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The effect of information, communication and technology (ICT) and quality management to export performance of Malaysian's SME in manufacturing sector

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Abstract: The expansion of manufacturing industry all over the globe gives beautiful colors to the economic growth of many countries in the world. Small and Medium Entrepreneurs (SME) manufacturers which covered majority percentage of business in developed and developing countries are considered as backbone to the GDP of those countries. This good economic inclination has generated active export activities, including our country Malaysia. Despite all that goodness, export performance seems has an issue over cost and duration of export. This issue normally hit developing and less developed countries. Unfortunately, Malaysia is one of them. According to the literature, trade facilities like Information, Communication and Technology (ICT) and quality management contribute to the time delay and cost increment of export. Therefore, this paper aims to explore the influence of ICT and quality management on the export performance in Klang Valley, Malaysia. By using quantitative method, 200 sets of usable questionnaire are returnable, makes the response rate of this study is 50%. The data are then were analyzed by using various analysis such descriptive, validity, reliability and correlation. The findings discuss descriptive statistics of the data, including demographic of respondents, reliability and correlation analysis. The results are expected to give brief view of the export performance in Malaysia in the perspective of ICT and quality management. The policy makers should benefit these findings for a better policy to suit the dynamic of international demand in future.

Key words: Export performance; Information; Communication and technology (ICT); Malaysia; quality management; SME

1. Introduction

Manufacturing is like an engine to the modern world. But, it did not just start yesterday. It actually started a long time ago with big countries manipulating this sector. Historically, Britain seems the engine which started the Industrial Revolution by introducing textile industry. Even though the Netherlands, Portugal, Spain and France were wealthier than Britain at that time, Britain quickly overtook those countries by the Industrial Revolution. In not much time later, Germany and the United States took over Britain industrialization as both countries offered variety of industries rather than textile. This transformation is called Second Industrial Revolution (Schmenner, 2001).

Inside those countries which were involved actively with the industrialization, Small and Medium Enterprise (SME) manufacturers play a very vital role in doing the business. SMEs are recognized globally as a machine for economic growth since 80 per cent of business activities are coming from SMEs, while in Europe and North America, 99 per cent of their total businesses are SMEs (Jutla et al., 2002). The same phenomenon goes to our country, Malaysia. A total of 548,267 enterprises are from SMEs, representing 99.2 per cent of the total business in Malaysia. From this, SMEs are found to contribute about 32 per cent of Gross Domestic Product (GDP), 59 per cent of employment and 19 per cent of total exports (SMECorp, 2012) and specifically, the highest proportion of exporters are coming from manufacturing industry. Most countries also agreed that exporters are more active in production compared to non-exporters firms (Kotnik et al., 2013).

When discussing about export activities, history had shown that since early 1970s, export-oriented industrialization was seen as a light for future business growth and development in East and South East Asia. It was proved by the steady inclination of their GDP during that period and by 2005, the export shares started to deviate from developing countries to average world countries and fortunately it became 1.5 to 2 times higher (Jongwanich, 2010). Agreed with the statement, in 2004, Akinkugbe (2009) had found that the total of export of manufactured goods from East Asia and the Pacific was about 80 per cent, Europe was 57 per cent and 31 per cent from sub-Saharan Africa.

Realizing this matter, exporting becomes a main strategy for manufacturing firms to survive and keep growing in order to hit competitive advantage globally (Navarro et al., 2010) and they currently pay

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more attention to expose and export their products to the international market (Lages & Lages, 2003; Moghaddam et al., 2011; Navarro et al., 2010; O'Cass & Julian, 2003). All in all, export or this trade activities not only beneficial to the countries and firms, but it is also reducing the unemployment rate by creating new job opportunities, improving capacity of utilization, as well as increasing the productivity of their people (Moghaddam et al., 2011). This is supported by an economic theory which claimed that *"human development is enhanced through income growth; income growth is greater with more cross-border trade; trade is increased through all conscious and indirect efforts at trade facilitation"* (Akinkugbe, 2009). As evidence, in 2013, the average wage of manufacturing workers in the US is $77,506 annually, but workers from other industries earned about $62,546 yearly, which is pretty low compared to the manufacturing sectors (Manufacturers, 2014).

1.1. Trade facilitation and its issues

In order to maintain and develop more economic expansion through smooth export activities, trade facilitation provided must be good. What is trade facilitation? Trade facilitation is defined as *"reducing the transaction costs associated with the enforcement, regulation and administration of trade policies"*. Its main discussion is on policy measures to reduce the production costs for export in developing countries (Iwanow & Kirkpatrick, 2009; Portugal-Perez & Wilson, 2012).

Narrowing down, the trade facilitation is associated with the transaction costs reduction on-the-border like cut of tariff which essentially *"involves the simplification and standardization of custom formalities and administrative procedures related to international trade".* In a broader view, trade facilitation also involves with business environment, domestic regulations, infrastructures' quality and transparency. To conclude, the trade facilitation can be measured through two dimensions; "hard" and "soft". The "hard" dimension is about physical infrastructures (roads, rails, ports, airports and telecommunications), while "soft" dimension indicates environment of the business, management of customs and other institutional aspects (Akinkugbe, 2009; Portugal-Perez & Wilson, 2012). Therefore, it also can be said that trade facilitation is about *"logistics of moving goods through ports or more efficiently moving documentation associated with cross border trade"* (Iwanow & Kirkpatrick, 2009).

As mentioned by the authors above, the trade facilitation is a logistics movement, including physical movement by the usage of physical infrastructure and the movement of documentation which associates with regulations. Then, these movements are related to time and cost. How does trade, time and cost relate? According to Nordas, Pinali, and Grosso (2006), time is a trade cost. A Doing Business Survey estimates that a 10 per cent increase in time can reduce bilateral trade volumes in the range of 5 to 8 per cent (Djankov et al., 2006; Hausman et al., 2005). For instance, when the transport costs increase by 10 per cent, trade volume decrease by 20% (Limao & Venables, 2001). The costs for air transport decreased by 40 per cent from 1990 to 2004 (Harrigan, 2005) and average shipping time also declined by 30 days from 1950 to 1998 (Hummels, 2001). All of that declination is due to the reduction in transportation costs, faster delivery and the effectiveness of multimodal transport (Nordas et al., 2006). The difference in time taken for export probably due to country characteristics such as bad environment of trade facilitation and lack of trade infrastructure including communications and poor regulatory environment (Iwanow & Kirkpatrick, 2007); since Malaysia is one of the countries which is included in the longest period taken for exports, this study is called to zoom into the issue through the measurement of related dimensions as discussed by the literatures. The first variable discussed in this study is the information, communication and technology (ICT), which plays a vital role in making the business process easier and faster. The usage of ICT by firms in export activities gives a variety of advantages including marketing strategy or international and domestic communication with clients and suppliers (Kotnik et al., 2013; Lucchetti & Sterlacchini, 2004; Perego et al., 2011; Zhou, 2014). Unfortunately, the discussion on ICT in export remains relatively unexplored in the literature (Kotnik et al., 2013).

The implementation of quality management is also an important thing that relates to the trade activities. It concerns about quality of product and management and generally found to be significant to the improvement of international sales and demand (Arauz & Suzuki, 2004; Fenghueih Huarng et al., 1999). Therefore, the manufacturers are motivated to have this quality management especially when they are involved in international trade (Lamprecht, 2001). However, there is lack of study done to observe the relationship between the quality management and export performance directly.

Therefore this study examines the relationships of ICT and quality management with export performance of SMEs manufacturing in Klang Valley, Malaysia. Thus, the next sections discuss about the related literature review, research methodology, results, discussion and conclusion of the research.

2. Literature review

2.1. Small and medium enterprise (SME) in Malaysia

Boosting up the economic growth is a mission for most of the countries in the world. Among many ways executed, one of them is through the SMEs, as almost three-quarters of the global business are coming from SME sector (Jutla et al., 2002). In Malaysia, SME business is registered in Registration of Businesses Act

1956 (Act 197) or Companies Act 1965. According to SMECorp (2013), SMEs are defined by two characteristics; annual sales turnover and number of full-time employees of a certain business and these criteria differ based on the sector. As for manufacturing and manufacturing- related sector for instance, enterprises with "sales turnover not exceeding MYR50 million or full-time employees not exceeding 200 workers" are considered as SMEs. On the other hand, for other sectors including service sector, SMEs are enterprises with "sales turnover not exceeding MYR25 million or full-time employees not exceeding 75 workers". However, these criteria may differ for other countries.

Globally, SMEs business involves in petty traders, grocery store operators, medium-sized contract manufacturers supplying parts and components to multinational corporations and professional services such as software firms or medical researchers selling their services to overseas markets. In Malaysian context, SMEs are operating through a variety of environments such as urban, rural, online, physical, domestic, regional and international. In our country, most of SMEs (87%) are from services sector, 7% are from manufacturing, 6% agriculture and all of them contribute approximately 32% of GDP for our country (SMECorp, 2013).

Again, according to the latest report from SME Corporation Malaysia, most of SMEs are concentrated in the area of Klang Valley where 35.7% of them are in the area of Selangor and Federal Territory, followed by 10.3% in Johor, 8% in Perak and 6.8%. Out of these SMEs, manufacturing sector is seen to be manipulating the higher proportion of large enterprises (SMECorp, 2013).

2.2. ICT in SME

According to Devenport (2001) in Zhou (2014), ICT is defined as *"a set of technologies that includes computing, telecommunications, multimedia and virtual reality"*. The basic line for ICT is internet, which is the main medium to transfer information regardless of how far the distance is. Therefore, (OECD, 1998) in (Rosson, 2004) mentioned that the usage of internet is a great chance for SMEs to act globally. E- Commerce for example, provides good opportunities to the SMEs to gain wide access to new markets either domestic or international by doing more research. However, in certain situation, the implementation of IT can be burdensome, especially when it comes to the costs. Regardless of the costs, the number of SMEs operating with the internet is gradually increasing, thus increasing their ability to meet new customers (Rosson, 2004). Same goes to exporting activities. SMEs which involve in export activities use the internet to have larger network in fast and cheaper environment without having to invest in expensive physical assets abroad. This can eliminate SMEs disadvantages of size and weaker physical presence among other foreign markets (Kotnik et al., 2013). It also amends main problems faced by Greek firms in financial crisis period (Azaria et al., 2014).

Other than basic technologies like internet which provide corporate e-mail, website, e-commerce and etc. for basic communication for business-to-business processes, there are few types of ICT systems that have been used in SME manufacturing sector and logistics transportation for the purpose of production and products' delivery to export to the desired destinations. In executing those processes, stronger competition on costs and service performance is given a great attention by the firms. Thus, the applications of ICT are seen as a key to face this competition (Closs et al., 1997; Spanos et al., 2002). Therefore, according to Marchet, Perego, and Perotti (2009), among applications available for logistics transportation that a firm needs are; transport management (TM) applications (Mason et al., 2003) such as routing and scheduling, freight payment and auditing as well as field force automation (FFA) applications such as any mobile technology supporting the integration between business (Perego et al., 2011; Rodina et al., 2003). Other than FFA, Electronic Data Interchange (EDI) also helps the firms to integrate faster through paperless technology from point to point of business process (Murphy et al., 2000). On the other hand, ICT is also important in the production process of manufacturers. For example, most manufacturers nowadays use Computer-aided Design (CAD)/Computer-aided Machine (CAM) in their production. It makes the design and execution of design easier and faster compared to other conventional methods (Lucchetti & Sterlacchini, 2004).

In conclusion, the studies of ICT related to trade activities normally relates to globalization and multinational. Literatures showed that ICT is very significant for international marketing and globalization of firms, particularly for smaller firms. Nevertheless, the role of ICT in firms' exporting activities remains relatively unexplored (Kotnik et al., 2013).

2.3. ICT and export performance

The empirical study of ICT and trade activities is so far quite limited. According to the bilateral data from 1995 to 1999, it showed that the usage of websites helps to explain export development in the following years (Freund & Weinhold, 2004). In certain extent, the data indicated that internet eventually has developed a great opportunity for the firms and organizations to access international market, even from the smallest entrepreneurs in China to the biggest manufacturing firms in the United States (Griffith & Palmer, 1999). Therefore, Rosson (2004) concluded that internet can be used by most firms, especially SMEs in order to cater their export orientations in three main roles; global marketing tool, cost-efficient transaction medium and tool for customer care. Hence, several research studies revealed that the level of ICT, internet

knowledge and experience within a firm had a significant impact on export performance (Bennett, 1998; Dholakia & Kshetri, 2004; Moodley, 2002; Morgan-Thomas & Bridgewater, 2004; Mostafa, Wheeler & Jones, 2005; Rosson, 2004).

However, Azaria C. Albertos et al. (2014) mentioned that, among a large number of studies related to the role of internet in international marketing and business activities, only a few studies studying the potential use of internet in export activities, even though there has been a relative increase of research attempts on the specific scientific area during the past ten to fifteen years (Azaria C. Albertos et al., 2014). Meanwhile, among many studies that studied the impact of various types of infrastructure on the export performance of developing countries, ICT is found as one of the most relevant elements that influence the export performance and it becomes more significant in richer countries (Portugal-Perez & Wilson, 2012). Again, the usage of ICT showed a good impact on export sales (Bennett, 1997), but some scholars found that the combination of online and offline strategies also drives the export performance (Sinkovics & Sinkovics, 2013). Additionally, Clarke (2005) in (Iwanow & Kirkpatrick, 2007) claimed, in a study concerning the specific behind-the-border factors that constrain export activities showed that the government should improve ICT facilities in order to enhance the export performance. This phenomenon has been proven by Bank (2014) which indicated that many exporting firms had improved their electronic submission and processing of custom documents. As a result, the process of exporting goods is much easier and faster as the period for export activities is shorten from 23.5 days to 21.

8 days. It means that the improved ICT system in trade-border could improve the period of export by 7.23%, hence helping to enhance export performance. Therefore, it can be hypothesized that:

H1: ICT has a significant relationship with export performance.

2.4. Quality management

In recent years, the number of studies relating to corporate performance increases rapidly. As firms struggle to gain world-class status, the search for the best performance measures has exaggerated. Fast development in communication and technology has introduced firms to the globalization era (Mokhtar et al., 2005). As globalization became a common issue, world-class organizations strive to reach international markets and satisfy the needs of varied customers. The necessity of a quality control standard that allows the measurement of quality on equal basis everywhere in the world becomes an important approach (Huarng et al., 1999). After all, in an international context, companies worldwide have accepted with open arms ISO 9000 certification (Mokhtar et al., 2005). In 1987, the International Standard Organization (ISO), based in Switzerland, ISO is created in an effort to offer a set of standards that provide a framework for quality management throughout the processes of manufacturing and delivering products and services for the customers (Arauz & Suzuki, 2004). This set of quality management is considered to be an effective tool to provide "controls to ensure quality of production and delivery, and reduces waste, downtime, and lab our inefficiencies, thereby increasing productivity (Leong et al., 2014). As for exporting companies, this quality management implementation for instance is a qualification for them to sell across national boundaries into the markets. In fact, a supplier for example, must be ISO certified in order to do business with the European Community industries. Therefore, domestic suppliers especially those selling to the public or large private buyers seek ISO certification for the purpose of marketing (Mo & Chan, 1997).

In the early years, most of ISO 9000 was issued to organizations in manufacturing-related sector (Conti, 1999). Then is followed by organizations in other sectors especially service sector (Guler et al., 2002) and this trend are expected to continue in the coming future (Dick et al., 2002). But in the case of SMEs, many manufacturers found that quality management implementation is too impersonal and formalized, expensive and time consuming (Abdullah et al., 2013). Jang and Lin (2008) also found that some of them contended that it is very much sophisticated and cost in implementing the certificate is somehow a barrier for SMEs to register (Padma et al., 2008).

2.5. Quality management and export performance

An empirical study among Taiwanese entrepreneurs on ISO adoption showed that ISO significantly improves quality reduces costs and most importantly it helps to enhance international competitiveness and sales. All of those benefits come from several characteristics of ISO such as positive and internationalizing attitudes, more degree of implementing documentation through auditing, more experience in quality controlling activities and more open organizational culture. As ISO has significantly improving international competitiveness and raising international sales, it thus brings to improve export-oriented performance in developing countries (Huarng et al., 1999). All these benefits open up firms' eyes to register the quality management tools.

Furthermore, the motivation for quality management implementations is claimed as a significant factor for business and is often for external reason such as competitive pressure, marketing advantages and customer expectation (Breka, 1994; Feng et al., 2007; Ho, 1994). Since quality management implementation like ISO requires various documents to assure quality, it will result in quality awareness (Huang & Tan, 1994; Wiele & Brown, 1997), better documentation (Shih

et al., 1996) and standardization of operations (Chiou, 1996). ISO also leads to systemization (Huarng & Lee, 1995), thus improving sales. Accordingly, Chiou (1996) found that 185 of 202 firms in his study chose to improve product quality as the benefits gained from the implementation of quality management. 139 firms chose to reduce cost and 129 firms chose to increase sales. Most importantly, export oriented firms in Taiwan found that ISO 9000 improves their international competitiveness.

According to Fenghueih Huarng et al. (1999), active motivation in adopting quality management like ISO influences three performance factors; internationalization, quality improvement and cost reduction. In addition to active motivation, international motivation is significantly leads to improve sales and international performance thus influencing the export performance. This happened because it may lead to higher customer satisfaction, which then leads to improved sales internationally in particular since overseas markets are normally looking up for international standard (Mo & Chan, 1997).

Moreover, having an international motivation from the implementation of quality management contributes positively to the international performance. For example, firms can see their improvement in international performance when firms with ISO 9000 intent to cultivate foreign markets. Therefore, it can be seen that it is a powerful key for firms to attain international competitiveness. Other than international performance, international motivation also contributes to sales performance significantly, including overseas sales (Huarng et al., 1999). The combination of international performance, sales performance and overseas sales simultaneously influence the export performance as well. On the other side of the coin, it is also a tool to amend product image problem. In the case of Taiwan for instance, Taiwanese still has to deal with image problem even after they has successfully upgraded its economy in the past few decades, it. Many foreign buyers ask for price discount up to 15% when the products have 'Made in Taiwan' label. In this case, the registration with ISO 9000 has amended Taiwanese entrepreneurs' image and reputation (Rao, 1994).

Another study by Arauz and Suzuki (2004) on the implementation of quality management in small and medium firms regarding their international performance considers that it may develop international markets and enlarge international competitiveness. It was found that the performance of the firms' internationalization has no difference between both small and medium firms. Consequently, Japanese firms are also constantly looking for ways to serve local and international customers as the implementation of quality management gives great opportunity to gain international recognition and smoothness of trade. Hence, it can be hypothesized that:

H2: The implementation of quality management has positive significant effects on export performance.

3. Research methodology

This study had been conducted quantitatively which is the primary data gathered from distributed questionnaire. The data had being collected from SME firms (manager or authorized officer) which were involved in manufacturing sector. These SME firms are located in Klang Valley. The list of the firms was provided by Ministry of International Trade and Industry (MITI). Out of 416 population and 216 sample size needed, this study recorded 50% response rate with the total of 200 usable questionnaires returned. The data is then analyzed by using Statistical Package for Social Science (SPSS) software.

4. Results

4.1. Frequency analysis

4.1.1. Demographic of Respondents

The frequency of demographic starts with the highest education owned by the respondents and the results are shown in Fig. 1.

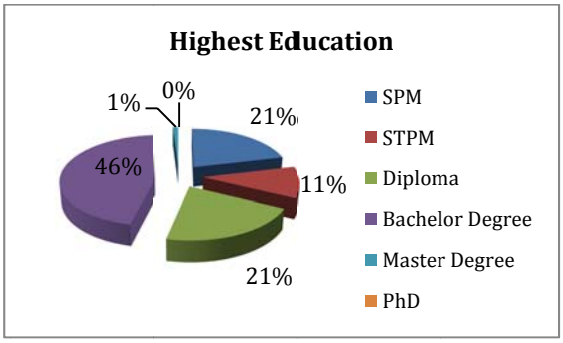

Fig. 1: Highest education of respondents

Almost half (45%) of total respondents are Bachelor degree holders followed by Diploma and Malaysian Certificate of Education (SPM) which are 21% respectively, 11% of respondents had Malaysian Higher School Certificate (STPM) and only 1% had Master's degree. None of them had the highest education degree, Doctors of Philosophy (PhD). However, the results above has the total of 4% missing values as some of them left certain items unanswered.

Fig. 2 shows the respondents 'positions in their organization. There were 41% of Junior Executive and Senior Executive respectively who were involved in this study, followed by Manager (16%), and 1% for Senior Manager and CEO. The Senior Manager and CEO were the least contributing to the study because they had a very busy schedule compared to lower positions like Junior Executive and Senior Executive. Though, each of their cooperation contributed very much to the study.

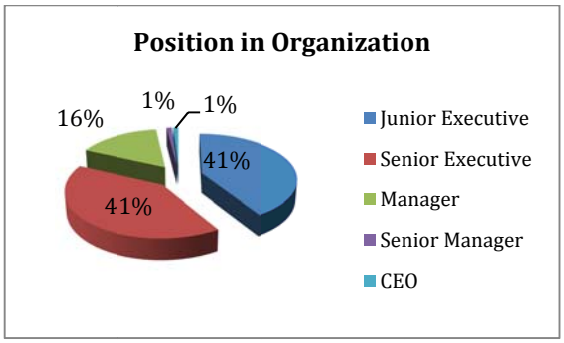

Fig. 2: Position of respondents in organizations

Next, Fig. 3 presented the percentage of respondents' working experience in their current job. Most of respondents have 2 to 5 years of experience working in their current job (45%) and 17% of 6 to 10 years of working experience. Only 7% respondents had more than

10 years of experience 3 and only 1% just entered the work field as they had less than 1 year of current job experience.

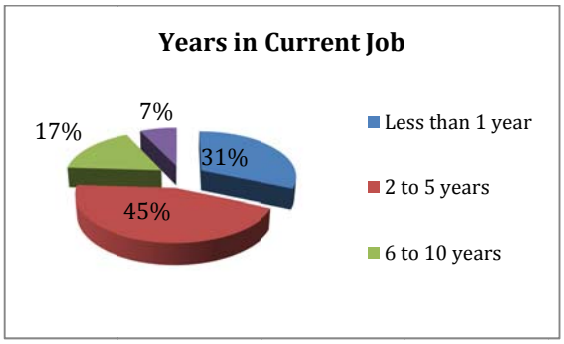

Fig. 3: Working experience in current job

Meanwhile, Fig. 4 indicates respondents' working experience in their current organization. The figure showed that 49% of them had worked for 2 to 5 years in their current organization and 22% already worked for 6 to 10 years in the organization. 23% were new there as they just work in the organization for less than 1 year and as usual, only a minority worked more than 10 years in the organization, which presented by 6% of total respondents.

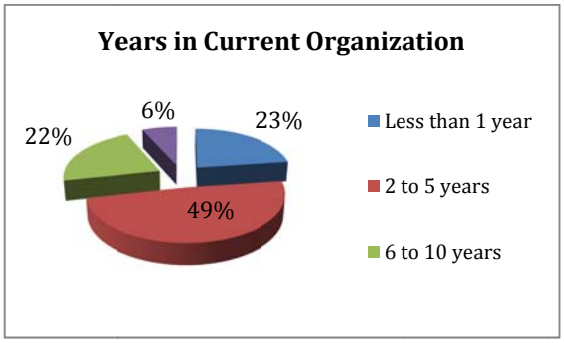

Fig. 4: Working experience in current Organization

From the observation, the results of 'position in organization', 'years in current job' and 'years in current organization' were linked with each other. To summarize, it can be said that the position of respondents were more likely depending on their working experience, compared to the highest qualification they owned. For example, the percentage of respondents with 10 years of experience was parallel with the position in organization.

Therefore, this minority group filled the highest position in the organization, which is CEO. Same goes to other positions; they correspond with the period of working experience.

4.1.2. Demographic of manufacturers

Moving to the firms' demographic, Fig. 5 shows that 48% of firms were already established between 2 to 5 years, 21.5% were 6 to 10 years, 11% of firms involved were operating for less than 1 year and only 6.5% were established for more than 10 years. According to Ngehnevu and Nembo (2010), establishment years for a company reflects their business development stage; newly started (below 1 year), young but established (1-5 years), growing (5-10 years) and mature but needs renewal (10 years and above). Thus, from these findings, it shows that most of the firms involved are young but established, 21.5% are in growing years, 11% are at an early stage, while only 6.5% firms are matured, but need renewal in certain areas.

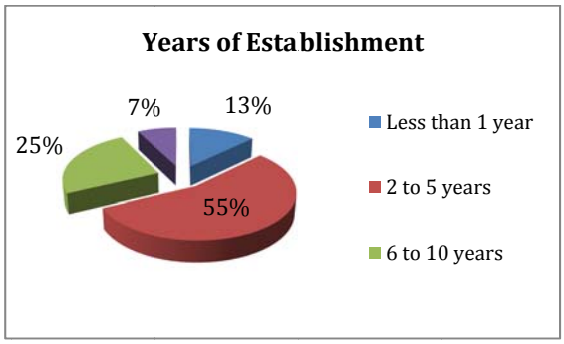

Fig. 5: Years of manufacturer's establishment

Fig. 6 indicates the number of full-time employees in the respondent firms. The highest percentage is 30% which is represented by firms with 101-199 employees, followed by 26% of 31-74 employees, 25% of 5-30 employees, 14% of 75-100 employees and last but not least is firms with less than 5 employees which covered only 5% of the total respondent firms. As mentioned by theory, the number of employees reflects the size of firms. SMECorp (2013) divided firm size into several categories based on the number of full-time employees; micro (less than 5 employees), small (5 to less than 30 employees) medium (30 to not exceeding 75 employees), and more than these number, the firm is considered as a large firm. Therefore, from the results in Fig. 6, it could be concluded that the firms involved in this study comprise of various sizes of firms. They are 5% micro firms, 25% small firms, 26% medium firms and the total of 44% large firms.

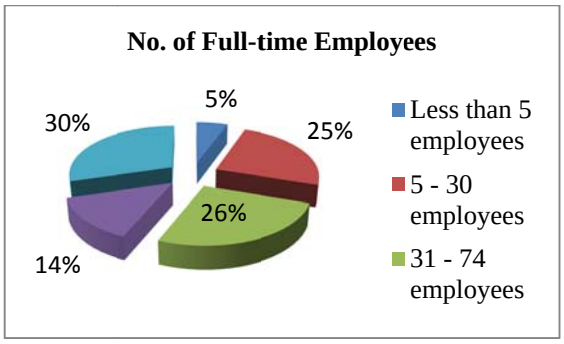

Fig. 6: Years of manufacturer's establishment

4.1.3. Frequency for measurements

This section states in detail the percentage gain for each measurements according to Five-Likert scale questionnaire assessment; strongly agree, agree, neutral, strongly disagree and disagree. Each measurement of each variable is stated in the Table 1. Then, the results are explained accordingly.

Table 1: Summary of measurements of variables used in this study based on literature

Variables	Measurements
ICT	Use internet to communicate with clients and customers, use internet to order supplies, receive SMS and text messages for business purpose, having a website, having e-sales, LAN (Local Area Network), EDI (Electronic Data Interchange), use CAD/CAM technologies, use telephone to communicate with clients and customers, use telephone to order supplies, use fax to communicate with clients and customers, ERP (Enterprise Resource Planning), routing and scheduling, shipment tracking and tracing, per cent of internet-enabled employees with access to broadband.
Quality management	Increase foreign buyers' approval of the firm product quality, increase foreign buyers' confidence in the firm's management ability, increase corporate buyers overseas, enhance price bargaining position with foreign buyers, enhance product performance, and increase orders from overseas.
Export performance	Overall export venture results in the last three years, expected overall export venture results for the next three years, export growth is constant throughout the years, satisfaction with current business ventures, business ventures is successful, satisfaction with our export activities, consider that our export activities is a success.

Firstly, in terms of ICT, there were 13 items presented this variable in the constructed questionnaire. From Table 4.4, it is shown that more than 97% of respondent firms used internet to communicate with customers and order supplies. Same goes to telephone use, merely 100% agreed and strongly agreed that they used telephone to communicate with customers and order supplies. But for fax as a medium of telecommunication, the total of 51% of agreed, 22% strongly agreed that they used fax machine to communicate with customers while 25.5% chose to be neutral. Whereas for website, 82.5% of the total respondent firms had their own website in order to provide basic information about their firm to the customers. On the other hand, 22% agreed and 32% strongly agreed that they provided online transaction to ease customers while the total of 16.5% disagreed and totally disagreed that they had online transaction facility. From the result, it also indicates that most of firms involved in this study applied Local Area Network (LAN) in their computer systems (92.5%). This made it easier to transfer information among the computers in their firms. Other than LAN, the total of 76.5% agreed and strongly agreed that they applied Electronic Data Interchange (EDI) in their business system, while only 0.5% disagreed and strongly disagreed respectively. Other important software/ machine for a manufacturer are Computer-aided Design/ Computer-aided Machine (CAD/ CAM). Thus, from the results, it is found that 50.5% agreed and 17.5% strongly agreed that their firms deployed CAD/ CAM in their production system while the total of 3.5% disagreed and strongly disagreed with this implementation. Next, as entrepreneurs, it was important for them to also deploy Enterprise Resource Planning (ERP) in their management system. The total of 73.5% was found deploying the ERP system in the firms, whereas 1.5% obviously did not deploy the system. In terms of routing and scheduling delivery service, 90% of all firms involved applied the system in their service and only as small as 0.5% disagreed with the system. Last but not least, 48.5% agreed and

29% strongly agreed that their firms had high percentage of internet-enabled employees with access to broadband, while 2.5% disagreed and strongly disagreed with the statement respectively.

Moving to quality management, 97% found that quality management had increased foreign importers' approval on their product quality. None of them disagreed with this, while 3% chose to be neutral. Other than product quality, 97.5% also agreed and strongly agreed that quality management increased foreign importers' confidence in their management quality. More than that, a total of 98% agreed and strongly agreed that the implementation of quality management in their firms had increased their reputation overseas. On the other side of coin, 87% believed that it will enhance the bargaining position with foreign buyers, while only 1.5% thought vice versa. Other than that, 98.5% agreed and strongly agreed this quality management enhance their product performance. For the last item in this variable, 'increase product orders from

overseas', 39.5% agreed, 58.5% strongly agreed and only 0.5% did not agree with this item.

In the case of dependent variable, there were seven items listed in measuring the export performance. Firstly, 57.5% agreed and 24% strongly agreed that since the past three years, their export sales increased year by year. Secondly, 67.5% agreed and 10.5% strongly agreed that since the past three years, their export profits increase year by year. Thirdly, 39% agreed and 5% strongly agreed that their export growth was constant throughout the years since three years ago, while 3.5% disagreed and 52.5% were neutral with this statement. Next, the total of 85.5% satisfied with their current business ventures, while only 2.5% disagreed. In the other hand, the sum of 53% believed that each of their business ventures was successful and 43.5% were in the neutral state. Overall, 62% agreed and 12.5% strongly agreed that they are satisfied with their export activities and 22.5% chose to only be neutral. Lastly, 65.5% agreed and 7% strongly agreed and 25% were neutral with the last item; 'overall, all export activities is a success'. Among all those items representing the dependent variable, none strongly disagreed, and less that 4% disagreed with each of the item.

In terms of the usage of ICT in their firms, a majority of firms successfully applied and used ICT applications and software in their business and management systems in order to make their activities run smoothly. Meanwhile, almost all respondents believed that the implementation of quality management brought so much positive vibrant to their firms and products especially in attracting foreign customers.

4.2. Descriptive analysis

From the results of descriptive statistics in Table 2, quality management had the highest mean value (4.4208), followed by ICT (4.2585), physical infrastructures (4.0280). All these three variables are laid in the range of high value, whereas, export performance (3.8029) and regulatory factors (3.5750) are considered moderate.

For the case of standard deviation, generally, the standard deviation explained how far the individual responded to a question deviate from the mean. Since the values of standard deviation for these variables were less than 0.6, it thus indicates the dispersion for this study is less than 0.6.

Table 2: Mean and standard deviation

Variables	Mean	Standard Deviation
ICT	4.2585	0.39571
Quality management	4.4208	0.43983
Export performance	3.8029	0.54733

4.3. Reliability analysis

The reliability test was done in order to obtain the value of Cronbach's Alpha for each variable involved in this study, as indicated by Table 4.6. The value of Cronbach's Alpha for the dependent variable, export performance is 0.864. Meanwhile, the independent variables; ICT and quality management obtained 0.788 and 0.877 respectively. Therefore, all variables are reliable for the study.

Table 3: Cronbach's Alpha values

Variables	Cronbach's Alpha	No. of Items
ICT	0.788	13
Quality management	0.877	6
Export performance	0.864	7

4.4. Correlation analysis: hypothesis Testing

4.4.1. ICT and export performance

Pearson correlation analysis was done in order to observe accurately the correlation or relationship between independent and dependent variable. The first correlation analysis was done on the relationship of ICT and export performance. The results obtained are as in Table 4. According to the results, Pearson product-moment coefficient, r = 0.172 and p =0.008. With p = 0.008, it means that there is only 0.8% chance that this relationship does not truly exist. Since r = 0.172, it is concluded that ICT has a small positive correlation with export performance.

Table 4: Pearson correlation of ICT and export performance

		ICT	Performance
ICT	Pearson Correlation	1	0.172**
	Sig. (1- tailed)		0.008
	N	200	200
Performance	Pearson Correlation	0.172**	1
	Sig. (1- tailed)	0.008	1
	N	200	200

** Correlation is significant at the 0.01 level (1-tailed).

To determine the variance shared of both variables, coefficient of determination was calculated, following Equation (1).

Percentage of variance = (r x r) x 100 (1)
Percentage of variance = (0.172 x 0.172) x 100 = 2.958%. As r is the value of Pearson product-moment coefficient taken from Table 4, the

percentage of variance shared in this correlation is 2.958%. This indicated that ICT helps to explain approximately 3% of variance in respondents' score on the export performance.

Thus, hypothesis 1, *H1* is fully supported when the results above shows that ICT has a positive significant relationship with export performance, since r = 0.172 and p =0.008.

4.4.2. Quality Management and Export Performance

Next, the correlation of quality management and performance was calculated. The results are shown in Table 5.

Table 5: Pearson correlation of quality management and export performance

		Quality Mgmt.	Performance
Quality Mgmt.	Pearson Correlation	1	0.186**
	Sig. (1- tailed)		0.004
	N	200	200
Performance	Pearson Correlation	0.186**	1
	Sig. (1- tailed)	0.004	
	N	200	200

** Correlation is significant at the 0.01 level (1-tailed)

From the table, it is found that r = 0.186 and p = 0.004. From p = 0.004, it could be said that only 0.4% chance that this relationship does not truly exist. Then, with r = 0.186, again, it indicates that quality management has a small positive correlation with export performance.

In order to calculate the variance shared of both variables, coefficient of determination was calculated by following the Equation (1).

Percentage of variance = (0.186 x 0.186) x 100 = 3.460%. From the calculation above, with r = 0.186, the percentage of variance shared in this correlation is 3.460%. This indicates that quality management helps to explain approximately 3% of variance in respondents' score on the export performance.

All in all, hypothesis 2, *H2* is fully supported when the results above said that quality management has a positive significant relationship with export performance, since r = 0.186 and p = 0.004.

5. Discussion

The main objective of this study is to investigate the relationships of ICT and quality management with export performance. In order to achieve this main objective, correlation analysis was done for each desired relationship.

This study found that ICT has a small positive significant with export performance. The result is quite small may be because of the country difference, as supported by Portugal- Perez and Wilson (2012), who mentioned that ICT is found as one of the most relevant elements that influence the export performance and it becomes more significant in richer countries. Plus, Sinkovics and Sinkovics (2013) argued that the combination of online and offline strategies also drive the export performance. But, in today's world, many exporting firms has improved their electronic submission and processing of custom documents in order to shorten the process time thus improving firm performance (T. W. Bank, 2014b).

In the other hand, the relationship of quality management and export performance also has a small positive significant impact on firm performance. Even though the value is small, the relationship is supported by the literature. For example, Fenghueih Huarng et al. (1999) supported that the implementation of ISO as quality management control has significantly enhancing international competitiveness and raising international sales, thus improving export-oriented performance in developing countries. Additionally, international motivation like quality management implementation is one of the important factors to improve sales and international performance as well as leading to better export performance. This is because the implementation leads to higher customer satisfaction, sales improvement especially in international markets as they are normally looking up for international standard (Mo & Chan, 1997).

Both relationships found above are small might because the environment of Malaysia is still hiking in using ICT and quality management in their business. This is because both ICT and quality management need quite a big capital investment. SMEs in Malaysia however might have constraint in the capital.

6. Conclusion

The research questions and hypotheses of this study were all answered through correlation analysis. Thus, the objectives of this study are fully achieved. These outcomes are new important findings in Malaysian logistics since our country lacks this kind of logistics studies. The Malaysian government for example, can benefit these findings to consider providing more financial assistance to SMEs in Malaysia to implement ICT and quality management in their business thus can compete with dynamic international market.

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