

## Organizational Contribution to E-business Adoption for SMEs in The World

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### ARTICLE INFO

Article history:  
Received 13 February 2023  
Accepted 30 July 2023  
Published 31 July 2023

### ABSTRACT

The aim of this study is to identify the issues faced by SMEs all around the world in adopting e-business. This is a work of literature study with the classification based on technological, organizational, and environmental (TOE). The study collects 116 articles from various journal portals. The finding of this study is the factors that concerned the most in adopting e-business among the SMEs which are related to the organization. The organization has a contribution of 50% compared to technology and the environment. Under the organization, human resource is a prominent key to be improved if the SMEs want to adopt e-business well. This situation applies in the continents of Asia America, Europe, Australia, and Oceania. Only African SMEs concern more about management rather than human resources. This study does not consider the interplay between the factors, however, the practical implication of this study is that the finding can be used as input for decision-makers who have an interest in improving the performance of SMEs or raising the level of SMEs in their region, one of which is by increasing the adoption rate of e-business among SMEs. Further, there is an opportunity for future research in investigating the strength of the relationship in each factor to the adoption of e-business, or even in between factors. The contribution of this study is to provide thorough synopsis regarding the factors that need to be considered by the SMEs if they want to adopt e-business.

Keywords:  
E-Business; SMEs; Digital  
Transformation; Human  
Resources; Organization.

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## 1. INTRODUCTION

Small and medium-sized enterprises (SMEs) are one of the countries' main sources of income and contribute to economic growth. In developing countries, the private sector comprises 90 percent of SMEs, and more than 50 percent of SMEs makes job opportunity that impacts countries' economies [1]. Retrieved from [2] in Africa, SMEs hold 80% of existing jobs. This condition shows that SMEs contribute significantly to economic growth. In Sub-Saharan Africa, there are approximately 44 million SMEs. The SMEs cover many economic sectors in Africa. Up to 90 percent of the population in African countries such as Uganda, Ethiopia, and Kenya are employed within SMEs. Similar to Africa, in other continents, SMEs have a big contribution to their country's economic growth. In Southeast Asia, there are at least 71 million micro, small, and medium-sized enterprises (MSMEs) [3], and 97% of all businesses and 67% of the working population are mastered by SMEs. Further, MSMEs in Southeast Asia Region contribute 40.5% to each country's domestic product and 19.2% of total export value in 2020. However, in another continent, such as Europe, based on [4], in 2020 more than 21 million micro, small, and medium-sized enterprises were active in Europe.

The statement above shows that SMEs have great potential in contributing to their economic growth, especially in this digital era. With digitalization, SMEs can expand their firms to other countries, and widen their market and supply chains. Digital technologies facilitate streamlined processes, shorten decision-making processes and automate routine tasks. Digitalization in process business is called an electronic business or e-business. E-business has become one of the competitive factors that have forced conventional businesses to change their way of doing business. Many studies found that e-business has become a significant factor of competitiveness amongst many business organizations, including SMEs [1][5][6]. Further, innovation in technology becomes part of a life-cycle product which needed by firms including SMEs [7]. Among other advantages of implementing e-business, [8] found that SMEs can reduce operating costs and increase sales. The business has been forced to apply digitally, especially during and after the pandemic Covid-19. Many digital enterprises, including start-ups and SMEs, emerge during this period.

However, a study of [9] shows that e-business has to be supported by improved technology among SMEs and an integrated model is needed to introduce the technological solution that will lead to an e-business system in the long term. An appropriate level of technology adoption is needed based on the capability of SMEs' technological absorption. Further, [10] investigate that e-business concept can be adopted by SMEs through a stage model of e-business adoption. Begin with stage 1 which is the using of email up to the stage 8 which is the organization transformation.

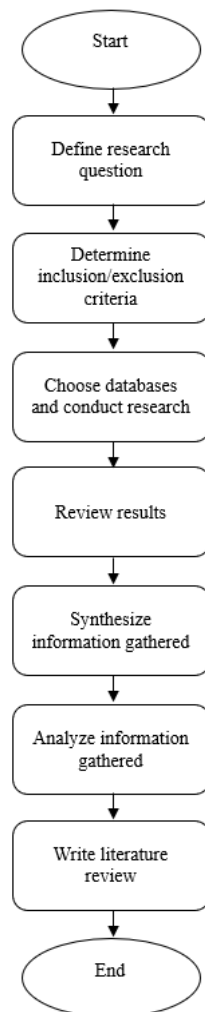
Despite the numerous advantages that e-business can provide, only a few SMEs in the world apply e-business, especially in developing countries. For example, in Ghana, most SMEs only use one form of e-commerce [11] while e-business includes not only e-commerce but also electronic processes in all aspects, from the supply chain to the selling process. African SMEs are reluctant to adopt e-business otherwise it has a significant impact on their firms, since applying e-business involves high costs both in developing and maintaining the system which is limit the SMEs in regard to having access to the fund [12]. SMEs generally suffer from budget and are less sure of the expected returns on investment. Furthermore, lack of ICTs knowledge among the SMEs due to the owners having only a basic level of education, especially in rural areas [12], thus the application of e-business depends on the availability of senior staff who are knowledgeable and experienced in the IT field [11]. A similar issue faced by the SMEs in UAE, the digital process in their business seems too complex thus it makes them distrustful and resistant to adopting new technology in their firms [13]. This statement is supported by [14], which finds that most owners of SMEs are computer illiterate and not familiar with the internet. Not only in Asia and Africa, but SMEs in other continents also face similar issues regarding human resources e.g. [15], [16], [9], [17], and [18] among others that study how human resources affect e-business adoption among SMEs in America (Brazil and Mexico), Europe (Bulgaria, Malta), and Australia and Oceania (New Zealand) respectively.

All the studies mentioned above do not have similar conclusions about the reluctance of adopting e-business in their firms. The fact that only some of them adopted e-business due to high cost and their limited access to the fund, however, others were hindered by the level of education of their employees, or even by the innovativeness of their owners or managers. These challenges are happened not only in Africa but also in other continents. These studies, which have been done separately, may mislead the key variable involved in adopting e-business among SMEs. Therefore, a study that synopsis all the conclusions of the previous studies is needed. This study aims to identify the issues faced by SMEs in various continents while adopting e-business. The research question is to answer what inhibitor factors are involved in the adoption of e-business among SMEs.

The contribution of this study is to provide thorough synopsis regarding the factors that need to be considered by the SMEs if they want to adopt e-business. The finding can be used by the regulators or government in identifying factors that need to be improved for the SMEs to upgrade their business.

## 2. METHOD

This study has the purpose to find best practices for e-business adoption among SMEs all around the world. It is a literature review study. The diagram of the methodology research is shown in Figure 1. Firstly, starting from identifying interested topic which leads to defining the research question. It is begun with defining the research question which is what inhibitor factors are involved in the adoption of e-business among SMEs. It is interested issue due to not many SMEs adopt e-business even though SMEs have benefit in increasing their sales and income among others.



**Figure 1 – Methodology Research**

Secondly, determining inclusion or exclusion criteria. At this step, the relevant dates are determined, as well as the language and geography. The range of the dates are determined to be quite long due to the adoption of e-business is not done simultaneously rather it shifting from Australia and Oceania to other continents. Articles collected show that first issue of adopting e-business among SMEs is begun in Australia and Oceania before spreading out to other continents. Following this, the geography is determined to be all over the world. Since SMEs are outspread, so the more countries involve in the articles are the better. To have more results in the search of articles, it is defined that only articles in English language are used. Further, by having English language articles, there is an opportunity to find cross countries studies regarding the adoption of e-business among SMEs.

Thirdly, choosing the databases followed by conducting the search. The databases are the journal portals include Google Scholar, Academia, Scopus, and Elsevier. The articles are searched by using keywords of SMEs, e-business, and adoption. There are hundreds of articles generated. All the generated articles are selected by read through their abstracts by dividing into relevant and irrelevant topics of the articles. The articles with relevant topic are kept, it happens to be more than a hundred articles are kept.

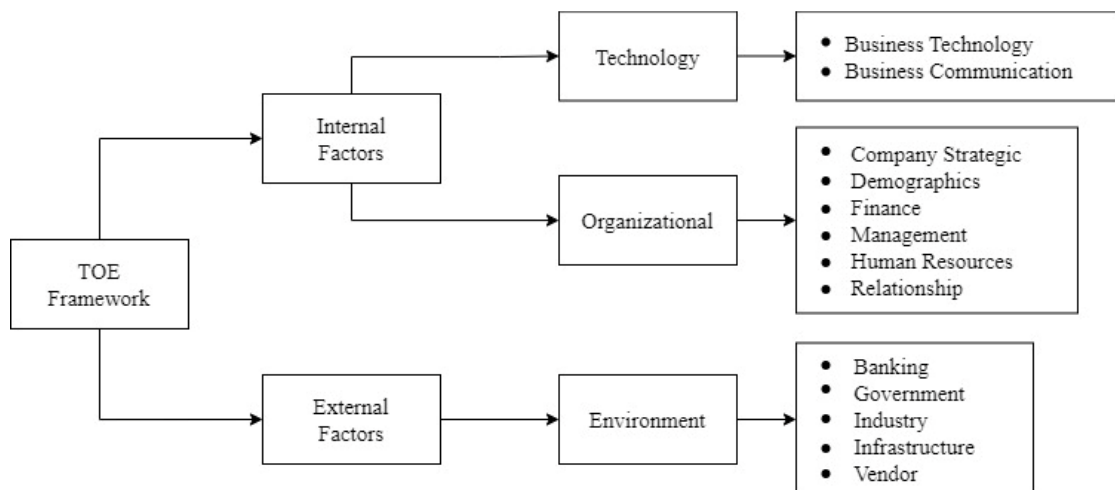
Fourthly, reviewing the results by at first store the search articles in Mendeley, deleting similar articles, and then keeping seminal articles. These articles are read through to find the main idea. The collection of main ideas is organized to make

an outline of how to adopt e-business among the SMEs followed by barriers and enablers associated with the adoption of e-business. By doing it, there will be data collection associated with many information regarding the countries, continents, age of the firms, industries, infrastructures, employee experiences, employee skills, employee knowledges, etc.

Fifthly, synthesizing the information gathered by grouping the articles into an organizational structure to support the answer of research question. To make the ideas organized, Technology, Organization, and Environment (TOE) theory is applied. TOE framework used to organize the technological innovation in an organization. According to this theory, there three factors influence the technological innovation in firms: technological context, organizational context, and environmental context [19]. The TOE is a fundamental theory which integrate the scheme of incorporating characteristic of technology, contingent organizational factors, and element from macro-environment [20]. The TEO theory is used by many studies to classify influencing factors into three contexts and it is useful as a conceptual guidance in studying how certain contextual factors may affect a certain technological innovation i.e. e-business [21]. This TOE concept are applied to each article and then the articles are categorized based on geography and demography to see the dominant factor in inhibiting the e-business among SMEs.

Sixthly, the analyzing of information is needed to see the gaps in the literature and locate the significant research taken place. The gaps found in the information gathered are geographically and demographically. Geographically, the adoption of e-business spreads from Australia and Oceania to Europe followed by America, Asia, and Africa. Thus, SMEs in each continent has specific time in adopting e-business. The maturity of SMEs can be seen in how early the SMEs adopting e-business. Demographically, the adoption of e-business among SMEs is found to be happened first in developed countries and then spread to developing countries. These gaps can be used as learning factor for the SMEs all around the world. Lastly is the incorporation of literature reviews, when the discussion regarding the findings is elaborated.

The frame work is shown in diagram of this contextual model (Figure 2), while the explanation is as followed. The data is classified using Technological, Organizational, and Environment (TOE) frame work [21]. Even though it is argued that the TOE itself is not enough in reflecting causal relationships, however using TOE is good as based information used to categorize the factors on the best practice of the SMEs. TOE itself is categorizing factors into internal and external. Technological and organizational are considered to be internal factors and environment includes other than internal factor, which is external factors. Factors related to e-business application in term of technological is categorized in business communication and business technology. Business communication includes mobile application, e-commerce, e-mail, social media, voice/SMS, and website. While Business technology includes technology readiness, security issues, technology cost, technology integration. Other internal factors that include in organizational are management support, human resources, demographic, financial resources, and company strategic. The external factors or environment is banking, government, industry, infrastructure and vendor.



**Figure 2 – Contextual Model**

The coding process is based on factors that are mentioned or discussed in the articles. They are considered as factors which influence the adoption of e-business among SMEs. The study collects all the factors from the collection of articles using excel program. Factors mentioned or discussed in articles are gathered and classified. Factors mentioned in one article only represent one tally for each factor, and each factor is counted individually. The accumulated number of mentions of a factor represents the degree of importance of factors regarding the adoption of e-business among SMEs.

For example, the word mobile app is mentioned in an article that contributes to the adoption of e-business, so mobile app is identified as a factor that influences the adoption of e-business among SMEs [22]. A firm displays its products or services on its mobile app therefore the customers and suppliers have information regarding the product that the firm offers. A mobile app itself represents a platform of communication among a firm and its customers in offering, selling, and buying products or services. Thus, mobile app includes in the category of business communication in technology context. However, the study does not include the degree of the mobile app applied in the business process – how complex the mobile application is developed, as long as the article discussed the mobile app then the mobile app is considered as a contributed factor.

In the other article, an email is discussed as an aspect considered in adopting e-business among SMEs [23], therefore an email is identified as a factor as well. An email can be defined as a medium used by a firm, its customers, its vendors, and other stake holders to communicate their purposes in offering, selling, and buying products or services, or even to communicate their concern about products or services related to the firms. Both mobile apps and email are factors that contribute to adopting e-business among SMEs, further, mobile apps and email can be classified as media of communication electronically for a firm. For that reason, both mobile apps and email are classified as business communication. Factors are collected and counted. Factors are sorted based on the most to the least mentioned. The five-most mentions factors are considered the most influential factors in adopting e-business among SMEs.

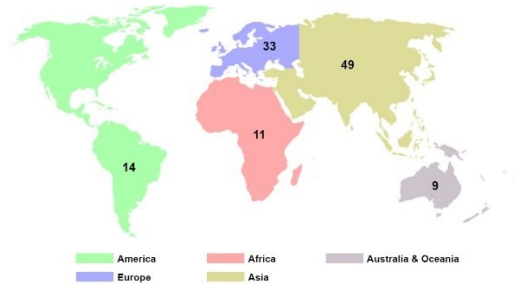
The coding summary based on TOE are shown in Table 1 below.

**Table 1 – Coding Summary Based on TOE**

<b>Technology</b>						
<b>No.</b>	<b>Category</b>	<b>Africa</b>	<b>America</b>	<b>Asia</b>	<b>Europe</b>	<b>Oceania</b>
1	Business Technology	9	12	35	27	4
2	Business Communication	11	12	29	19	6
<b>Organization</b>						
<b>No.</b>	<b>Category</b>	<b>Africa</b>	<b>America</b>	<b>Asia</b>	<b>Europe</b>	<b>Oceania</b>
1	Human Resources	5	28	55	39	9
2	Demographics	2	17	23	19	1
3	Management	8	13	17	8	4
4	Finance	5	5	21	7	1
5	Company Strategic	1	5	7	2	1
6	Relationship	0	2	2	4	1
<b>Environment</b>						
<b>No.</b>	<b>Category</b>	<b>Africa</b>	<b>America</b>	<b>Asia</b>	<b>Europe</b>	<b>Oceania</b>
1	Infrastructure	6	8	26	17	2
2	Government	4	5	21	9	0
3	Industry	3	6	17	8	1
4	Banking	1	0	5	0	0
5	Vendor	1	0	4	0	1

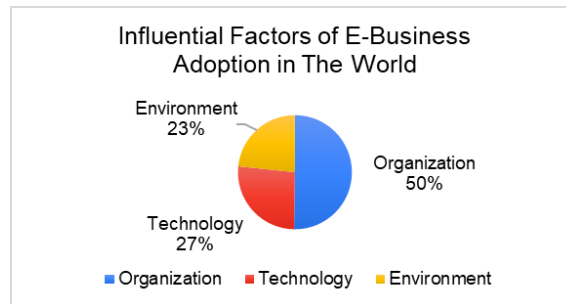
### 3. RESULT AND DISCUSSION

There are 116 collected articles for this study. The articles are distributed from the most to the least recent, 2022 to 2001. Those articles come from all around the world with most articles come from Asia. The circulation of the articles is as follow: 49 articles from Asia, 33 articles from Europe, 14 articles from America, 11 articles from Africa, 7 articles from Australia, and 2 articles from Oceania (see Figure 3). However, there are 143 countries covered in this study, this number different from the number of collected articles due to some articles covers more than one country. From all the countries covered in this study, 40% is Asian countries, 32% is European countries, 14% is American countries, 8% is African countries, and 6% is Australia and Oceanian countries.



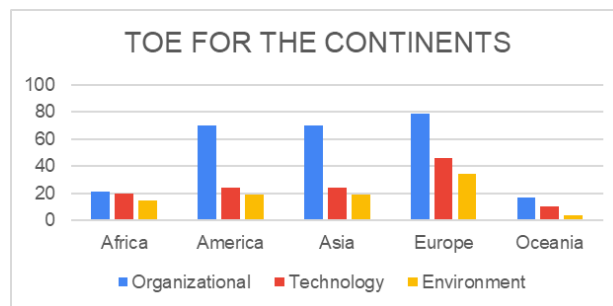
**Figure 3 – Dispersion of Articles Collected**

Most recent articles come from all the continents except for Australia and Oceania that the newest publication is 2017. Further, Australia and Oceania have the oldest publication, 2001. This reflects that e-business has been adopted among SMEs in Australia and Oceania before other regions. Asia, North Europe and North America conduct their research after Australia and Oceania, in 2003 and 2004. The major subjects of these elder researches are enablers and barriers of e-business adoptions among their SMEs. As time goes by, these subjects are adopted to other regions along with more SMEs that adopt e-business.



**Figure 4 – The Most Common Issues Based on TOE for the Continents**

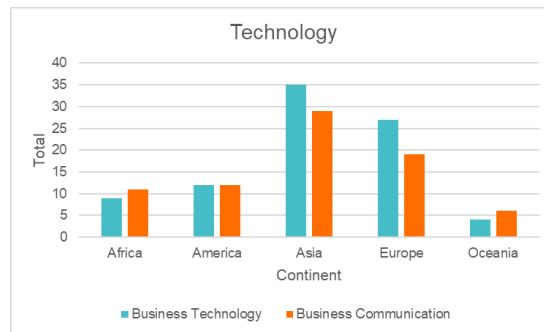
For all SMEs around the world, referring to TOE, face technology issues that contributes to 27% of all issues found in the SMEs while they want to adopt e-business in their firms, followed by organizational issues 50%, and environment issues 23%. This considers that, organizational factor is the most common issues found in the SMEs when they want to adopt e-business. It is shown in Figure 4, while Figure 5 shows the most common issued found in each continent. In detail, Africa has 38% organizational issues, 36% technology issues, and 27% environment issues. America has 62% organizational issues, 21% technology issues, and 17% environment issues. Asia has 48%, 24%, and 28 for organizational issues, technology issues, and environment issue respectively. Europe has organizational issues as the most prominent which is 52%, followed by technology, 30%, and environment 22%. For Australia and Oceania, the number are closed to European number which are 55%, 32%, and 13% for organizational, technology, and environment respectively.



**Figure 5 – The Most Common Issues Based on TOE for the Continents**

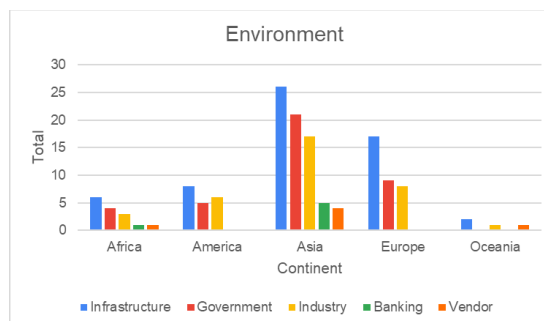
For all the continents, technology issues have second ranking after organizational issues. Technology consists of business technology and business communications. Based on selected articles, business technology is defined as technology related to adopting e-business. It contains technology integration, IT resources, security, suitable technology, technology adoption, and technology readiness. Meanwhile, business communication is defined as the platform used by SMEs to communicate with external parties, including customers, suppliers, vendors, etc. By this definition and how SMEs

perform communication, business communication is constructed by mobile applications, big data, e-commerce, e-mail, e-business, social media, voice/SMS, and website. Technology issues are split into two among the continents. America, Asia, and Europe tend to have more issues in business technology. However, Africa and Australia/Oceania tend to have more issues in business communication. Figure 6 shows how technology issues are covered among the continents.



**Figure 6 – Technology Issues for All Continents**

In environmental issues, infrastructures play the most important role in SMEs adopting e-business, followed by the role of government and industry. Figure 7 shows the environmental issues on all continents. Most infrastructure issues are related to ICT infrastructure and broadband connectivity. For the government role, the support from the government includes policies and institutions, especially related to the financial burden of internet access. Further, support is needed to ease the SMEs adjustment to the changing environment. The industry has an important role as well in adopting e-business, especially in terms of competitors. The competitors force influence SMEs to adopt e-business.



**Figure 7 – Environment Issues for All Continents**

The organizational issues are the most affected factor for the SMEs to adopt e-business in all continents (Figure 5). Therefore, the discussion is focused in these particular issues. Under organizational issues, the human resources influence the most to SMEs in adopting e-business among other issues. The issues included in organizational factor are relationship, human resource, management support, finance, demographic, and company strategic. Each continent has its own characteristics on how each issue contributes in inhibit the adoption of e-business among SMEs. Organizational especially human resources mostly as the biggest hurdles face by the SMEs in all continents except for Africa (see Figure 8, Figure 9, Figure 10, Figure 11, and Figure 12).

In general, relationship is defined as how important relationship is managed in between the firms and their customers or vendors. Even though relationship only has small contribution as issues faced by the SMEs, it is enough to make SMEs difficult in adopting e-business. Good relationship between firms and their customers or vendors increases management awareness on how to serve them better, thus increase the adoption of e-business in their firms [24].

Human resource considers how the employees faces the technology in their environment, e.g., how familiar they are in using email while doing business or how they can take advantage of computer and internet to gain benefit for their firms [25], etc. Not only the quality of human resource the firms have, but also how management supports their employees to have widen knowledge and experience with the technology adopted in their firms. The supports not limited to regular trainings, but it can be widening as how the management build organizational culture in their firms, how the management can have influence in supporting their employees when they are faced by new technology [26], or how management can

allocate sufficient resources in adopting new technology [27] or how the management has sufficient awareness regarding the value of technology in their firms [28].

Finance can be defined as enough budget allocated to adopt technology (e-business) by the management in the firms. Firms with less budget allocation in technology will inhibit them in adopting e-business [29] due internet and technology are too expensive to implement. it includes hardware and software needed [12]. Demographic includes how long the firms have been established and size of the firms. Demographic has become an issue as well. The longer the firms are being established the higher probability that the firms will adopt e-business. Same thing for size of the firms. It is really influencing the adoption of e-business since the bigger size of the firms, the higher probability of those firms to adopt e-business [30].

The last component in organizational issue is company strategic. It can be defined as the orientation of the firm in planning and implementing technology in their firms with objective to increase their sales and revenues [31]. The more awareness of company strategic in management, the higher probability of the firms to adopt e-business.

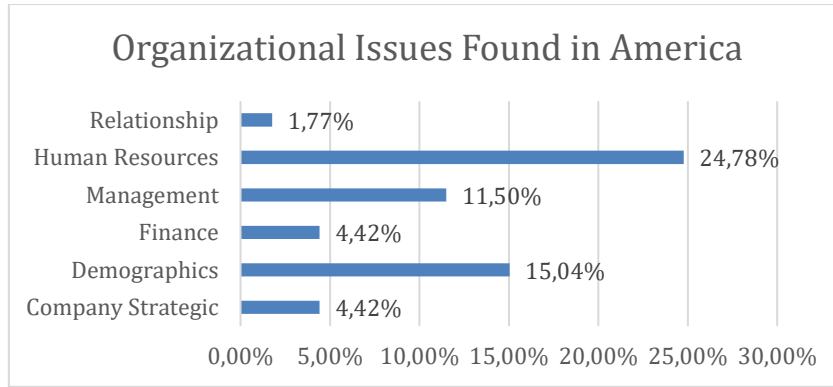
Figure 8 shows how management has a very significant contribution of issues faced by African SMEs, it shares 14.29% over all the TOE issues found. It followed by human resource, finance, demographic, and company strategic with percentage of 8.93%, 8.93%, 3.57%, and 1.79% respectively. In management perspective it shows that many African SMEs have management as barrier since their top management generally does not understand about e-business thus it has impact to underestimate the importance of e-business for their firms. They prefer to be followers than leader in adopting e-business due to their lack awareness of the potential of e-business [32]. Further, [33] shows that management SMEs with ethical issue will probably have inhibitor in adopting e-business. It because the management will have too much attention on ethical issues face by the firms that hinder their interest in applying e-business in their firms. These insights are support by [34]. They found that decision makers (top-management) support and attitude have significant role in adopting e-business in their firms. Top-management perceived benefit about e-business will improve business efficiency. However, this still become an issue in African SMEs management. The second issue is human resources. Even though most SMEs in Africa face human resources issues, however management issue is more influencing in adopting e-business.



**Figure 8 – Organizational Issues in Africa**

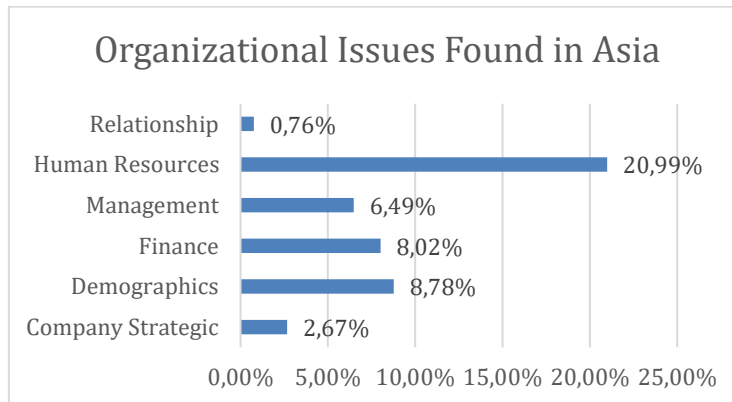
SMEs in America continent face human resource as their most barrier in adopting e-business in their firms. Human resource has a contribution of 24.78% over all issues faced by the SMEs in America continent. It is followed by demographic, management, finance, company strategic, and relationship with their contribution of 15.04%, 11.50%, 4.42%, 4.42%, and 1.77% respectively (see Figure 9). Human resources itself include knowledge, education, skill, and owner experience. Human resources have 24.78% of the factor that influences e-business adoption, making this factor the most important to America SMEs according to [15], [35], [15], [20], [16], [36], [37] among others. Second organizational issue in America continent is demographic which is believed by [15], [24], [31]. The third issue is management based on the study of [16], [20], [31], [35], [37]–[39] among other. They agree that management support, organizational readiness, culture, leadership, and perception have significant role in adopting e-business among SMEs in America continent.





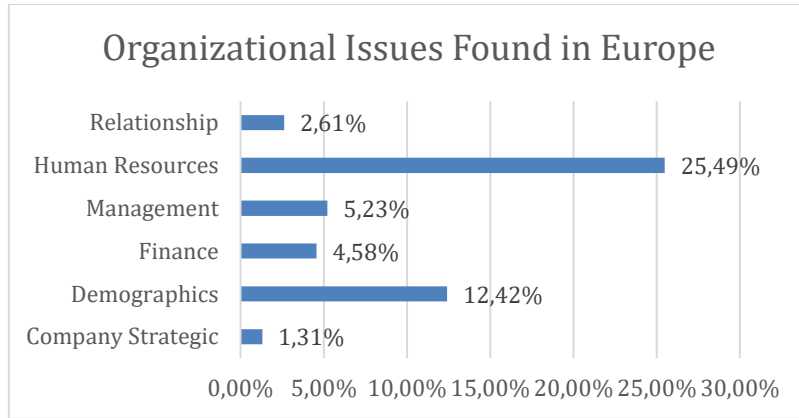
**Figure 9 – Organizational Issues in America**

Asian SMEs has similar issues as American. Human resources are the biggest issues in Asian SMEs in e-business adoption aspect. The human resource contributes 20.99% of all issues faced by Asian SMEs. It followed by demographic, finance, management, company strategic, and relationship. They share are 8.78%, 8.02%, 6.49%, 2.67%, and 0.76% respectively (see Figure 10). According to [19], [23], [26], [40]–[43], [36], [44]–[46], [13], [25], [40], [44], [47]–[51] among others, they agree that SMEs in Indonesia, Saudi Arabia, Brunei Darussalam, China, Iraq, Japan, Malaysia, Oman, Pakistan, Singapore, Taiwan, Thailand, Turkey, Vietnam, UEA, Yemen, and Jordanian face the human resource issues while they want to adopt e-business in their firms. The second issue is demographic. Size of the firm as part of demographic issue has shown that large firm typically effortless in adopting e-business in initiation stage due to the resources they have, however they become slower in the later stages [36]. Additionally, market orientation in term of competitive pressure inside the industry increase the likelihood of firms in adopting e-business [52].



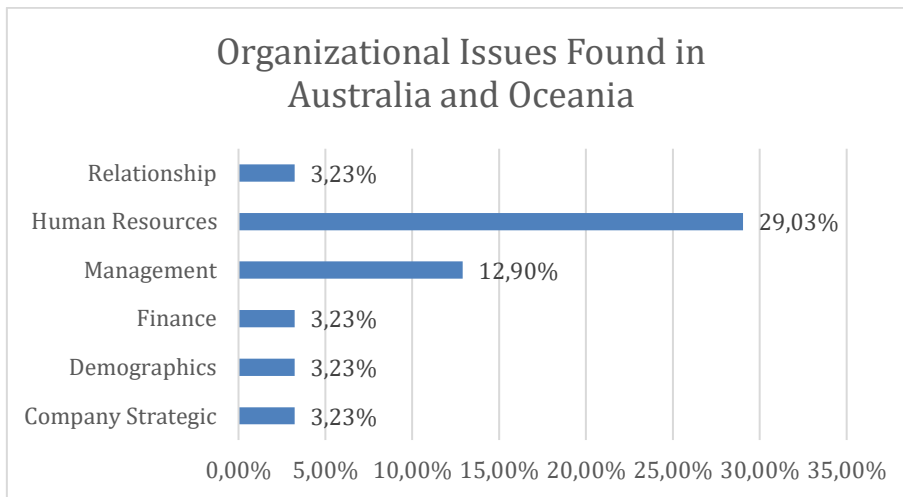
**Figure 10 – Organizational Issues in Asia**

In Europe (Figure 11), human resources are the most influential issues, similar with America and Africa. Human resources contribute to 25.49% of all issues faced by the SMEs when they want to adopt e-business. Second most influential issues are issues related to demographic e.g., size of the firm, age of the firms, type of industry, and market orientation. It contributes 12.42% of all issues, and it followed by issues in management, finance, relationship and company strategic with contribution of 5.23%, 4.58%, 2.61%, and 1.31% respectively. Countries which human resources issues are Bulgaria, Denmark, England, France, Germany, Italy, Luxemburg, Malta, Portugal, Republic of Ireland, Spain, Sweden, and United Kingdom [9], [17], [36], [37], [53]–[55][30], [56]–[59]. Knowledge is component of human resources issues. SMEs should have knowledge management available in their firms in order to reduce issue in human resources e.g., firms need to provide and support the acquisition, sharing, and application of knowledge as prior steps in adoption of e-business [58]. Another component of human resource issue is skill. SMEs face resource constraints that limit their ability to use technology [37]. E-business needs technology skill to make it more effective. To reduce lack of skills the SMEs should develop appropriate skills by having investment in staff training and poor knowledge of digital process [57]. Education is another component of human resources issue. SMEs with lower educational level of CEOs most likely reluctant in adopting e-business in their firms [60].



**Figure 11 – Organizational Issues in Europe**

Australia and Oceania (Figure 12), similar with America, Asia, and Europe, human resources are the most influential factors with 29.03% contribution. It is followed by management 12.90% and 3.23% each for relationship, finance, demographics, and company strategic issues. Under human resources, knowledge and skills are components that affect the adoption of e-business in SMEs. [28] believe that the adoption of e-business in SMEs will be successful if the organizations have to possess the requisite skills, knowledge, and experience to achieve smooth transition in adopting e-business. This finding supports study of [61] regarding the New Zealand’s SMEs. In addition, they find that ability to understand potential benefit of e-business adoption among the SMEs align with strategic orientation and ability to justify it, will increase the adoption of e-business.



**Figure 12 – Organizational Issues in Australia and Oceania**

Data collected from 5 continents, 4 out of 5 continents have the human resources as most domination issues. Table 3 shows that human resources in Africa has less effect in e-business adoption. In Africa, management is the most dominant factor than human resources.

**Tabel 3 – Contribution of Human Resources per Continent**

Human Resources	
Africa	8.93%
America	24.78%
Asia	20.99%
Europa	25.49%
Oceania	29.03%

Based on the scope of discussion from selected literatures, there are several components of human resources that become consideration or barrier for SMEs in all around the world. Those components are level of education, entrepreneur experience, innovativeness, knowledge, and skill. Education contributes the most in affecting adoption of e-business among SMEs. The contribution is 9.82%. It followed by managers, skill, owner, and entrepreneur experiences. Their contributions are 8.21%, 2.42%, 0.48%, and 0.32% respectively (see Table 4).

**Tabel 4 – Contribution of Human Resource in All Continents**

	<b>Factor</b>	<b>Contributes Factors</b>	<b>%Contributes Factors</b>
Human Resources	Level of Education	61	9.82%
	Entrepreneur experience	2	0.32%
	Innovativeness	3	0.48%
	Knowledge	51	8.21%
	Skill	15	2.42%

### **Level of Education**

For level of education, the higher the level of education, the higher possibility of the SMEs to adopt e-business [53]. Education level of the CEO [30], manager [35], and employee [62] benefits the firms in adopting e-business better. CEOs with higher level education can motivate their employees, so they can adjust smoothly when adopting e-business [31].

### **Entrepreneur experience**

Entrepreneur experience describe the journey of SMEs owners in building the business. Entrepreneurs are creatively exploring the opportunities offered by the technology to promote the business broader (Piscitello,2004). The experience of SMEs owner can give a wide point of view, especially in terms of adopting e-business. The longer the experience of SMEs owner has, the more views the owner can provide to the SMEs. So, with the experience that owner has, the SMEs can make the right and fast decision.

### **Innovativeness**

Innovativeness is a component in human resources that has influence the SME in adopting e-business. Besides, it positively relates to the growth of the firms [24], owner has power to influence the change in their firms. Innovated owner is important for the SME if it want to adopt e-business [26]. The attitude of owner is influenced by her knowledge and education. The higher both of them, the most likely the SME to adopt e-business.

### **Knowledge**

Knowledge of managers in terms of perceived benefit and computer literacy in adopting e-business [63] benefits the firms to have better business efficiency, competitiveness, planning, and managing the business through their leadership style. While knowledge of employees [64] shows the readiness of firms in adopting e-business. Both managers and employees can synergize each other toward the adoption of e-business in their firms.

### **Skill**

Skills, especially the ability of employees in information and technology including programming, system analysis, and design, benefit firms in adopting e-business better. SMEs, in general, have fewer skilled employees [26], this situation should encourage the managers or owners to support their employees to gain more skills and competencies to be able to adapt themselves to a new system.

## **4. CONCLUSION**

This study literature finds that human resources are the dominant factor that influence e-business adoption among the SMEs in all continents. From 4 of 5 continents, human resources contributed above 20% compare to other components. Except for Africa that with only 9.93%. Further, the human resources issues are the most influence factors among other under the TOE concept. African SMEs rely on management more than the human resource when the firm considering e-business to be adopted. This characteristic is different from other SMEs of other continents.

Under human resources, factors that contribute are level of education, entrepreneur experience, innovativeness, knowledge, and skill of manager and owner of the SMEs. Moreover, each continent has similar emphases in dealing with adoption of e-business in their firms. All the four continents consider level of education and skill of managers influence

most in adopting e-business. Thus, more educated managers in a firm, the higher their contribution to assist the SMEs to deal more with e-business.

These findings can be used as input for decision makers who have an interest in improving the performance of SMEs or to raise the level of SMEs in their region, one of which is by increasing the adoption rate of e-business among SMEs. SMEs that have managers with a high level of education will make it easier for them to adopt e-business. Of course, this cannot be separated from the role of SMEs owners. However, SMEs owners will feel more confident in developing their companies towards adopting higher and more complex technologies if they are supported by educated managers. Further study regarding how educated manager can influence the SMEs in adopting e-business is an interesting topic to develop.

Among the good findings of this study, there is a limitation that need to be improve by conducting future study. This study only shows the factors that influence the adoption of e-business among the SMEs all around the world. However, how these factors influence the adoption of e-business is not analyzed. This study will contribute more to the growth of e-business adoption among SMEs through a future study which analyze the relationships of the issues found to the growth of e-business or even to the income of the SMEs. By having this future study, the issue can be mapped accurately among the SMEs. Thus, it will assist more to the government in making policy and facilitate the SMEs to thrive the growth of SMEs and overall, the PDB.

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## APPENDIX

## List of Literature Used for Data Collection

No.	Authors	Year	Country	Regional	Continent
1	[44]		Iraq	Middle East	Asia
2	[40]		Brunei	Southest Asia	Asia
		2022	Darussalam		
3	[46]		Arab Saudi	Middle East	Asia
4	[65]		Jordan	Middle East	Asia
5	[66]		South Korea	East Asia	Asia
6	[67]		Ghana	West Africa	Africa
7	[68]		Hungary	Central Europe	Europe
8	[69]		Uzbekistan	Central Asia	Asia
9	[22]		Russia	East Europe	Europe
10	[38]	2021	Colombia	South America	America
11	[19]		Indonesia	Asia Tenggara	Asia
12	[17]		Malta	South Europe	Europe
13	[70]		Japan	East Asia	Asia
14	[65]		Jordan	Middle East	Asia
15	[71]		Indonesia	Southeast Asia	Asia
16	[21]	2020	Indonesia	Southeast Asia	Asia
17	[72]		Nepal	South Asia	Asia
18	[47]		Thailand	Southeast Asia	Asia
19	[73]		Afghanistan	South Asia	Asia
20	[9]		Bulgaria	Southeast Europe	Europe
21	[12]		Zambia	East Africa	Africa
22	[74]	2019	Bangladesh	South Asia	Asia
23	[13]		United Arab Emirates	Middle East	Asia
24	[75]		Argentina	South America	America
25	[26]		Saudi Arabia	Middle East	Asia
26	[76]		Poland	Central Europe	Europe
27	[77]		Italy	South Europe	Europe
28	[78]	2018	Yamen	Middle East	Asia
29	[79]		South Africa	South Africa	Africa
30	[80]		Australia	Australia	Australia
31	[23]	2017	Indonesia	Southeast Asia	Asia
32	[81]		Italy	South Europe	Europe
33	[49]		Vietnam	Southeast Asia	Asia
34	[82]		Indonesia	Southeast Asia	Asia
35	[83]		Serbia	Central Europe	Europe
36	[84]		China	East Asia	Asia
37	[85]	2016	Indonesia	Southeast Asia	Asia
38	[86]		Greece	Southeast Europe	Europe
39	[15]		Brazil	South America	America
40	[6]		Iran	Middle East	Asia
41	[27]		India	South Asia	Asia
42	[50]		Yamen	Middle East	Asia
43	[39]		United States	North America	America
44	[45]	2015	Malaysia	Southeast Asia	Asia
45	[87]		Nigeria	West Africa	Africa
46	[88]		Kuwait	West Asia	Asia
	[89]		Chile, Italy, Spain,		



			Indonesia, and Ghana		
47	[32]		Kenya	East Africa	Africa
48	[90]		Zimbabwe	South Africa	Africa
49	[41]	2014	China	East Asia	Asia
50	[91]		South Africa	South Africa	Africa
51	[92]		Australia	Australia	Australia
52	[93]		Malaysia	Southeast Asia	Asia
53	[51]		Jordan	Middle East	Asia
54	[42]		Indonesia	Southeast Asia	Asia
55	[94]	2013	United Kingdom	Northern Europe	Europe
56	[33]		Nigeria	West Africa	Africa
57	[95]		Italy	South Europe	Europe
58	[14]		Pakistan	South Asia	Asia
59	[96]		Oman	Middle East	Asia
60	[97]		Egypt	North Africa	Africa
61	[98]	2012	Malaysia	Southeast Asia	Asia
62	[99]		Jordan	Middle East	Asia
63	[62]		Saudi Arabia	Middle East	Asia
64	[100]		Portugal	South Europe	Europe
	[101]		Spain	South Europe	Europe
65	[59]		United Kingdom	Northern Europe	Europe
66	[102]		Malaysia	Southeast Asia	Asia
67	[103]	2011	Nigeria	West Africa	Africa
68	[104]		Wales	West Europe	Europe
69	[18]		New Zealand	Oceania	Oceania
70	[20] [105]		Canada	North America	America
71	[16]		Mexico	North America	America
72	[106]		German	Western Europe	Europe
73	[107]		Botswana	South Africa	Africa
74	[108]	2010	Australia	Australia	Australia
75	[37]		Canadian	North America	America
76	[109]		Thailand	Southeast Asia	Asia
77	[56]		Portugal	South Europe	Europe
78	[64]		China	East Asia	Asia
79	[30]		Sweden	North Europe	Europe
80	[110]	2009	Malaysia	Southeast Asia	Asia
81	[111]		United States	North America	America
82	[112]		United Kingdom	Northern Europe	Europe
83	[48]		Turki	Western Asia	Asia
84	[113]	2008	United Kingdom	Northern Europe	Europe
85	[114]		Jamaica	North America	America
86	[115]		Canada	North America	America
87	[55]		Luxembourg	West Europe	Europe
88	[116]		United Arab Emirates	Middle East	Asia
89	[58]		Spain	South Europe	Europe
90	[117]	2007	Norway, Finland, Spain	Europe	Europe
91	[41]		China	East Asia	Asia
92	[118]		United Kingdom	Northern Europe	Europe
93	[119]		United Kingdom	Northern Europe	Europe
94	[24]	2006	Canada	North America	America
95	[31]		United States	North America	America

96	[36]		Brazil, China, Denmark, France, Germany, Japan, Mexico, Singapore, Taiwan, United States		
97	[120]		South Korea	East Asia	Asia
98	[121]		Netherlands	West Europe	Europe
99	[122]		Vietnam	Southeast	Asia
100	[52]		China, Denmark, France, Germany, Japan, Mexico, Singapore, Taiwan, United States, Brazil		
		2005			
101	[61]		New Zealand	Oceania	Oceania
102	[123]		Norway, Finland, Spain	Europe	Europe
103	[54]		Italy	South Europe	Europe
104	[28]		Australia	Australia	Australia
105	[60]		Sweden	North Europe	Europe
106	[35]	2004	United States	North America	America
107	[124]		United Kingdom	Northern Europe	Europe
108	[125]		Taiwan	East Asia	Asia
109	[126]		Australia	Australia	Australia
110	[127]		Hongkong	East Asia	Asia
111	[128]		Sweden	North Europe	Europe
112	[53]	2003	United Kingdom	Northern Europe	Europe
113	[57]		United Kingdom	Northern Europe	Europe
114	[129]		Australia	Australia	Australia
115	[130]	2001	Australia	Australia	Australia