and Universiti Multimedia (MMU). The researcher can expand the study in this three universities in Melaka to ascertain whether the e-Procument ent can benefits to the organization on time, cost and quality. At the same time, it reached the service performance of the university. Then, the scope can be wider and with many data findings will make the research significant.

In the internet-based purchasing system can save the university costs. This reserach will help help university implement such e-Procument ument system more effectively. As part for further research, the national survey of organisation that have implemented e-Procument cument can be conducted. This will involved the government departments and

agencies such as e-perolehan Department of Commerce. Hopefully, there's a grant and sponsor for this research. The university who have implemented e-Procument should share their positive experiences to the other universities in Malaysia. Government should provide supportive measures to encourages the implementation of e-Procument. Therefore, the government should control and enhance the telecommunication infrastructure in our country. Finally, in the e-Procument system, when the buyers are willing to implement the electronic system, the organizations are willing to adopt other electronics basis in the university. Hence, the university can realize the benefits on adopting the technology in their routine life. The technology would enhance the service performance of the staff not only in procurement but any electronic base such as electronic meeting, electronic office etc. In conclusion, recognition of these recommendation is important because e-Procument can go further in Malaysia and can help organizations implement such e-Procument systems more effectively, where we are looking at the whole picture, including efficiency, quality, accountability and transparency.

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