THE ROLES OF TECHNOLOGY IN ENHANCING SERVICE EXCELLENCE IN HIGHER EDUCATION

Hasfizani Ariffin¹
Sany Sanuri Ahmad Mokhtar²
Nur Farhana Abdullah³

¹Registrar Department, Universiti Sains Malaysia,
²School of Business, Universiti Utara Malaysia,
³Registrar Department, Universiti Malaya,

Corresponding addresses
hasfizani@usm.my, sany9696@gmail.com, nfarhana@um.edu.my

ABSTRACT

The purpose of this study is to examine the role of technology in enhancing service excellence in the higher education industry. In this digital economy era with fast-moving technology and huge global competition market, the role of technology cannot be denied in any business processes. While, as the higher education industry as a part of the service industry, performing service excellence is crucially needed as it was told to be a major contributor to competitive advantage in every business environment. Furthermore, previous studies have proven that, those implementing service excellence will increase their profit and remain competitive in the long run. This study will be reviewing previous literatures in getting an idea on the existing condition on how much faster-moving technology has enhanced the implementation of service excellence in the higher education industry. The aims of the study are to explore any possible advantage of technology in enhancing service excellence. This is because, in this digital era with a highly competitive environment, public universities are suffering from the high demand for unlimited information. Furthermore, demand for fast communication has turn social media into a bigger role. Therefore, in becoming the customer’s choice, universities all over the world must invested on new and updated technology to remain competitive. Somehow, very limited study on the technology's role on the service excellence performance in the higher education institutions/industry. Therefore, continuous study is needed in shaping our future education institutions/industry to be excellence knowledge provider in the global market-place. The study result will also be contributed to the field of knowledge.

Keywords: technology, higher education, service excellence
INTRODUCTION

For a long time the importance of technology has become an important topic discussed for competitive advantage and previous studies have pointed out that many business operations have shifted from traditional to computer since the 1980s (Jackson & Humble 1994). During that time, an information technology was considered as a new way in delivering products and services in the business environment to be ahead of their competitors (Jackson & Humble, 1994). The technology support was told has improved customer’s satisfaction, by aided the organization's communication processes (Johnson, Fidler & Rogerson, 1998; Jackson & Humble 1994). Since long the technology was named as a major factor in improving the organization’s performance, more than two decades ago a study by Johnson et al. (1998) has named the technological support in a business environment during that time such as fax, electronic mail, mobile phones, messaging services and video conference facilities and personal computer. The study justified that organizational change is probably lagging behind technological innovation, which might still be equivalent to the current situation since fast-growing technology is expensive and some high skills need to be applied. This statement was supported by a recent study which relates todays huge market with a competitive environment that caused by technology need different approaches to tackle new customer’s demand and behaviour (Kotler, Kartajaya & Setiawan, 2016). Indeed, nowadays the technology has a direct impact on the organization performance, such as the accessibility of information to their customers, suppliers and distributors (Tay & Low, 2017). Regardless of any business in any industries, immediate response to the internet community that rely on their community’s recommendation has reduced the organization power in marketing their products and services (Kotler et al., 2016).

Furthermore, in a competitive and dynamic business environment, the best and latest technology is a must for any industry in running their business. The technology advancement was told to be a critical factor for rapid change (Ching-Yi & Talley, 2012). While in the higher education industry, technology has ignored the distance barrier by communication and transfer of knowledge all over the world within seconds (Ryhan & Mohammed, 2013). Knowledge and education are very important, as has been mentioned in the Qur'an about the importance of continually acquiring knowledge in human life since more than 1400 years ago (Qur'an 96:1-5). That's how important education is for everyone and the importance of the higher education as a knowledge provider (Smith, Smith & Clarke, 2007). Therefore, as the education business is the most important pillar in any country, it was led to a hot discussion in improving service delivery in higher education institutions / industries (Smith et al., 2007). Therefore, reported that, many studies have been done in order to improve the quality of educational business in various aspects (Reza, 2016; Fernandez, Simo & Sallan, 2009). Somehow, even there are many previous studies was focused in improving the quality of the higher education institutions / industries yet there are many problems in quality management in higher education institutions / industries. According to Smith et al. (2007), the problem arise was resulting from the customers that become more fragmented with high demand which is hard to accommodate. The study further stated that, unsatisfied customers will load a negative
comment that affected the organization’s reputation. Indeed, the situation might because of imbalance of attention within academic and non-academic matters in the higher education business in previous research. The statement was supported by many arguments from previous studies which reported that, previous study mostly focuses on the academic dimensions compared to non-academic services provided by people working in higher education institutions (Reza, 2016; Fernandez et al., 2009; Clewes, 2003). While in the real situation, academic and non-academic problems in higher educational institutions / industries have brought the same weight in calculating their performance (Davis, 1996; Jain, Sinha & Sahney, 2011). In sum, technology is very important in meeting the customer’s need and demand and since the service excellence was defined as the factor in delighting the customers (Dobni, 2002; Cina, 1990) the combination of it will improve the organization performance.

In addition, economic growth and business revolution calling for the importance of technology in enhancing the delivery of services in higher education institutions / industries (Ryhan & Mohammed, 2013). Universities around the world were rushing to market themselves in the huge global marketplace in increasing their financial value and gaining the competitive advantage (Naidoo & Wu, 2014; Ahmad & Farley, 2014). Precisely, by increasing the number of students enrollments will increase the university's income, but with fast moving technology it also increases customer knowledge to make the best choice for their investment (Abankina, Abankina, Filatova, Nikolayenko & Seroshtan, 2012; Naidoo & Wu, 2014; Kitchroen, 2004). Therefore, be the chosen one will secure the higher education institution in the market. The statement was supported by another study, which elaborates that, the borderless world has increased the knowledge of customers and competitors to make better choices for better investment value (Tay & Low, 2017). Thus, as previous studies have shown that the service excellence performance in many industries has a competitive edge (Shehadeh, Zu'bi, Abdallah & Maqableh, 2016; Shek, Chung & Leung, 2015), therefore, similar to other businesses, the higher education institutions / industries must act fast to exploit the benefits of technological advances towards the service excellence performance. Base on the discussion in this paragraph, it shows that technology will also improving the financial value of the organization. Therefore, by having enough budget, the higher education institution will improve their reputation as well. In fact, it was reported that, the universities such as Harvard, Princeton and Stanford were named as part of the world's most influential research universities (RUs) operating around the world (Sunder M, 2016). Indeed, the study findings was supported by recent economic reports by the United States Economic Trade which indicated that the education service was listed as the first industry in the non-manufacturing industry in the Purchasing Managers Index (PMI) (Tradingeconomics.com, 2018).

Additionally, as peoples in an organization told to be the most important success factor in the service industry (Cina, 1990) and technology was told as the best mechanism in improving human capability in performing their job (Jackson & Humble, 1994). While, in the other hand, skill employee will be an advantage in managing and maximizing the technology’s role. Therefore, technology and human capital are interacted with each other in increasing their value towards better performance, which contributed to the
service institutions/ industry. This study focuses and analyses the previous studies by emphasizing on the technology support in enhancing the delivery of non-academic services in the higher education institutions / industries.

LITERATURE REVIEW

Service Characteristics and Service Delivery

Service products differ from manufacturing products, where service products are difficult to manage, while manufacturing products can easily be adjusted or adjusted before handed over to customers (Sekaran & Bougie, 2013). According to Clewes (2003) the characteristics of services with special features was defined as an intangible action, “services are performances or actions rather than objects: they cannot be seen, felt or tasted in the same way that one can sense a tangible good” (Clewes, 2003, p.70). The study explains that, services often occur in the presence of users and heterogeneity, which is very difficult to standardize the services offered to every user. There are several definitions of service by different scholars, Khan and Matlay (2009) have justified the service as a performance, while another study by Aziz and Wahidin (2010) has determined the services as a highly integrated action between service providers and customers who require customers to be part of the service delivery process. In addition, Zeithaml, Bitner and Gremler (2013) in their book have described that, “services are deeds, processes and performances provided or coproduced by one entity or person for another entity or person” (Zeithaml et al., 2013, p.3). To be noted that, since there is different characteristic between products and services, previous studies suggested that good measurement scale for services is important in improving the quality of services (Teeroovengadum, Kamalanabhan & Seebaluck, 2016; Brochado, 2009).

Since the characteristics of the service are different from the manufacturing product, the delivery is also different. Delivery of a manufacturing product can occur without a customer present at the same time, while a presentation of service takes place with the customer's attendance. Service delivery refers as an action involving in providing an organization’s goods and services to the customer, which is design of product is an important element in manufacturing industries while, “service delivery refers to how well the customer is actually served before, during, and after the transaction” (Moorman & Rust, 1999, p.182). While, in another study stated that “service delivery is concerned with where, when and how a service or product is delivered to a customer” (Tsou, Chen and Liao, 2014, p.499). The study was justified service delivery is a communicating process which happen when the organization exchange services with their customers. In another study explained the core of service delivery operations is transforming inputs into outputs, through a set of processes to accomplished it (Chen, Tsou, & Huang, 2009). The study stated that in reality most of service providers in similar industry in fact, deliver their service products using same strategies to their customers. Whereas in this complex digital economy, in achieving competitive advantage in the huge competitive market, service organization must act in a new creative way to deliver their services product (Chen et al., 2009). Therefore, the latest technology in assisting the service organization
in providing service excellence is a must. The service cannot be excellence without the best appropriate technology in this digital economy era (Kotler et al., 2017). For further understanding the differences between the manufacturing and service product, Table 1 below summarized the differences.

Table 1: Differences Between Manufacturing Product and Service Product

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Manufacturing economy</th>
<th>Service economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibility of production inputs</td>
<td>Tangible Raw materials</td>
<td>Intangible Knowledge and skills</td>
</tr>
<tr>
<td>Tangibility of production outputs</td>
<td>Tangible Products produced can be touched</td>
<td>Intangible Services have no physical presence and cannot be touched</td>
</tr>
<tr>
<td>Variability of production process</td>
<td>Standardized Goods produced are expected to be standardized; Small allowance for deviations</td>
<td>Heterogeneous Service involves interaction between the service provider and recipient; Changing situations and personalization of service</td>
</tr>
<tr>
<td>Production and consumption process</td>
<td>Separable Production and consumption processes are separated</td>
<td>Inseparable Production and consumption are simultaneous</td>
</tr>
</tbody>
</table>

(Source: adapted from Shek et al., 2015)

**Higher Education Institutions/Industry**

The higher education institutions/industry is a complex and diverse industry, known as an education business and is defined as a service provider that provides education beyond the secondary level to enhance human values in every individual and society (Sunder, 2016; Tams, 2015; Clewes, 2003). According to Sunder (2016), the higher education institutions/industry as a service provider to bring betterment to the society has remained unchanged and it is still regarded as an important agenda that contributes to the economy of any nation. Besides improving an economic growth of the country, the higher education institutions/industry also plays a very important role in ensuring good social mobility (Office of Educational Technology 2017). Continuously innovating to increase accessibility, affordability and equity in higher education will foster the higher education function as a great equalizer. The report by Office of Educational Technology in year 2017 highlights, the importance of innovation in developing an ecosystem including a range of opportunities for a variety of high-quality educational experiences and credentials with marketplace value suited for the differing needs of students. The report from National Education Technology Plan (NETP) United States of America explained that the current specification on a student has totally changed. Instead of normal range of ex-secondary school and part time student for long distance study, nowadays the specifications have rich in categories such as range of age, income, geographical aspect,
the ability and many other aspects (Office of Educational Technology 2017). Therefore, as the increase of customer’s categories will also increase the varieties of demands which only can be assisted by good technology in enhancing service excellence performance (Smith et al., 2006).

**Technology**

Technology was defined as the scientific or engineering application that used to extend human capabilities in order to expand the organization facilities productivity (Mishra, 2007; Prasad Mishra & Srinivasan, 2005). It was categorized as a critical success factor in any business or industry (Prasad Mishra & Srinivasan, 2005). The importance of technology in this complex digital economy era cannot be ignored and has been discussed even more than two decades ago, which is technology was told in leveraging on information to delight the customers (Jackson & Humble, 1994). Precisely, the technology was told to be an important element in achieving service excellence in gaining competitive advantage (Jackson & Humble, 1994). Further justified in the study that the organization’s service delivery can be benefited from technology by understanding and spending more time with their customers that will benefit the organization to gain customer loyalty (Jackson & Humble, 1994). However, the study mentioned that the technology during that time is only for operational use not in making real money to the business. Another study by Goodhue and Thompson (1995) also justified technology as a tool used by an individual in carrying out their task. The study was empirically proven the relationship between technology in increasing human performance. However, not all technology will increase the performance since the usage of poor system will not improve the performance (Goodhue & Thompson, 1995). Todays, the needs for technology was increasing, customers were asking for more information for them to understand the product offered, such as detailed product descriptions, transparent pricing information, company information, professional advice, research reports and contact information to help them in making decisions (Thaichon, Lobo & Mitsis, 2014). However, based on the literature review technology was defined differently in different industries.

In the challenging complex digital economy nowadays, like other businesses, the higher education business was hardly affected by technology advancement (Ahmad & Chua, 2015; Kandiri & Mugand, 2013). The capabilities of tertiary institutions in facing global challenges should be defended by strong technology (Elena-Perez, Saritas, Pook & Warden, 2011). According to Tan et al., (2016) the higher education industry needs strong support from good technology in improving their services as a mechanism in attracting students. In the context of the education business, technology seem as value added in attending the industry multiple roles, such as various choices of searching engine, the applications for data analyzing, recording facilities and modern communication that connected the researchers all over the world has saved their efforts and time in completing their research activities (Ryhan & Mohammed, 2013). Besides assisting research process, information and communication technology (ICT) was highlighted as the most important factor in spreading knowledge and information in the
education market (Ryhan & Mohammed, 2013). The study mentioned that, current technology available have improved and easier in running scientific research contributed by the capabilities offered by ICTs. Further explained in the study that, the advancement of technology has possible for quick search of variety’s information, easy access of information, digitization of information, in processing information, and knowledge sharing. In sum, good technology support will smooth a research operation for the researchers in completing their research within the stipulated time (Ryhan & Mohammed, 2013).

**Service Excellence**

There are several definitions of service excellence by previous researchers in their own context. Asif and Gouthier (2014) defined service excellence as “providing services that both exceed customers’ expectations and delight them” (Asif & Gouthier, 2014, p.511). The study stated that, the service excellence performance will lead to higher profit to the institution which crucially needed for any business and as a key for higher education institutions/industry to face the complex global environment. According to Cina (1990), the service excellence performance is over and above service quality and can be achieved by specific actions. The study suggested five steps towards service excellence which is, moments of truth, inventory your moments of truth, assess importance/performance of each contact, establish a service management discipline, and implement your action plan. Another study by Aziz and Wahiddin (2010), explained that service excellence is an expression of a very high satisfaction from customer that resulted from the surprisingly superior performance by the service provider. Somehow, Johnston (2004) argued that, defining service excellence as delighting the customer is not suit to all businesses, he was defined service excellence as ‘easy to work with’ as a result from his survey in defining service excellence in customers’ perspective. However, many researchers mentioned that the definition, the concept and many other aspects of service excellence are still not well established (Asif & Gouthier, 2014; Aziz & Wahiddin, 2010; Johnston, 2004; Cina, 1990). Therefore, continuous study on the service excellence will drive the correct key drivers to implement it, specifically to match to the norm of education business.

**The Roles of Technology in Enhancing Service Excellence in Higher Education**

The importance of technology has long been discussed, previous study by Jackson and Humble in 1994 revealed that there are many studies since 1980s on information technology that drives competitive advantage through satisfying the organization’s customers. The study was highlighted that high technology will improve the organization effectiveness by responding to their customer’s need, but additional cost for new technology was justified as a challenge for an organization. Besides the roles of technology, previous study was also highlighted the involvement of an internal customer as another importance element in delivering service excellence in the service industry (Jackson & Humble, 1994; Ryhan & Mohammed, 2013). Which is in the employees are playing an importance roles in handling organizations’ customers with their commitment and motivation in improving the quality of service offered (Dobni, 2002). On the other
hand, lack of employee’s commitment will lead to service failure that will affect an organization’s financial value and reputation (Abzari, Ghorbani & Madani, 2011). In case of technology, it will improve human capabilities in supporting technological advances towards service excellence performance (Kagaari, Munene & Mpeera Ntayi, 2010). The study which was conducted in Ugandan public universities has proved that the efforts in providing excellent services has delayed due to incapable employee with low computer literacy. The study finding was in line to the statement coded by Jackson and Humble (1994) which stated that, “the computer is incredibly fast, accurate and stupid. People are unbelievably slow, inaccurate and brilliant. The marriage of the two is a force beyond calculation” (Jackson & Humble, 1994, p. 40). Another similar case was reported by Cheng and Ngai (1998), the study found that the delay in improving the quality of product and services was due to low awareness of the potential and benefits of a technology. Therefore, competent employees are important to maximize the benefit of technology towards the service excellence performance. However, in this digital globalization era with fast-moving technology, an organization is not merely dependent on employees, but the organization should also consider utilize and innovate the current resources within the organization in retaining the competitive edge. Good technology support will ensure smooth operation such as collection, storage, and distribution of knowledge.

In specific, in the higher education institutions/industry, previous study was highlighted on the importance of technology in diffusing knowledge and information which very helpful to the researchers in completing their research within the stipulated time (Ryhan & Mohammed, 2013). Further described by the study that, the applications available such as various choices of searching engine, various tools in analysing the data, recording facilities and modern communication that connected the researchers all over the world in exchanging ideas have save their efforts and time (Ryhan & Mohammed, 2013). Besides that, another type of technology such as podcasting has long been introduced as a new technological tool to facilitate good practice in higher education. Podcasting is an audio captured event, song, speech or mix of sounds that is posted on a web site or blog for the learning process in higher education context (Fernandez et al., 2009). An important feature of podcasting characterized as ‘accessibility’ enables students to listen to lectures anytime and in the simplest place. The study explains that podcasting technology is a powerful tool for complementing the traditional resources of teaching materials that help students improve learning and improve their learning. However, this study noted that many previous studies in podcasting technology at higher education institutions / industries were only focused on improving learning perspectives but no study viewed this technology as a support medium in enhancing excellence in non-academic services (Fernandez et al., 2009).

In another grounded study that work on key factors to drive the service excellence performance in the higher education institutions/industry was highlighted that, the overwhelming of globalization era that generated by fast technology has push the improvement of the quality of services provided by education business (Khan & Matlay, 2009). Therefore, to remain competitive in the huge global competitive market of education business the higher education institutions/industry must have a strong support
from good technology in improving their quality of service delivery as a mechanism in their quest to attract students and other stakeholders (Tan, Muskat & Zehrer, 2016; Ching-Yi & Talley, 2012). In addition, Elena-Perez, Saritas, Pook & Warden (2011) have stated that the capabilities of tertiary institutions in facing global challenges should be defended by strong technology. Furthermore, in recent studies by Tarí and Dick (2016) reported that the relationship between service innovation and service organization’s performance is dominated by technology. The study further explained that service innovation has been established based on the needs of customers that associated with human needs which related to Maslow’s theory that causes human demand to increase as human needs increases. This phenomenon can only be addressed by continuing the innovation of services supported by the latest technology in gaining competitiveness (Tarí & Dick, 2016).

Additionally, The National Education Technology Plan (NETP) of the United States in their ongoing transformation action has released a report titled "Upgrading the Role of Higher Education Technology" in January 2017, which proposed specific actions for various parties to uphold their education industry that empowered by the technology advancement. The objective of this report is to enable "all-time learning and to ensure greater equity and access to lifelong learning opportunities" in continuing to innovate and improve the higher education system in gaining competitive advantage by studying the role of technology. The report also aims that academics and administrators should work together to reduce the gap of achievement towards excellence. The goal is to enable the use of technology anywhere at any time and the institution will provide a flexible educational experience for all students. The report stated that the goal is only possible with technology "developed on the grounds of evidence based on the learning science and implemented using an effective strategy that focuses on improving the quality of learning experience and raising results for all students" (Office of Educational Technology, 2017).

**Research Hypotheses**

As discusses above new strategy is needed to improve the higher education institutions reputation and financial value. Therefore, the higher education institutions / industry should put more effort in improving their service delivery by implementing the service excellence performance as it was proven in other profit organization in increasing profit, customer’s satisfaction, customer’s retention and competitive advantage. Besides the service excellence performance, the important of technology was also argued and recommended by previous studies as an important factor to uphold the higher education services towards the service excellence performance (Khan & Matlay, 2009), therefore studying the effect between two seems crucial. Therefore, this study highly recommended for future study on the role of technology towards the service excellence performance in the higher education institutions / industry. Therefore, below hypotheses was develop for further research.

\[ H1: \] There is a positive and direct significant relationship between technology on the service excellence performance
Proposed Conceptual Model

Base on the above discussion on the importance of the implementation of the service excellence performance that effected by technology advancement in the higher education institutions / industry and the proposed hypotheses above, this study proposes a structural relationship model for technology effect on the service excellence performance in the higher education industry as presented in Figure 1 below.

![Conceptual Model](image)

**Figure 1:** Conceptual Model on the effect of Technology towards the Service Excellence Performance

CONCLUSION

The above discussion is based on existing research from various journals on the role of technology in improving performance of service excellence. The search shows that related articles are very limited. It was indicated that, research on the importance of technology in enhancing the delivery of non-academic services at institutions of higher education is very little. In particular, there is very limited study on the importance of technology in enhancing excellence in higher education institutions / industry. Furthermore, the existing studies on the related field are mostly done in 1990s, which is already outdated and possibly not applicable for referring to any judgement or comparison. Many previous scholars that work on the performance of the higher education institutions / industry mostly have devoted their study in searching for the best technique in delivering the knowledge. Some have discussed about technology-based tools that allow new alternative in delivery knowledge to the students either in the classrooms or online to increase the flexibility of learning environment. However, the importance of technology towards delivery of service excellence in non-academic services in achieving organizational goals has been ignored.

As mentioned above, many studies in higher education industry are focusing on the delivery of academic matters (Ryhan & Mohammed, 2013). Precisely the study focuses were on the advantages of technology to the researchers and university students in acquiring and transferring knowledge (Ryhan & Mohammed, 2013). However, academic and non-academic matters in the higher education institutions / industry were told are carrying the same weight in ensuring the competitiveness and to face the globalization phenomenon with fast-moving technology (Davis, 1996; Jain, Sinha & Sahney, 2011). Future study is crucially needed to examine the relationship between technology and the implementation of service excellence in higher education institutions / industry specifically for non-academic processes. It will assist university managers, policy makers and many others in looking at the importance of technology in enhancing the education business to become comparable to other conglomerates. The podcasting technology advancement and other technological support should be aggressively invested to manage non-academic processes in higher education system to enhance the service excellence performance.
performance. An innovation in the field and function of the technological items that are leveraging the market might give a big impact to the implementation of service excellence in the higher education institutions / industry, which will lead to competitive advantage. Continuously searching for an innovation in improving quality of service delivery in non-academic matters will balance the higher education institutions performance. As what has been mentioned by the Office of Educational Technology, in enhancing excellence in service in the higher education industry, there is an urgent need for academicians and administrators to work together to reduce the gap towards achieving the service excellence (Office of Educational Technology, 2017). In sum, this conceptual paper has provided an overall insight into the real situation of existing approaches relevant to the importance of technology in enhancing the service excellence performance in the higher education institutions / industry. Hence, future research in determining specific factors and actions to achieve the service excellence performance that driven by technological will guide industry players in achieving and maintaining excellence in the face of a global competitive phenomenon.

REFERENCES


