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International Conference on Business Economic, Social Science & Humanities" serves as platform that aims to help the scholarly community across nations to explore the critical role of multidisciplinary innovations for sustainability and growth of human societies. This conference provides opportunity to the academicians, practitioners, scientists, and scholars from across various disciplines to discuss avenues for interdisciplinary innovations and identify effective ways to address the challenges faced by our societies globally. The research ideas and studies that we received for this conference are very promising, unique, and impactful. I believe these studies have the potential to address key challenges in various sub-domains of social sciences and applied sciences.

I am really thankful to our honorable scientific and review committee for spending much of their time in reviewing the papers for this event. I am also thankful to all the participants for being here with us to create an environment of knowledge sharing and learning. We the scholars of this world belong to the elite educated class of this society and we owe a lot to return back to this society. Let's break all the discriminating barriers and get free from all minor affiliations. Let's contribute even a little or single step for betterment of society and welfare of humanity to bring prosperity, peace and harmony in this world. Stay blessed.

Thank you.

Dr. Malika Ait Nasser

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ICT Adoption in Logistics of SMEs: A Systematic Literature Review

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Abstract

The purpose of this paper is to explore the role of ICT adoption in logistics of SMEs through a multi-disciplinary review of the relevant research. The systematic literature review aims to provide the basis direction stream of research in topic about ICT Adoption in Logistics of SMEs. A systematic, comprehensive review of the literature on ICT adoption, logistics, and SMEs since 2011 to 2016 was conducted. The literature on ICT usage in logistics of SMEs was also examined. It is based on 20 papers in international peer-reviewed journals, conferences, and working paper which were searched from Google Scholar. It was analyzed and classified the papers in different areas, like Logistics category, ICT category and research methodology. Additionally, it was identify different Information Systems used in Logistics emphasized on SMEs and extract potential benefits of the use of ICT for Logistics of SME and mysterious research problems. With this, information gaps in current research are determined and recommendations for future research are presented. This research is a systematic review of the existing literature on the concept of ICT adoption in logistics of SMEs. The next phase of research needed for theory building will be the operationalization of constructs and testing of the hypothesized relationships proposed by the conceptual framework. Rather than presenting empirical findings, this paper reveals to managers that what the key point of successful or necessary for SMEs in using ICT in logistics. This provides a potentially important signal as to where to invest ICT resources in logistics of SMEs. The study is the first to review systematically for ICT Adoption in Logistics of SMEs and to establish understanding the overall in prior research of ICT Adoption in Logistics of SMEs

Keywords— Systematic Literature Review, ICT Adoption, Smes, Logistics

Introduction

Information and Communication Technologies (ICT) are broadly considered as being capable of providing considerable strategic and operational value to organizations. Their implementation and development has been explored in a wide range of contexts (Afolayan et al., 2015)

The emergence of ICT adoption has helped organizations in many ways such as achieve greater coordination and collaboration among supply chain partners and automate the supply chain process (Hsin and Anastasia, 2008). With advances in, and increasing availability of, ICT, manufacturers, their suppliers, and their distributors can be linked together into a seamlessly integrated organization (Stavrulaki and Davis, 2010; Ajayi and Olayungbo, 2014).

SMEs has three characteristics consisting of SMEs are at a resource disadvantage compared to large MNEs (Erramilli and D'Souza, 1995), highly sensitive to external challenges (Schwens, Eiche, & Kabst, 2011), vary from other types of firms in terms of their ownership structure. (Kotey, 2005).

The role of SMEs in developing countries is an important one, contributing to economic growth and thereby job creation and poverty alleviation (Adekunle and Tella, 2008). SMEs also play a significant role in enhancing the quality of human resources, generating employment, building a culture of entrepreneurship, supporting large-scale industries, and encouraging the creation of new business opportunities (Harindranath et al., 2008).

Furthermore, SMEs serve many different roles within supply chains, as suppliers, distributors, producers, and customers (Hong and Jeong, 2006; Koh et al., 2007). The influence of globalization on SMEs has compelled many of them to adopt information communication technology (ICT) solutions in order to survive among increasingly competitive supply networks (Hsin and Papazafeiropoulou, 2008; Ongori and Migiro, 2010; Stavrulaki and Davis, 2010; Olise et al., 2014). There has been a vast increase in the application and adoption of ICT in organizations for the storing, processing, distributing, and information exchange within the firm and along their supply chains (Apulu et al., 2011; Olise et al., 2014; Agboh, 2015). Firms utilize ICT for many purposes, including enhancing efficiency and

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cost reduction, and providing an enhanced service to their customers (Ashrafi and Murtaza, 2008; Apulu et al., 2011; Harrison and van Hoek, 2011).

It is now commonly accepted that information and communication technologies and systems (ICTS) provide many benefits to companies, including small and medium enterprises (SME), to make them more efficient, effective and competitive (Sarkis, et al, 2004). Many companies conduct business using electronic commerce (ecommerce), whether focusing on business-to-business (B2B) or business-to-consumer (B2C) activities. They realize that easy access to information and communication and the delivery of their products or services are important drivers in developing and sustaining market competitiveness nationally and internationally.

Having a supportive system for logistics is very important to maintain the company's competitiveness (Sarkis, et al, 2004). There is a rapid development in the use of information and communications technology (ICT) in logistics management. Furthermore, efficiency is a function of ICT since efficiency is a measurement of how economically the organization's resources are utilized and is normally used.

The definition of systematic review was given by Denyer and Tranfield (2009) as "a specific methodology that locates existing studies, selects and evaluates contributions, analyses and synthesizes data, and reports the evidence in such a way that allows reasonably clear conclusions to be reached about what is and is not known".

A systematic review is a defined and methodical way to summarize the empirical evidence concerning a treatment or technology, to identify missing areas in current research or to provide background in order to justify new research.

Currently, topics like information technology adoption and relevant topics are discussed in many perspectives. Focused on systematic review, Salemink, Strijker, and Bosworth (2015) studied about ICT adoption in rural development in the digital age. While Wamba and Akter (2015) focused on impact of big data and Staples and Niazi (2008) studied about organizational motivations for adopting software process improvement.

In the field of SME, there are some research conducted by systematic review for example, Martineau and Pastoriza (2015) studies on antecedents, outcomes, and moderators of international involvement of established SMEs. Klewitz and Hansen (2014) studied about sustainability-oriented innovation of SMEs. Moreover, Laufs and Schwens (2014) studied about foreign market entry mode of SMEs.

As for systematic review in logistics field, the examples are Rezaei (2015) studied about multi-criteria decision-making applications in reverse logistics while Govindan, Soleimani and Kannan (2015) reviewed about reverse logistics and closed-loop supply chain. And Davarzani et al. (2015) conducted systematic review about greening ports and maritime logistics.

However, in present, it lacks of systematic literature review research in ICT adoption in logistics of SMEs then this research was conducted. This research provides an overview of current research in the logistics of SMEs firm, with the focus on Information and Communication Technology (ICT) adoption including Information Systems (IS). Structured literature reviews are completed through an iterative cycle of defining appropriate search keywords, searching the literature and completing the analysis (Saunders et al., 2009).

This research has two main objectives consisting of:

(1) Categorize research on this topic on the base of the main themes and approaches as a guideline for practitioners and academics; and
(2) Suggest guidelines for prospect research, essentially for researchers.

Research Method

This research will use five-step methodology for data gathering and inclusive assessment of the field pointing to detect the most powerful studies, define the areas of current research interest and directions for future research in the field. Regularly with the beyond review, the paper purposes to offer a broad review of the contributions on ICT for logistics taking the SMEs perspective.

The systematic review procedure used in this research followed the guideline of Staples and Niazi (2008) which are five major steps consisting of

• Define the search strategy (data sources and their search terms)
• Conduct the initial selection of studies from all search results, based on information in titles and abstracts, then perform a final selection of based on information in the content of the papers.

- Extract data and perform a quality assessment of the study.
- Analyze the extracted data.
- Suggest for further research based on selected paper.

Search Strategy

Searching for a systematic literature in databases should identify as complete a list as possible of relevant literature while keeping the number of unrelated hits low (Duff, 1996). In order to limit bias, expert in the fields of logistics suggested keywords and recommended how to search the data.

Searching for the researched was extracted from Google Scholar because it is the place consisting of literatures from many sources such as peer-reviewed journal, proceeding, working paper, and etc. The list of keywords, provided by the expert, was used to select papers. The keywords consist of "ICT Adoption" or "IT Adoption" or "ICT Usage" or "IT Usage" and "Logistics" and "SMEs"

The time horizon for selecting paper was identified between 2011 to present. It is because today information communication technology changes rapidly. If the selected papers were published before 2011, it is high possibility that results or data will be out of date. After searching research paper based on these criteria, it can show the results on table 1.

Table 1:
Search Terms and Number of Publication Initial Stage

Search Terms	Number of Publications
"ICT Adoption", "Logistics", "SMEs"	859
"IT Adoption", "Logistics", "SMEs"	784
"ICT Usage", "Logistics", "SMEs"	361
"IT Usage", "Logistics", "SMEs"	311
Total	2,315

However, searching with the term "logistics", it was found the researches that conducted by using statistical technique namely logistics regression were shown as the results. Then, it was filled the search criteria to deduct the research with the words "logistics regression". It can show the results on table 2.

Table 2:
Search Terms and Number of Publication after Deduction "logistics regression"

Search Terms	Number of Publications
"ICT Adoption", "Logistics", "SMEs"	673
"IT Adoption", "Logistics", "SMEs"	609
"ICT Usage", "Logistics", "SMEs"	279
"IT Usage", "Logistics", "SMEs"	250
Total	1,711

Moreover, it also found that some papers were redundant among each search term. After checking redundancy, it was found that it has only 1,030 papers that pass the criteria.

Initial selection of studies

The selection process had two parts: a preliminary selection from the search results of papers that could pass the selection conditions, by reading of the title and abstract of the papers; followed by a final selection from the initially selected list of papers that satisfy the selection criteria, based on a reading of the entire papers. Finally, it was selected 20 publications.

Quality Assessment

As for "quality" of each paper was assessed by the guideline of Staples and Niazi (2008). This guideline assess the quality of paper based on 3 questions as follows;

• Does the publication mention the possibility of selection, publication, or experimenter bias?
• Does the publication mention possible threats to internal validity?
• Does the publication mention possible threats to external validity?

The results of the study quality assessment were not used to limit the selection of publications.

Data Extraction

In the data extraction phase, the researcher read 20 selected paper and extracted information structured in the paper consisting of title name, authors, year of publication, source of publication, country, data collection method, and results. The results from data extraction can be summarized in table 3.

Table 3:
Results from Data Extraction

Title Name	Authors	Publication Years	Publication Source	Country	Collection Method	Results
Analysis of Information and Communication Technologies (ICT) Usage on Logistics Activities of Manufacturing Companies in Southwestern Nigeria	S. Adebambo and A. Toyin	2011	Journal of Emerging Trends in Economics and Management Sciences	Nigeria	Surveys by Questionnaire	The benefits of ICT adoption consist of more accurate and timely information, better communication and connection links, and improve promotion strategy
Challenges of ICT Adoption by South African SMEs: A Study of Manufacturing and Logistics Firms	S. Gono, G. Harindranath, and G. B. Özcan	2013	Proceedings of the Annual Conference of The Institute for Small Business and Entrepreneurship	South African	Surveys by Questionnaire and Interview Practitioners, Consultant, and Academic	Most SMEs studied have a high ICT skills shortage and rely on outside ICT vendors and consultants for their needs. Cost of ICTs was not a constraint.
The fostering role of information technology on SMEs' strategic purchasing, logistics integration and business performance	R. Chinomona	2013	Southern African Business Review	Zimbabwe	Surveys by Questionnaire	IT positively influences SMEs' strategic purchasing, logistics integration and business performance.

Title Name	Authors	Publication Years	Publication Source	Country	Collection Method	Results
Factors Inhibiting the Adoption of RFID Technology: Results and Implications from an Empirical Study of SMEs in Spain	P. Golding, A. Papastathopoulos, and V. Tennant	2011	AMCIS 2011 Proceedings	Spain	Secondary data from the e-Business Watch	Five factors affecting of RFID Adoption namely Perceived benefits, Suppliers' non-compatibility, Perceived Security risks, Process/Performance Improvements, and firm size.
Does ICT Policy Improve Interorganisational ICT for SMEs? A Dutch Policy Evaluation Study	M. G.A. Plomp, R. S. Batenburg, and P. D. Hertog	2011	24 th Bled eConference eFuture: Creating Solutions for the Individual, Organisations and Society	Netherlands	Comparing survey data between before and after	From an ex post evaluation of programme, in bivariate analysis, significant differences are found between the two groups with regard to the adoption of several types of interorganisational ICT. Logistics is the one group in interorganizational ICT usage
Technology adoption in small and medium-sized logistics providers	P. Evangelista, A. McKinnon, and E. Sweeney	2013	Industrial Management & Data Systems	Italy	Triangulation by survey, focus group, and case studies	Low level of ICT expenditure, lack of technology skills, and applications has been difficult for SMEs
Owner's Support, IT Sophistication and IT Adoption in Indonesian Manufacturing SMEs	S. Saptadi, I. Sudirman, A. Samadhi, and R. Govindaraju	2015	Journal of ICT Research and Applications	Indonesia	Surveys by Questionnaire	Logistics activity was categorized into distribution function. It was found that distribution function did not use IT adoption.

Title Name	Authors	Publication Years	Publication Source	Country	Collection Method	Results
Fraud Detection System for Steel Logistic SME Business on Cloud Services Model	S. Phuttima, W. Rueangsirasak, and R. Chaisricharoen	2014	The 4th (JICTEE-2014)	Thailand	Case Study	The positive feedback from all officers is greater than 80%. After implementing the success Fraudulent Detection System on the actual management.
The Strategic Role of IT: An Empirical Study of its Impact on IT Performance in Manufacturing SMEs	L. Raymond, A. M. Croteau, and F. Bergeron	2011	The Sixth International Conference on Internet and Web Applications and Services	France	Surveys by Questionnaire	Logistics is one of the measured functions. It was found that IT management and IT usage sophistication were mediator between the strategic role of IT and IT performance.
The impact of ICT systems on road transport SMEs in Australia	G. I. Zhelyazkov	2012	Working Paper	Australia	Literature review	It defines the cost effective technical features of an ideal ICT system and compares it with the existing ICT system on the market in order to understand if those fulfil the needs.
An E-Commerce Key Success Factors Framework for Chinese SME Exporters	H. Zhang and S. C. Okoroafo	2014	International Journal of Economics and Finance	China	Literature review	E-commerce can help SMEs build healthy and long term relationship with foreign distributors by using logistic system of partner or build its by themselves

Title Name	Authors	Publication Years	Publication Source	Country	Collection Method	Results
An Empirical Study for Radio Frequency Identification (RFID) Adoption by SMEs in the Taiwanese Information Technology Industry	H. Chen and A. Papazafeiropoulou	2012	Asian Academy of Management Journal	Taiwan	Surveys by Questionnaire	For ready adopters: cost and management, for initiator adopters: competitiveness and process efficiency and unprepared adopters: IT management difficulties, IT implementation difficulties and cost of implementation.
An Exploration of the New Zealand Use of Technology to Facilitate Logistics	L. C. Wood, A. Wood, T. Reiners, N. K. L. Duong, and X. Wang	2014	25th Australasian Conference on Information Systems	New Zealand	Surveys by Online Questionnaire	SMEs face limitations relating to their ability to make investments such as lack sufficient internal resources and correct skills set in personnel. This element is a key barrier to the adoption of IT by SMEs
A multi-agent architecture for outsourcing SMEs manufacturing supply chain	S. Kumaria, A. Singha, N. Mishraa, and J. A. Garza-Reyesb	2015	Robotics and Computer-Integrated Manufacturing	None	Conceptual	An automated self-adaptive multi-agent system has been proposed for helping SMEs to take proper decision to execute manufacturing processes and complex logistics efficiently.

Title Name	Authors	Publication Years	Publication Source	Country	Collection Method	Results
Cloud Community in Logistics e-Cluster	A. Kawa and M. Ratajczak-Mrozek,	2014	6th Asian Conference on Intelligent Information and Database Systems	Europe	Conceptual	The authors proposed a solution which is based on e-cluster and cloud community. It gives SMEs a better possibility to capture information and exchange it within a particular enterprises' network.
Sufficient cloud service for steel logistic SME with limit effect to workforce	S. Phuttima, W. Rueangsirasak, and R. Chaisricharoen	2013	13th International Symposium on Communications and Information Technologies	Thailand	Conceptual	This paper proposes the framework of cloud computing service to detect and improve the weakness of the steel logistic SME business.
Post-crisis era of SMEs management innovation in E-commerce	L. Wang	2013	6th International Conference on Information Management, Innovation Management and Industrial Engineering	China	Literature review	This article explains status of e-commerce development of SMEs in China and put forward that one of the shortages is logistics bottlenecks.
A Structural Equation Model for Predicting Virtual Enterprise and Agile Supply Chain Relation	A. Samdantsoodol, S. Cang, H. Yu, and A. Tumur-Ochir	2013	19th International Conference on Automation & Computing	Mongolia	Surveys by Questionnaire	IT adoption can support SMEs to transform logistic activities into virtual enterprise and agile supply chain

Title Name	Authors	Publication Years	Publication Source	Country	Collection Method	Results
Technology Transfer Model and Web-Based Solutions for Transport Logistics Service Providers	L. Novickis, A. Lesovski, and A. Mitasiunas	2011	The European Computing Conference	Europe	Conceptual	They presented the use of technology transfer model and innovative Internet-based information technology (IT) solutions.
Digital business ecosystem prototyping for Agri-food SMEs	M. Herdon, A. Péntek, and L. Várallyai	2012	CEUR Workshop Proceedings	Hungary	Conceptual	IT is essential for agro-food industry especially on logistics. The researchers propose ICT solutions system that uses for SMEs based on a Digital Business Ecosystem concept.

Results

The descriptive statistics part presents the articles' distribution by type of publication, year of publication, country, and data collection method.

Article classification by type of publication

Figure 1 shows 20 articles that were divided by type of publication. The type of publication was divided into 3 types namely journal, proceeding, and working paper. There are 7 articles (35.00%) from journal, 12 articles (60.00%) from proceeding, and 1 article (5.00%) from working paper. Moreover, there are only 5 articles come from management field. It can conclude that information technology adoption for logistics of SMEs issue is still lack of the number of research article and have not much attention in the management field.
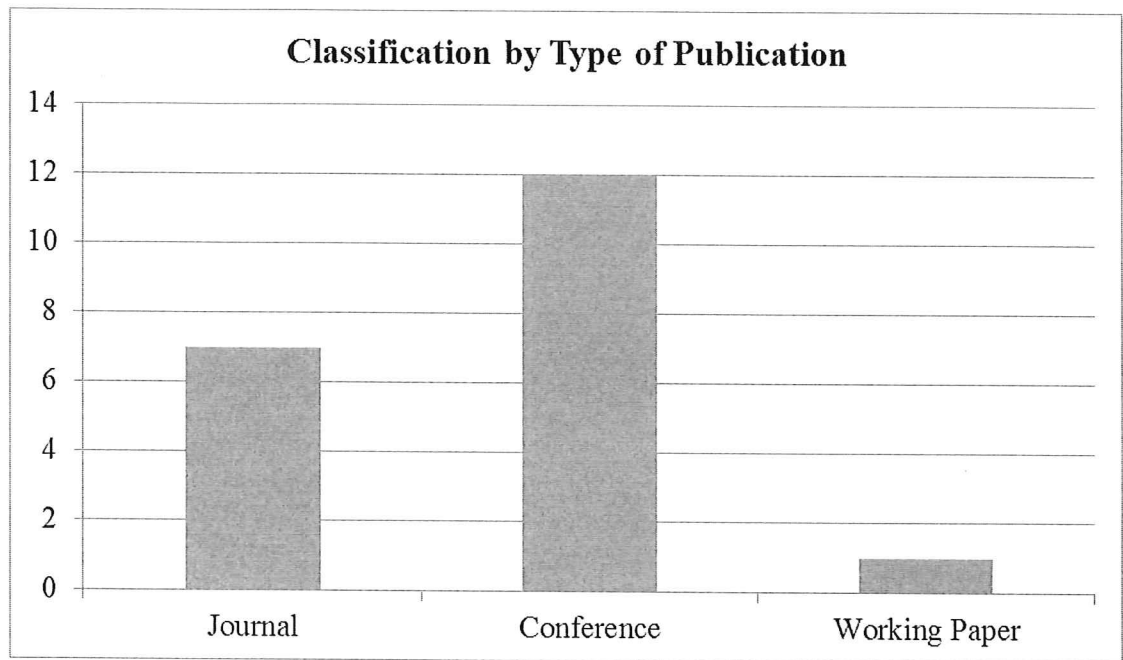
Figure 1: Numbers of Article Classified by Type of Publication

Article classification by publication year

Figure 2 shows 20 articles divided by publication year. Since the criteria for selecting paper was between 2011 and 2015, the result will be divided into 5 years. There are 5 articles (25.00%) published on 2011, 3 articles (15.00%) published on 2012, 6 articles (30.00%) published on 2013, 4 articles (20.00%) published on 2014, and 2 articles (10.00%) published on 2015. The trend of this topic is dramatically decreased in last two years. Moreover, if it is analyzed by overall 5 years, it is in slightly decreasing.
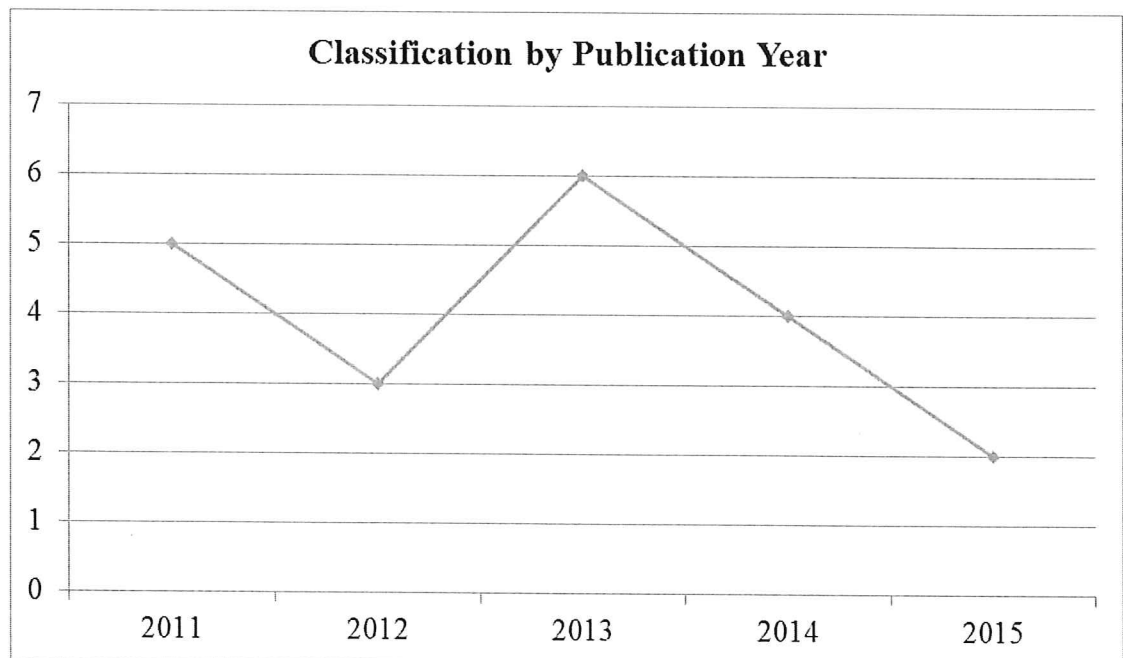

Figure 2: Numbers of Article Classified by Type of Publication

Article classification by country

From 20 articles, it cannot specify into country only 1 articles (5.00%), 2 articles (10.00%) can specify into continental level (Europe), and 17 articles (85.00%) come from 15 countries. As for 17 articles from 15 countries,

there are only 2 countries that comprised 2 article, namely China and Thailand. The other countries have only 1 article consisting of Australia, France, Hungary, Indonesia, Italy, Mongolia, Netherlands, New Zealand, Nigeria, South African, Spain, Taiwan and Zimbabwe.

When divided articles origin by continental, it found that 7 articles (35.00%) come from Asia, 7 articles (35.00%) come from Europe, 3 articles (15.00%) come from Africa, 2 articles (10.00%) come from Australia, and 1 article (5.00%) cannot define continental. Figure 3 shows 20 articles divided by continental.

When divided articles by IMF development level, it found that 10 articles (50.00%) did the research in developing countries, 7 articles (35.00%) did the research in developed countries, and 3 articles (15.00%) cannot define. Figure 3 shows 20 articles divided by continental while Figure 4 shows 20 articles divided by IMF development level.
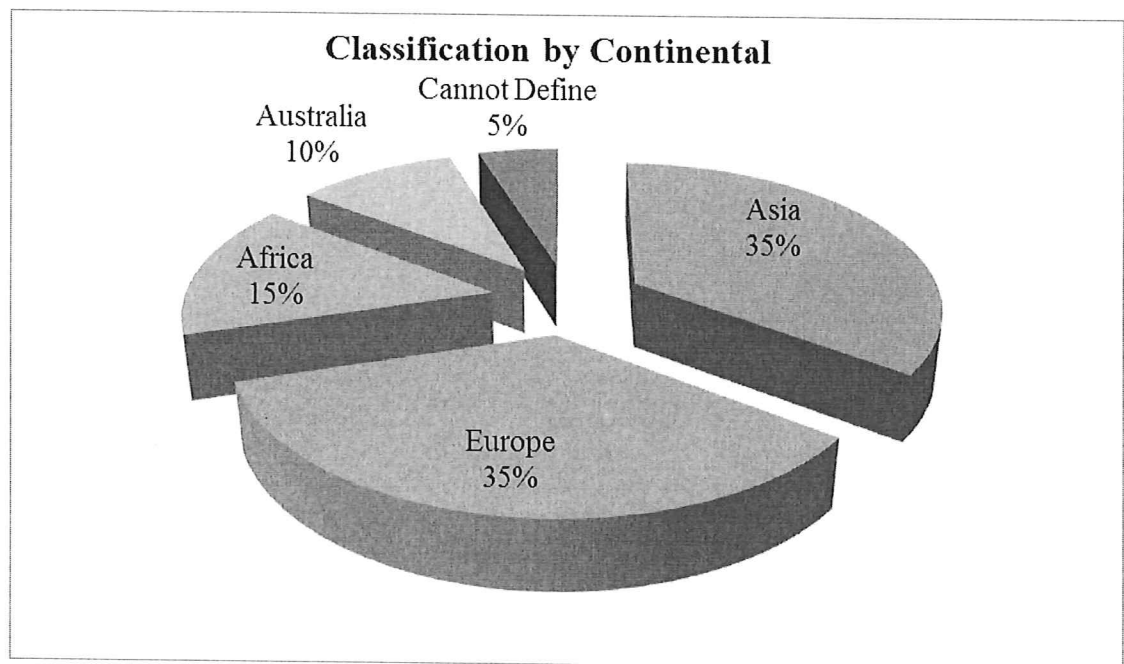

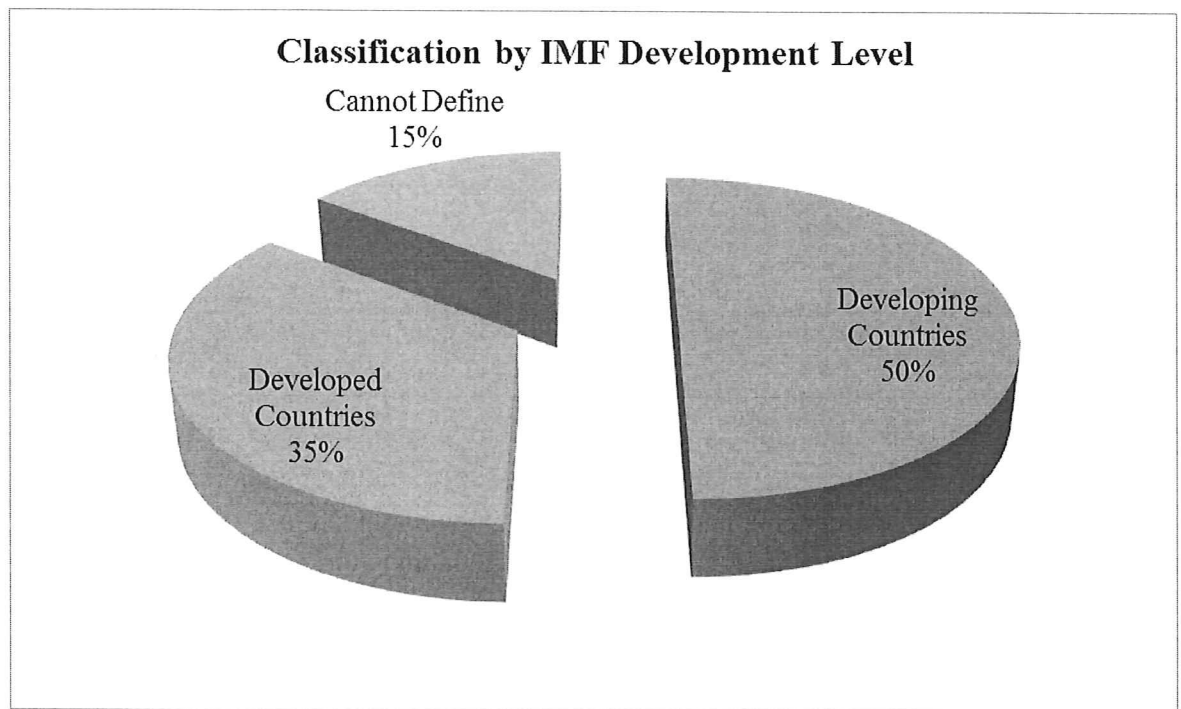*Figure 3:* Numbers of Article Classified by Continental

Classification by IMF Development Level

Cannot Define
15%

Developed
Countries
35%

Developing
Countries
50%

Figure 4: Numbers of Article Classified by IMF Development Level

Article classification by research type

From 20 selected articles, it was found that 10 articles (50.00%) were empirical research, 5 articles (25.00%) were conceptual research, 3 articles (15.00%) were literature review research, and 2 articles (10.00%) were case study research. The result shows that there are some avenues for the future study in all article types especially, conceptual paper. Figure 5 shows 20 articles divided by research type.

As for 10 empirical research articles, when classified by methodology, it was found that 6 articles (00.00%) used survey, 2 articles (20.00%) used archival method, 1 articles (10.00%) used mixed method, and 1 articles (10.00%) used triangulation method.The result presents that the most popular method used in the ICT adoption in Logistics of SMEs issue is survey. Figure 5 shows 10 empirical research articles divided by methodology.
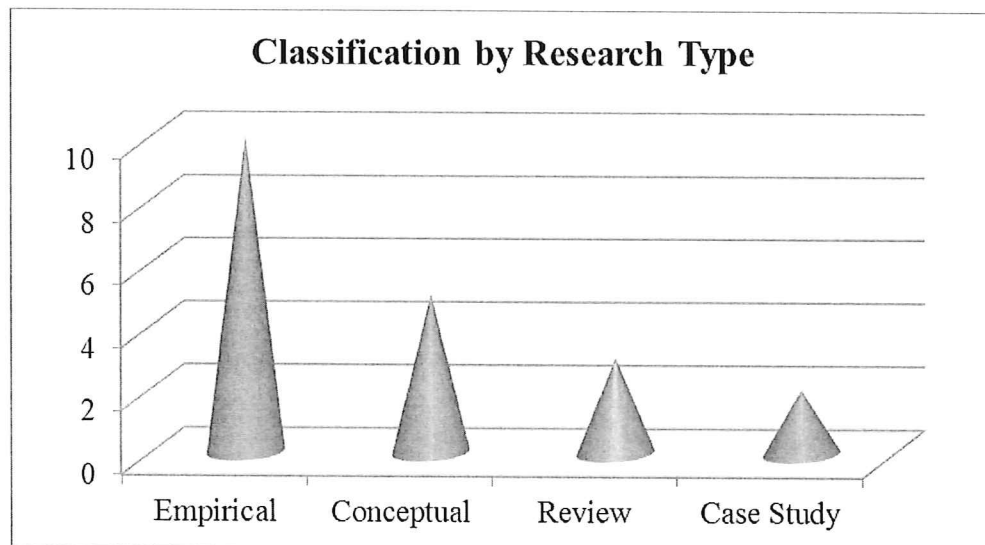
Classification by Research Type

10			
8			
6			
4			
2			
0			
Empirical	Conceptual	Review	Case Study

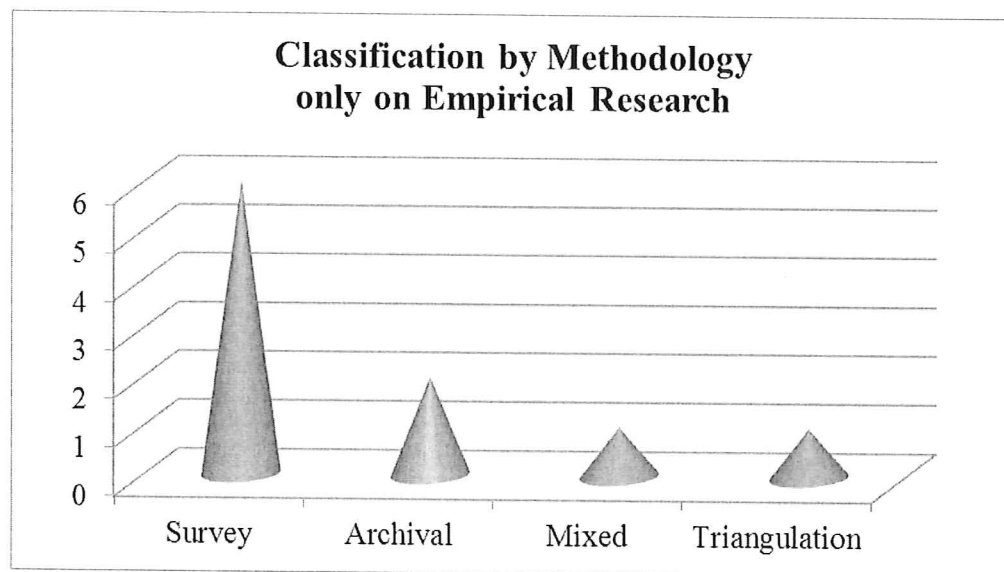*Figure 5:* Numbers of Article Classified by Research Type

Figure 6: Numbers of Article Classified by Methodology only on Empirical Research

Information Gathering from Previous Research

- The benefits of ICT adoption consist of more accurate and timely information, better communication and connection links, and improves promotion strategy (Adebambo and Toyin, 2011). ICT adoption also influences SMEs' strategic purchasing, logistics integration and business performance (Chinomona, 2013).
- Most SMEs studied have a problem on high ICT skills shortage, rely on outside ICT vendors and consultants for their needs (Gono, Harindranath, and Özcan, 2013), lack of technology skills, and applications has been difficult for SMEs (Wood, Wood, Reiners, Duong, and Wang, 2014).
- Some cases cost of ICT in logistics was not a constraint for ICT adoption (Gono, Harindranath, and Özcan, 2013), however in some cases, cost of ICTs adoption in logistics was constraint (Wood, Wood, Reiners, Duong, and Wang, 2014).
- One of the ICT application adoptions is RFID which the successful adoption comes from five factors consisting of perceived benefits, suppliers' non-compatibility, perceived security risks, process/performance improvements, and firm size (Golding, Papastathopoulos, and Tennant, 2011).
- The positive feedback from all officers is greater than 80% after implementing application for logistics (Phuttima, Rueangsirasak, and Chaisricharoen, 2014).
- IT management and IT usage sophistication were mediator between the strategic role of IT and IT performance (Raymond, Croteau, and Bergeron, 2011).
- E-commerce can help SMEs build healthy and long term relationship with foreign distributors by using logistic system of partner or build its by themselves (Zhang and Okoroafo, 2014).
- The critical factors of each level of adopters are different. For ready adopters, it is cost and management. It is competitiveness and process efficiency for initiator adopters. Finally, unprepared adopters had IT management difficulties, IT implementation difficulties and cost of implementation as critical factors (Chen and Papazafeiropoulou, 2012).
- Cloud community gives SMEs a better possibility to capture information and exchange it within a particular enterprises' network (Kawa and Ratajczak-Mrozek, 2014).
- One of the shortages in e-commerce development of SMEs is logistics bottleneck (Wang, 2013).
- IT adoption can support SMEs to transform logistic activities into virtual enterprise and agile supply chain (Samdantsoodol, Cang, Yu, and Tumur-Ochir, 2013).

Future Research Suggestion

From data gathering above, it can propose future research as follows;

- Since it is not clear in cost of ICT in logistics of SMEs, it can test or find results about how or whether cost of ICT in logistics of SMEs is constraint.
- Except RFID, there are many technologies for logistics such as Geographical positioning System, Web Based Tracking, and Information Directed System. It is interested for finding successful adoption factors for each application.
- The relationship among IT management, IT usage sophistication, strategic role of IT, and IT performance were proposed but it is lack of empirical in this issue.

- Since the adopters can divide into 3 group; ready adopters, initiator adopters, and unprepared adopters. What is the measurement or criteria to justify that which firms?
- There are many perspectives to study in critical success factors of ICT adoption in logistics of SMEs issue. It can come from management, workers, practitioner, academician, consultant, buyer and supplier. Study in dyadic side will give the framework in all aspects.

Limitation

Using Google Scholar for searching article is the main limitation of this research. On the one hand, Google scholar can access many articles in journal, conference, and working paper that benefit for researchers to reach various types of paper. On the other hand, the searching system of google scholar is not easy and convenience in processing and storing the data. It has also a problem in keywords searching. In practical, when searching by deduct keyword "logistic regression", some articles, which have keyword "logistic regression", still showed in the result. Furthermore, searching with Google Scholar cannot search only title or abstract, the results will come from searching full paper. It is hard especially on initial selection.

In paper selection process, it was selected only by author. It will be more reliable if it has expert involving in selection process. Since it has a few articles related to topic about ICT adoptions in logistics of SMEs and limitation of time, It cannot use software like Pajek for the citation network as a key to link each article.

References

Adebambo, S., & Toyin, A. (2011). Analysis of information and communication technologies (ICT) usage on logistics activities of manufacturing companies in Southwestern Nigeria. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 2(1), 66-72.

Adekunle, P. A., & Tella, A. (2008). Nigeria SMEs participation in electronic economy: Problems and the way forward. *Journal of Internet Banking and Commerce*, 13(3), 1-13.

Adeola, A. J. A. Y. I., & OLAYUNGBO, D. O. (2014). ICT adoption in small and medium scale enterprises in Nigeria: An assessment. *International Journal of Research*, 1(9), 889-897.

Afolayan, A., Plant, E., White, G. R., Jones, P., & Beynon-Davies, P. (2015). Information Technology Usage in SMEs in a Developing Economy. *Strategic Change*, 24(5), 483-498.

Agboh, D. K. (2015). Driver and challenges of adoption by SMEs. *Journal of Research Technologies*, 1-5.

Apulu, I., Latham, A., & Moreton, R. (2011). Factors affecting the effective utilisation and adoption of sophisticated ICT solutions: Case studies of SMEs in Lagos, Nigeria. *Journal of Systems and Information Technology*, 13(2), 125-143.

Ashrafi, R., & Murtaza, M. (2008). Use and Impact of ICT on SMEs in Oman. *Electronic Journal Information Systems Evaluation*, 11(3), 125-138.

Chen H. & Papazafeiropoulou A. (2012). An empirical study for radio frequency identification (RFID) adoption by SMEs in the taiwanese information technology industry. *Asian Academy of Management Journal*, 17(2), 39-58.

Chinomona, R. (2013). The fostering role of information technology on SMEs' strategic purchasing, logistics integration and business performance. *Southern African Business Review*, 17(1), 76-97.

Davarzani, H., Fahimnia, B., Bell, M., & Sarkis, J. (2015). Greening ports and maritime logistics: A review. *Transportation Research Part D: Transport and Environment*.

Denyer, D., & Tranfield, D. (2009). Producing a systematic review.

Evangelista, P., McKinnon, A., & Sweeney, E. (2013). Technology adoption in small and medium-sized logistics providers. *Industrial Management & Data Systems*, 113(7), 967-989.

Golding, P., Papastathopoulos, A., & Tennant, V. (2011). Factors Inhibiting the Adoption of RFID Technology: Results and Implications from an Empirical Study of SMEs in Spain. In *AMCIS*.

Gono, S., Harindranath, G., & Özcan, G. B. (2013). Challenges of ICT adoption by South African SMEs: A study of manufacturing and logistics firms. In *Proceedings of the Annual Conference of The Institute for Small Business and Entrepreneurship*.

Govindan, K., Soleimani, H., & Kannan, D. (2015). Reverse logistics and closed-loop supply chain: A comprehensive review to explore the future. *European Journal of Operational Research*, 240(3), 603-626.

Harindranath, G., Dyerson, R., & Barnes, D. (2008). ICT adoption and use in UK SMEs: A failure of initiatives. *Electronic Journal of Information Systems Evaluation*, 11(2), 91-96.

Harrison, A., & Van Hoek, R. I. (2008). *Logistics management and strategy: competing through the supply chain*. Pearson Education.

Herdon, M., Péntek, Á., & Várallyai, L. (2012). Digital business ecosystem prototyping for agri-food SMEs. *CEUR Workshop Proceedings*.

Hong, P., & Jeong, J. (2006). Supply chain management practices of SMEs: from a business growth perspective. *Journal of Enterprise Information Management, 19*(3), 292-302.

Hsin, C., & Papazafeiropoulou, A. (2008). Adoption of supply chain management technologies by small and medium enterprises in the manufacturing sector.

Kawa, A., & Ratajczak-Mrozek, M. (2014, April). Cloud Community in Logistics e-Cluster. In *Asian Conference on Intelligent Information and Database Systems* (pp. 495-503). Springer International Publishing.

Klewitz, J., & Hansen, E. G. (2014). Sustainability-oriented innovation of SMEs: a systematic review. *Journal of Cleaner Production, 65*, 57-75.

Kotey, B. (2005). Goals, management practices, and performance of family SMEs. *International Journal of Entrepreneurial Behavior & Research, 11*(1), 3-24.

Krishna Erramilli, M., & D'Souza, D. E. (1995). Uncertainty and foreign direct investment: the role of moderators. *International Marketing Review, 12*(3), 47-60.

Kumari, S., Singh, A., Mishra, N., & Garza-Reyes, J. A. (2015). A multi-agent architecture for outsourcing SMEs manufacturing supply chain. *Robotics and Computer-Integrated Manufacturing, 36*, 36-44.

Laufs, K., & Schwens, C. (2014). Foreign market entry mode choice of small and medium-sized enterprises: A systematic review and future research agenda. *International Business Review, 23*(6), 1109-1126.

Lihua, W. (2013, November). Post-crisis era of SMEs management innovation in E-commerce. In *2013 6th International Conference on Information Management, Innovation Management and Industrial Engineering*(Vol. 2, pp. 471-474). IEEE.

Lenny Koh, S. C., Demirbag, M., Bayraktar, E., Tatoglu, E., & Zaim, S. (2007). The impact of supply chain management practices on performance of SMEs. *Industrial Management & Data Systems, 107*(1), 103-124.

Martineau, C., & Pastoriza, D. (2016). International involvement of established SMEs: A systematic review of antecedents, outcomes and moderators. *International Business Review, 25*(2), 458-470.

Novickis, L., Lesovskis, A., & Mitasiunas, A. (2011, April). Technology Transfer Model and Web-based Solution for Transport Logistics Service Providers. In *Proceedings of the European Computing Conference (ECC'11), Wisconsin, USA, WSEAS, Stevens Point* (pp. 65-74).

Olise, M. C., Anigbogu, T. U., Edoko, T. D., & Okoli, M. I. (2014). Determinants of ICT adoption for improved SME's performance in Anambra state, Nigeria. *American International Journal of Contemporary Research,4*(7), 163-176.

Ongori, H., & Migiro, S. O. (2010). Information and communication technologies adoption in SMEs: literature review. *Journal of Chinese Entrepreneurship, 2*(1), 93-104.

Phuttima, S., Rueangsirasak, W., & Chaisricharoen, R. (2014, March). Fraud Detection System for Steel Logistic SME Business on Cloud Services model. In *Information and Communication Technology, Electronic and Electrical Engineering (JICTEE), 2014 4th Joint International Conference on*(pp. 1-7). IEEE.

Phuttima, S., Rueangsirarak, W., & Chaisricharoen, R. (2013, September). Sufficient cloud service for steel logistic SME with limit effect to workforce. In *Communications and Information Technologies (ISCIT), 2013 13th International Symposium on* (pp. 746-750). IEEE.

Plomp, M. G., Batenburg, R. S., & Den Hertog, P. (2011). Does ICT policy improve interorganisational ICT for SMEs? A Dutch policy evaluation study.*Proceedings of the 24th Bled eConference" eFuture: Creating Solutions for the Individual, Organisations and Society"*, 558-571.

Raymond, L., Croteau, A. M., & Bergeron, F. (2011). The strategic role of IT: An empirical study of its impact on IT performance in manufacturing SMEs. In *2011 Sixth International Conference on Internet and Web Applications and Services (ICIW)* (pp. 89-97).

Rezaei, S. (2015). Segmenting consumer decision-making styles (CDMS) toward marketing practice: A partial least squares (PLS) path modeling approach. *Journal of Retailing and Consumer Services, 22*, 1-15.

Salemink, K., Strijker, D., & Bosworth, G. (2015). Rural development in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas. *Journal of Rural Studies.*

Samdantsoodol, A., Yu, H., Cang, S., & Tumur-Ochir, A. (2013, September). A structural equation model for predicting virtual enterprise and agile supply chain relation. In *Automation and Computing (ICAC), 2013 19th International Conference on* (pp. 1-6). IEEE.

Saptadi, S., Sudirman, I., Samadhi, T. A., & Govindaraju, R. (2015). Owner's Support, IT Sophistication and IT Adoption in Indonesian Manufacturing SMEs. *Journal of ICT Research and Applications, 8*(3), 270-288.

Sarkis, J., Meade, L. M., & Talluri, S. (2004). E-logistics and the natural environment. *Supply Chain Management: An International Journal, 9*(4), 303-312.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students. Harlow, England: Pearson Education* (p. 614). ISBN 978-0-273-71686-0.

Schwens, C., Eiche, J., & Kabst, R. (2011). The moderating impact of informal institutional distance and formal institutional risk on SME entry mode choice. *Journal of Management Studies, 48*(2), 330-351.

Staples, M., & Niazi, M. (2008). Systematic review of organizational motivations for adopting CMM-based SPI. *Information and software technology, 50*(7), 605-620.

Stavrulaki, E., & Davis, M. (2010). Aligning products with supply chain processes and strategy. *The International Journal of Logistics Management,21*(1), 127-151.

Wamba, S. F., & Akter, S. (2015, June). Big data analytics for supply chain management: A literature review and research agenda. In *Workshop on Enterprise and Organizational Modeling and Simulation* (pp. 61-72). Springer International Publishing.

Wood, L. C., Wood, A., Reiners, T., Duong, L. N. K., & Wang, X. (2014). An exploration on the New Zealand use of technology to facilitate logistics. ACIS.

Zhang, H., & Okoroafo, S. C. (2014). An E-Commerce Key Success Factors Framework for Chinese SME Exporters. *International Journal of Economics and Finance, 6*(1), 129.

Zhelyazkov, G. I. (2012). The impact of ICT systems on road transport SMEs in Australia.

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