

## Information and Communication Technology (ICT) Adoption and Community: A Systematic Literature Review

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### Abstract

Information and communication technology (ICT) is one of the field of studies that is often discussed by almost all communities globally. ICT in community life and its role in providing conducive environment has been pertinently examined by researchers worldwide. This systematic literature review (SLR) reviews the community aspects of ICT adoption. The review processes included five key methodological steps, namely guided by protocol review, formulating the research questions, systematic advance searching strategies based on identification, screening and eligibility adopted from PRISMA, and several databases which included Science Direct and Scopus, followed by quality appraisal and data extraction from the journal articles and lastly, the analyses. Thematic analysis were conducted and five main themes were discovered: (1) technology assisted; (2) livelihood diversity; (3) innovation; (4) government and organization support and policies and (5) social related. The findings show that every element of community life has been impacted by the use of ICT, including daily routines, workplace operations, communication channels, rising levels of workplace innovation, online transactions, and a direct improvement in the standard of living around the globe.

**Keywords:** Systematic Literature Review, PRISMA, Information and Communication Technology, ICT Adoption, Worldwide Community

### Introduction

Information and communication technology (ICT) are seen as key to human development life nowadays. Global statistics regarding the use of internet among world population are overwhelming. The International Telecommunication Union (ITU) estimates that

approximately 5.3 billion people or 66% of the world's population are using the internet in 2022, which represents an increase of 24% since 2019. A total of 1.1 billion people are estimated to have come online during that period and this leaves 2.7 billion people still offline (International Telecommunication Union, 2022). According to ITU (2022), ICT provides the means to deliver high-quality goods and services such as health care, education, finance, commerce, governance, agriculture and other vital areas. Moreover, ITU's mission is to guarantee that all the world's population can use and benefit from digital information, products and services, equally and equitably. Nonetheless, with the adequate information and communication technology (ICT) infrastructure, services and skills, individuals and businesses can participate in the digital economy, while countries can increase their economic well-being and competitiveness globally.

## **Methodology**

### **Review protocol – PRISMA**

The systematic literature review (SLR) in this study is guided by PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). According to Ismail et al (2021), PRISMA can be used to establish a systematic literature review (SLR) of the recent trend and PRISMA is well known in environmental management studies, social sciences, safety studies and many others fields. The quality appraisal process was included in this paper and the criteria outlined is guided by Hong (Hong et al., 2018). Thus the quality of all the selected articles was determined before incorporated into the review. All selected articles were processed through several stages, data extraction and data analysis, and the data extracted process were guided by the research questions. Additionally, qualitative data was analysed using thematic synthesis which was performed by analysing the extracted data. All the protocol are considered as alternatives to ensure the process met the aim of the review.

### **Formulation of the Research Question**

This paper presents the Systematic Literature Review (SLR) by identifying, appraising and synthesizing the relevant previous studies which can fulfil the pre-identified inclusion criteria based on the predetermined and explicit technique to answer the specified research questions (Antman et al., 1992). To formulate the research question, sources from previous studies were utilised such as studies by (Pacheco et al., 2021). The following research objective were developed in order to describe a comprehensive report on the current studies: 1) To determine the aspects in the community adoption of Information and communication technology (ICT).

### **Systematic Searching Strategies**

As suggested by Shaffril et al. (2018), there were three systematic processes of identification, screening and eligibility that were employed to retrieve the relevant articles and by implementing these processes, SLR will allow the authors to comprehensively synthesis and locate the studies in conducting a well-organised and transparent literature review.

### **Identification**

By referring to the formulated research questions, several main keywords were identified: which are information and communication technology (ICT), community and adoption. Adapting a process of enriching these keywords, the authors sought its synonyms (using thesaurus, gaining expert opinions), related terms and variations which are the keywords

suggested by the databases such as Scopus and Science Direct, and counter-check on referring to the keywords used by previous studies and experts in respective fields of studies. Through this process, there are several keywords similar to ICT adoption, which were ICT embrace, ICT utilize, technology information usage, technology utilize and technology usage. By combining these keywords, SLR were processed using the search functions, such as field code functions, wildcards, truncation, phrase searching and Boolean operators in two databases: Scopus and Science Direct (see Table 1). In addition, the present study had limited the range between the years 2018 until 2022, and only addresses ICT adoption in community. Based on the searching and indexing efforts, a total of 513 potential articles were identified from Scopus and Science Direct databases.

**Table 1:** Search string used in the selected database

Data Base	String
Science Direct	Title, abstract or author-specified keywords "ict adoption" OR "ict embrace" OR "ict usage" OR "ict utilize" AND "community" OR "native people" OR "ethnic minority" AND "digital divide"
Scopus	TITLE-ABS-KEY ((adopt* OR accept*) AND ("ICT usage" OR "ICT utilize*" OR "ICT embrace*" OR "technolog* information usage" OR "technolog* information utilize*" OR "technolog* information embrace*") AND ("communit*" OR "people*"))

### Screening

In this paper, screening is operationalized as a process which only focuses on full research articles. According to Shaffril et al (2021), screening was the second process in the systematic searching strategy that includes or excludes articles from the overall review, and it is automatically assisted by the database. Therefore, articles from book chapters, reviews and paid articles will be excluded accordingly. Furthermore, sources of the article only written in English were considered (due to maintain consistency and quality) and limited within the range between the years of 2018 to 2022. This study opined that published studies within the timeline were sufficient to perform the representative review. Hence, the articles that do not meet these criteria will be excluded from the list for screenings. After all the processes were carried out, the results of articles from two main databases namely Scopus and Science Direct, 136 from Science Direct and 50 articles from Scopus were selected. An overall of 186 potential articles were processed for the evaluation in the next stage. Hence, 72 articles remained to be accessed for full-text articles after screening the title and abstract of papers with the inclusion and exclusion criteria (see table 2) for the eligibility.

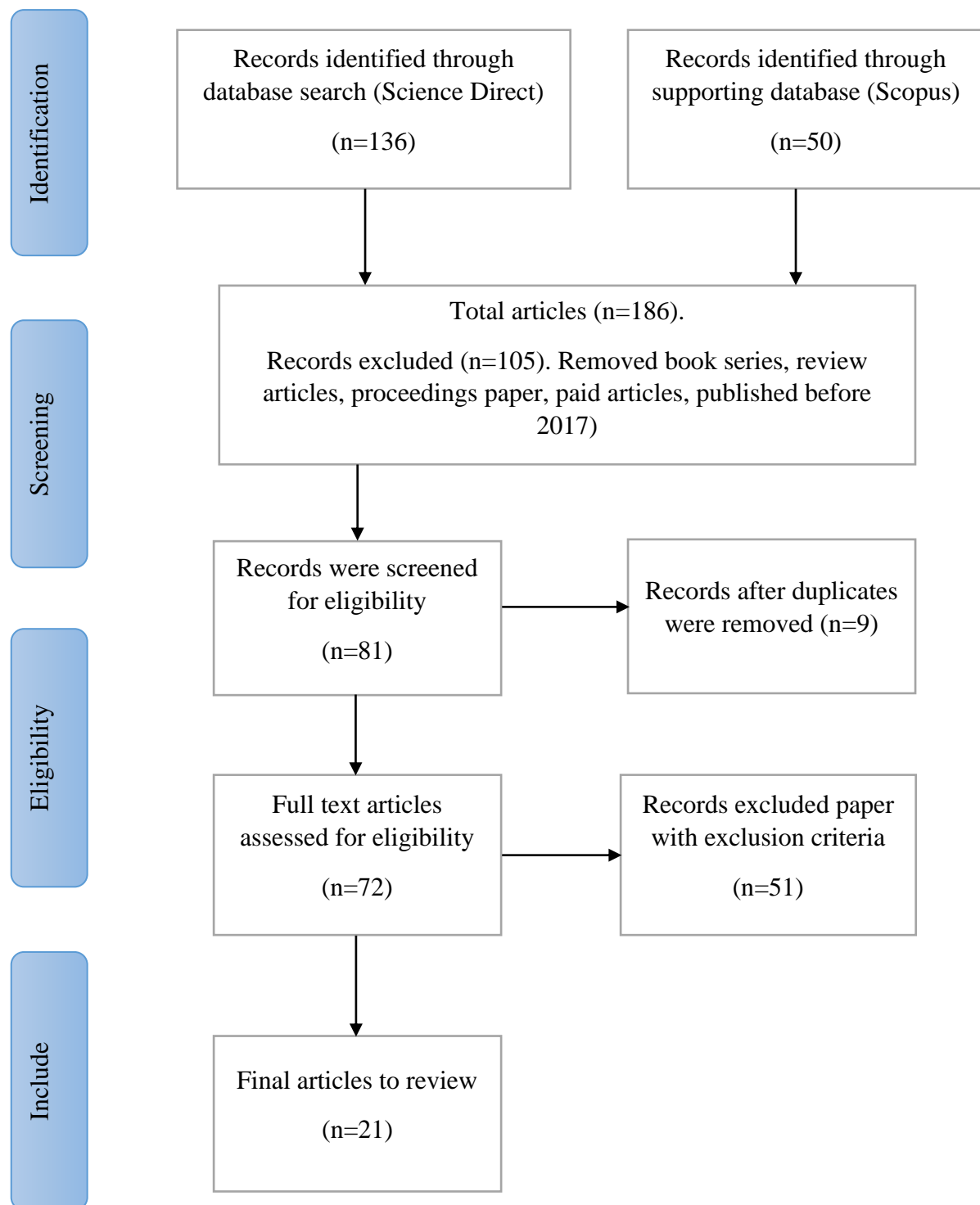
**Table 2:** Inclusion and exclusion criteria

Criterion	Inclusion	Exclusion
Time line	2018 - 2022	< 2017
Publication type	Research articles (with empirical data)	Book series, review articles, proceedings paper, paid articles, published before 2017
Language	English	Non english

The timeline in the table 2 is using range for five years which is 2018 until 2022 for the inclusion and while for the exclusion is below year of 2017. Moreover, the publication in the inclusion are the researchers choose the research articles in the database with the empirical data and while the exclusion the book series, review articles, proceedings paper and paid articles because they are not consider as primary source. Also for the language the researchers only use the articles journal which is publish in English and exclude the non-English language in this systematic literature review (SLR) study.

### **Eligibility**

In SLR process protocols, eligibility is a manual screening process and the authors manually checked the remaining papers to identify which is either by reading the title, abstract or the entire paper (Shaffril et al., 2021). This eligibility process requires the author to select only studies that focus on the issue of information and communication technology (ICT). The author had conducted in-depth and thorough readings to ensure the content of the study match the research objectives. Articles that do not meet the criteria based on the content of the study were removed. The appropriate studies were extracted and placed in a table according to theme and sub-themes. At this stage, selected articles from Science Direct and Scopus databases were discussed thoroughly and rigorously analysed and the final number of articles selected for the quality appraisal stage was 21 (see **Figure 1**).



**Figure 1 :** Systematic Literature Review Flow Diagram

### Quality Appraisal

In order to ensure that the methodology and analysis of the chosen studies were finished satisfactorily, the quality appraisal stage was carried out in this study. The quality appraisal stage was performed to validate all the selected articles. The Mixed-Method Appraisal Tool (MMAT) by Hong et al (2018) was used for this purpose (see table 3). MMAT will facilitate authors to emphasize the criteria such as the research questions' suitability for generating appropriate data, the suitability of qualitative data collecting to answer the research

questions, and the coherence of qualitative data sources, data collection, analysis and interpretation. In this study, the authors had relied on MMAT on the evaluation of the criteria for quantitative research design, such as the sampling strategy's relevance to the research questions, the sample's representativeness to its population, the appropriateness of the measurement, and the adequacy of the analysis conducted. The MMAT had also assisted the authors in providing guidance regarding the justification for using the mixed-method to address the research questions. It also addresses the effectiveness of the different research designs to answer the research questions, the integration of qualitative and quantitative, and the ability to address the divergence and differences between research designs for mixed-method research designs. This is required to control the quality from a methodological and analysis perspective (Hong et al., 2018).

**Table 3:** The criteria used to determine the rigour of the methodology and analysis used in the selected articles

Research design	Assessment criteria
Qualitative	QA1 – is the qualitative approach appropriate to answer the research question? QA2 – are the qualitative data collection methods adequate to address the research question? QA3 – are the findings adequately derived from the data? QA4 – is the interpretation of results sufficiently substantiated by data? QA5 – is there coherence between qualitative data sources, collection, analysis and interpretation?
Quantitative (descriptive)	QA1 – is the sampling strategy relevant to address the research question? QA2 – is the sample representative of the target population? QA3 – are the measurements appropriate? QA4 – is the risk of nonresponse bias low? QA5 – is the statistical analysis appropriate to answer the research question?
Quantitative non-randomized	QA1 – are the participants representative of the target population? QA2 – are the measurements appropriate regarding both the outcome and intervention (or exposure)? QA3 – are there complete outcome data? QA4 – are the confounders accounted for in the design and analysis? QA5 – during the study period, is the intervention administered (or exposure occurred) as intended?
Mixed methods	QA1 – is there an adequate rationale for using a mixed methods design to address the research question? QA2 – are the different components of the study effectively integrated to answer the research question?

	<p>QA3 – are the outputs of the integration of qualitative and quantitative components adequately interpreted?</p> <p>QA4 – are divergences and inconsistencies between quantitative and qualitative results adequately addressed?</p>
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**Source:** Hong et al. (2018)

The authors then examined each publications, paying particular attention to the methodology section and the analyses done. At this junction, the MMAT had served as their guide as they evaluated the articles, searching for consistency in the sampling and analysis (which includes random sampling vs. inferential analysis). The five evaluation criteria for each item were split into three categories: “yes”, “no” and “don’t know/can’t tell”. If the papers met at least three requirements, the article will be included in the review. All assessment-related decisions were reached through consensus, and any disagreements were immediately resolved through discussion among the authors. Based on this procedure, all authors agreed that every article that are chosen had achieved the standards for methodology and analysis. In total, 13 articles had fulfilled all criteria, five articles fulfilled at least four criteria and three articles managed to fulfil at least three criteria (see table 4).

**Table 4:** Results of the quality assessment

Study	Research Design	QA1	QA2	QA3	QA4	QA5	Number of criteria fulfilled	Inclusion in the review
Shaibu et al 2018	QN (DC)	/	/	/	/	/	5/5	✓
Matsenjwa et al 2019	QN (DC)	/	X	/	C	/	3/5	✓
Areepattamannil & Santos 2019	QN (DC)	/	/	/	/	/	5/5	✓
Crittenden et al 2019	QN (DC)	/	/	/	/	/	5/5	✓
Zilian & Zilian 2020	QN (DC)	/	/	C	/	/	4/5	✓
Chatterjee et al 2020	QN (DC)	/	/	/	/	/	5/5	✓
Rumata & Sakinah 2020	QN (DC)	/	/	/	/	/	5/5	✓
Menendez Alvarez-Dardet et al 2020	QN (DC)	/	/	/	/	/	5/5	✓
Blok et al 2020	QL	/	/	/	/	/	5/5	✓
Solomon & van Klyton 2020	QL	X	/	/	/	/	4/5	✓
Ziamba, 2020	QN (DC)	/	/	/	/	/	5/5	✓
Eisenhardt 2021	QN (DC)	/	/	/	/	/	5/5	✓
Qin et al 2021	QN (DC)	/	/	C	X	/	3/5	✓
Millan et al 2021	QN (DC)	/	/	/	X	/	4/5	✓



Alhassan & Adam 2021	QN (DC)	X	C	/	/	/	3/5	✓
Ma et al 2021	QN (DC)	/	/	/	/	/	5/5	✓
Cobelli et al 2021	QN (DC)	/	X	/	/	/	4/5	✓
Kim et al 2022	QN (DC)	/	/	/	/	/	5/5	✓
Chatti & Majeed 2022	QN (DC)	/	/	/	C	/	4/5	✓
Hasan et al 2022	QN (DC)	/	/	/	/	/	5/5	✓
Kabir et al 2022	QN (DC)	/	/	/	/	/	5/5	✓

QA = Quality assessment; QN (DC) = Quantitative descriptive; QN (NR) = Quantitative non-randomised; QL = Qualitative; MX = Mixed-method; C = Can't tell

### Data Extraction and Analysis

In this phase is data extraction and analysis. Due to the review's emphasis on a variety of research designs, Systematic Literature Review (SLR) requires the articles to be thematically analysed in order to discover the most effective methods for integrating the variations through qualitative synthesis (Whittemore et al., 2005). According to Braun & Clarke (2019), thematic analysis is a type of study that looks for patterns in previous research by looking for any similarities or connections that might be present in the data. The techniques suggested in this review was formed the basis for the thematic synthesis in this assessment (Kiger & Varpio, 2020; Ismail et al., 2021). Firstly, the researcher actively read over the entire dataset several times to become comfortable with it. This technique laid the groundwork for all subsequent procedures and provided the researchers with a useful introduction to the raw data. Secondly, the step consisted of creating the initial coding. Here, the researchers arranged the data in a detailed and focused manner. Moreover, the researchers examined each of the articles they had chosen and extracted any information pertinent to their main study question. The final step involved developing a theme. The researchers practiced inductive coding frameworks and made an effort to identify any commonalities, connections, or areas of interest between the extracted and coded data. The themes for the synthesis were generated from the coded data using an inductive coding approach. According to Braun & Clarke (2019), the themes was created is reflected the full data set and were related to the original data. There are several themes emerged during this process. Lastly, the researchers carefully examined the suitability of the main themes as proposed by Nowell et al (2017), and finalized the them according to these themes; technology assisted and ICT usage, livelihood diversity, innovation, government and organization support and policies, and social related (see table 5).



**Table 5:** The thematic analysis to developed themes

Articles/Themes	Technology assisted	Livelihood diversity	Innovation	Government and organization support and policies	Social related
Shaibu et al., 2018	✓			✓	✓
Matsenjwa et al., 2019	✓	✓	✓	✓	✓
Areepattamannil & Santos, 2019			✓		✓
Crittenden et al., 2019	✓				✓
Zilian & Zilian, 2020	✓	✓	✓		✓
Chatterjee et al., 2020	✓	✓	✓	✓	✓
Rumata & Sakinah, 2020	✓		✓	✓	✓
Menendez Alvarez-Dardet et al., 2020	✓		✓		
Blok et al., 2020	✓				✓
Solomon & van Klyton, 2020			✓		✓
Ziamba, 2020	✓			✓	
Eisenhardt, 2021	✓				✓
Qin et al., 2021	✓	✓			
Millan et al., 2021	✓			✓	✓
Alhassan & Adam, 2021	✓			✓	✓
Ma et al., 2021	✓		✓	✓	
Cobelli et al., 2021	✓		✓	✓	
Kim et al., 2022				✓	
Chatti & Majeed, 2022			✓	✓	
Hasan et al., 2022	✓	✓	✓	✓	✓
Kabir et al., 2022	✓		✓		

## Results

### Background of the Selected Studies

From 21 articles, a total of two papers focussed their studies in Poland Eisenhardt (2021); Ziamba (2020), two in Bangladesh Hasan et al (2022); Kabir et al (2022), two in Netherlands Blok et al (2020); Qin et al (2021), South Africa (Crittenden et al. 2019; Matsenjwa et al. 2019), Spain Menéndez Álvarez-Dardet et al (2020), Austria Zilian & Zilian (2020), Ghana Shaibu et al (2018), China Ma et al (2021), Italy Cobelli et al (2021), Indonesia Rumata & Sakinah (2020), United States Kim et al (2022), India (Chatterjee et al., 2020). Meanwhile, each research study also focused on European Working Conditions Survey for 35 European countries (Millán et al., 2021), Network Readiness Index Report 2018 data from 121 countries Alhassan & Adam

(2021), Program for International Student Assessment (PISA) Areepattamannil & Santos (2019), panel dataset of developing and developed economies comprising 60 developing and 34 developed countries Chatti & Majeed (2022) and available data for economic growth from 39 African countries (Solomon & Van Klyton, 2020).

It was recorded that 19 studies focused on quantitative analyses Eisenbardt (2021); Ziemba, (2020); Hasan et al (2022); Kabir et al (2022); Qin et al (2021); Crittenden et al (2019); Matsenjwa et al (2019); Álvarez-Dardet et al (2020); Zilian & Zilian (2020); Shaibu et al (2018); Ma et al (2021); Cobelli et al (2021); Rumata & Sakinah (2020); Kim et al (2022); Chatterjee et al (2020); Millan et al (2021); Areepattamannil & Santos (2019); Chatti & Majeed (2022) while the other two studies focused on qualitative analyses (Blok et al., 2020; Solomon & Van Klyton, 2020).

Regarding the year of publication, one article were published in 2018 Shaibu et al (2018), three articles were published in 2019 Matsenjwa et al (2019); Areepattamannil & Santos (2019); Crittenden et al (2019), seven studies were published in 2020 Zilian & Zilian (2020); Chatterjee et al (2020); Rumata & Sakinah (2020); Alvarez-Dardet et al (2020); Blok et al (2020); Solomon & Van Klyton (2020); Ziemba (2020), six articles were published in 2021 Eisenbardt (2021); Qin et al (2021); Millan et al (2021); Alhassan & Adam (2021); Ma et al 2021; Cobelli et al (2021), and four were publish in 2022 (Kim et al., 2022; Chatti & Majeed, 2022; Hasan et al., 2022; Kabir et al., 2022).

Furthermore, the review revealed that three articles were published in the Technology in Society Zilian & Zilian (2020); Alhassan & Adam (2021); Ma et al (2021), three were published in Computer in Human Behavior Areepattamannil & Santos (2019); Menendez Alvarez-Dardet et al (2020); Blok et al (2020), two were published in Journal of Business Research Crittenden et al (2019); Millan et al (2021), other two were published in Procedia Computer Science Ziemba (2020); Eisenbardt (2021) and Technological Forecasting & Social Change (Chatterjee et al., 2020; Cobelli et al., 2021). In contrast only one article was published in the following journals: South African Journal of Industrial Engineering Matsenjwa et al (2019), Asia-Pacific Journal of Rural Development Rumata & Sakinah (2020), Aging International (Springer Nature) Kim et al (2022), Cities Qin et al (2021), Digital Geography and Society Kabir et al (2022), Agris on-line Papers in Economics and Informatics Shaibu et al (2018), Utilities Policy (Solomon & Van Klyton (2020) and Journal of Cleaner Production (Chatti & Majeed, 2022) and Ageing International (Hasan et al., 2022). All selected journal exhibited good quality in which the journals are indexed in both Scopus and Science Direct databases.

### **Developed Themes**

The thematic analyses developed five themes and this section presented further discussion of the developed themes. Technology assisted makes it possible for every firm to operate more quickly and efficiently. The bulk of the community uses information and communication technology (ICT) tools to aid in communication as the ICT revolution continues to grow, performance is positively correlated with ICT adoption and use Millan et al (2021); Cobelli et al (2021) and impact the standard of living (Alhasan & Adam, 2021; Hasan et al., 2021). According to Shaibu et al (2018); Crittenden et al (2019) the most popular ICT tool is the mobile phone, which can help enhance economic activities in communities across a nation. This device of ICT is reasonably accessible and one of the most popular for a larger ranger of uses in the community (Alvarez-Dardet et al., 2020; Kabir et al., 2022). Furthermore, farmers can use ICT to get production advice, weather updates, connect with input suppliers and

aggregators, insurance providers, money transfer, and digitally interact with extension agents and other farmers domestically and abroad (Matsenjwa et al., 2019) while ICT adoption desire is also associated with resonant entrepreneurial skills and ICT also helps in forming networks to explore new markets and financial access opportunities to the community Chatterjee et al (2020) and even the community in the rural area as such ethnic minority also play an important role for the rural development with the evolution of ICT (Rumata & Sakinah, 2020) and even to the older people (Blok et al., 2020; Eisenhardt, 2021; Qin et al., 2021; Ma et al., 2021). Additionally, Zilian & Zilian (2020), revealed that the need for new abilities in ICT use, computer literacy, internet usage, or technical digital skills is increasing worldwide. On the other hand, Ziamba (2020) emphasizing that, the highest level was ICT management, and the lowest level was focused on information culture.

Livelihood diversity refers to skills or income. Information and communication technology (ICT) has a strong reputation for problem-solving and can support socioeconomically diverse populations in creating sustainable lives (Zilian & Zilian, 2020). As well as, ICT platform developers have helped farmers to access knowledge easily Matsenjwa et al (2019) i.e where to sell their products, increase the capacity and capability of human capital, using the ICT effectively to increase their production and it is able to grow its business by entering nearby states (Chatterjee et al., 2020). Meanwhile, natives are knowledgeable about open trade and are now more adept at using online payment methods (Hasan et al. 2022). Thus education and public awareness of health are strongly correlated for the rural and urban community (Qin et al., 2021; Hasan et al., 2022).

Innovation is the introduction of something new i.e a new idea, method or device. One of the ways of innovation that can be seen in the community is to teach the community how to use information and communication technology (ICT) technology to improve their ICT mastery Matsenjwa et al (2019) and in addition to making ICT Use a higher predictor of interest in broad science issues, self-efficacy in science, and epistemological attitudes about science than perceived competence in ICT use among students (Areepattamannil and Santos, 2019). According to Zilian and Zilian (2020), innovation leads to many elements of life, including education, work, and leisure, are changing as a result of emerging new technology. This is supported by Chatterjee et al (2020) which the innovation in ICT has empowered the women, for marginalised women in particular and also elderly (Menendez Alvaret-Dardet et al. 2020; Ma et al., 2021). In fact, ICT has the potential to increase a person's social network by enabling more seamless contact across time and space (Rumata & Sakinah, 2020). Likewise, the innovation had trained labour force, health profession and a supportive ICT policy environment, the growth effects of ICT can be maximised (Solomon & van Klyton, 2020; Cobelli et al. 2021; Hasan et al. 2022). Furthermore, introducing innovative digital technology to metropolitan areas to enhance environmental quality. In order to reduce pollution, it looked at how ICTs and urbanisation interact (Chatti & Majeed, 2022). These include emphasis on empowerment, local and national voting processes, and raising awareness of public decision-making, health and other concerns are impacted more by education and ICT expertise and technology's ability to improve the quality of expansion advice services (Hasan et al., 2022; Kabir et al., 2022).

Government and organization support and policies are substitutes or techniques that benefit the community. Telecommunications companies have made their services and products available to farmers as a way to support them and boost production and acquire necessary skills and increase their capacity for entrepreneurship (Shaibu et al., 2018; Matsenjwa et al., 2019; Chatterjee et al., 2020; Millan et al., 2021). In addition, Matsenjwa

confirmed that the government has supplied ICT infrastructure in order to aid rural areas. In fact, the government also provides computer fund for telecentre for rural area community and indigenous community (Chatterjee et al., 2020; Rumata & Sakinah, 2020; Alhasan & Adam, 2021; Hassan et al., 2022). While local government sustainability is influenced by ecological, economic, sociocultural, and political sustainability, ICT adoption by local governments is influenced by ICT outlay, information culture, ICT management, and ICT quality (Ziemba, 2020; Hasan et al., 2022). Additionally, the government also encourages social activities with ICT infrastructure provided to minimize social isolation to improve their health and intensify the implementation of tele-medicine (Ma et al., 2021; Cobelli et al., 2021).

Social related is relating to human society or the interaction of the individual and the group or society. Information and communication technology (ICT) has created a platform for the community to share, advance knowledge and skills, stay involved in important hobbies or passions and more competently (Shaibu et al., 2018; Matsenjwa et al., 2019; Areepattamannil & Santos, 2019; Crittenden et al., 2019; Blok et al., 2020; Chatterjee et al., 2020; Rumata & Sakinah, 2020; Eisenhardt, 2021; Millan et al., 2021). Similarly, The quality of human capital has been emphasized in the literature as a complementary factor (Solomon & Van Klyton, 2020). Thus, internet and the digital devices play an important roles and enhance their capability, protect against social exclusion and promote their quality of life (Zilian & Zilian, 2020; Alhasan & Adam, 2021). Conversely, indigenous communities' social, cultural, and economic well-being are negatively impacted by the digital divide due to indigenous people are in general, not highly educated, and have language problems compared to mainstream society (Hasan et al., 2022).

### **Discussion**

Information and communication technology (ICT) devices consist of mobile phones, smartphones, computers, laptops, tablets, Smart TVs (Crittenden et al., 2019; Blok et al., 2020; Chatti and Majeed, 2022; Kabir et al., 2022). The rapid development and the evolving of technology related to the ICT tools and the connections, had directly benefit many people and their daily life activities and their businesses. Globally, ICT applications or ICT social capital play an important role in most communities. ICT applications preferred by the community includes various types of Emails, the apps by the names of Whatsapp, Wechat, Telegram, Instagram, Facebook, Linked, Youtube, Pinterest and many more. These application platforms has become the basis for ICT recipients in the community today whether for personal affairs, business, work, students and others. The majority of people use the WhatsApp platform Crittenden et al (2019); Chatterjee et al (2020); Blok et al (2020) and Facebook Crittenden et al (2019); Eisenhardt (2021); Hasan et al (2022); Kabir et al (2022) for various purposes such as promoting business, dealing with job information (WhatsApp group, Telegram group), class or student information, sharing residential area information and a vast diversity of information sharing among communities.

Generally, the main tools in the use of ICT are mobile phones, fixed lines and smartphones Shaibu et al (2018); Blok et al (2020) with mobile phones and internet access had also helped women micro-entrepreneurs in establishing their businesses (Crittenden et al., 2019; Chatterjee et al., 2020). Studies had consistently indicate that the adoption of information and communication technology (ICT) helps in increasing economic activity in creating business managers and entrepreneurs in building new opportunities (Cobelli et al., 2021). While most studies acknowledged the adoption of ICT can improved the performance

of business firms Millan et al (2021), other socio-anthropological studies had emphasized that the Orang Asli of Malaysia are also aware of open trade and are more efficient in using online transaction systems (Hasan et al., 2022). Furthermore, phone applications are also used for various purposes among the younger generation and encourage knowledge sharing (Eisenbaradt, 2021; Hasan et al., 2022). Most studies also cited on that the use of ICT are also frequently associated with stronger relationship in science education, interest in broad science topics, on science self-education and epistemological beliefs about science among school teenagers (Areepattamannil and Santos, 2019). In gerontological studies, it is interesting to note that the elderly also do not lag behind in the use of ICT and do not experience technophobia (Menendez Alvarez-Dardet et al., 2020; Zilian & Zilian, 2020; Ma et al., 2021), where ICT had its roles in changing traditional channels of one-way communication such as radio and television (Kabir et al., 2022; Kim et al., 2022) to the use of mobile phones and internet technology in urban areas, and is also considered to be more efficient (Chattie & Majeed, 2022).

Social engagement and the support of community development can be increased with the proactive use of information and communication technology (ICT) (Ma et al., 2021). The quality of life, globally, can be increased in which the presence of digital society allows individuals to connect and communicate with communities around the world easily and directly, thus, may increase happiness and freedom in making life choices and improve community well-being (Alhasan & Adam, 2021) and rural development (Rumata & Sakinah, 2020). Hassan et al (2022) had found that the indigenous community in Bangladesh used ICT resources to improve their quality of life i.e. improve income levels, through the use of ICT by conducting their business in social media such as Facebook and other online business platforms. They are also skilled in doing modern transaction processes, e-commerce knowledge and building free market opportunities by using social media platforms (Hasan et al., 2022). In addition, the majority of the world's population or at least the population of Italy has realized that new technologies in ICT help the population in facing emergencies through telemedicine and reduce social distancing (Cobelli et al., 2021; Hasan et al., 2022).

Nonetheless, there is still a gap on ICT usages that exists in the global community. The gap that occurs in the adoption of information technology (IT) is related to socio-economic conditions that directly affect the population compared to gender factors (Zilian & Zilian, 2020). A study on the accessibility of the internet in Austria indicates that there is a gap in access to devices digital, due to socio-economic factors of the population such as limited social networks due to high cost and other economic concerns (Kim et al., 2021). In addition, the adoption gap of ICT usages also occur due to poor infrastructure, lack of training and content of ICT, lack of end users in ICT and lack of research on strategies to improve the use of ICT among farmers and gardeners in rural areas (Matsenjwa et al., 2019). Other studies had also highlight the other side of ICT challengers. Some problems related to working hours are also negatively related to the use of IT, due to the frequency of its use which makes individuals becoming more unproductive (Millan et al., 2021). Some other findings even indicate that the adoption of IT is also hindered by excess information and communication in Indonesia (Rumata & Sakinah, 2020). However, in contrast to these findings, the situation of the population in the Netherlands do implicate the frequencies of ICT usages Qin et al (2021), where the weekly use of ICT is low due to the housing space of the population. Those with a household income between 20,000 euros and 50,000 euros spend more time on the use of ICT compared to those with a household income of less than 20, 000 euros (Qin et al., 2021).

**Conclusion**

The current study explored the processes of Systematic Literature Review on examining the extent of ICT aspects related to the use of ICT among communities globally. Evidently the systematic literature review (SLR) has contributed significantly to answering the research questions in the study. In order to improve the processes and proposed protocols of this systematic review literature in the future, other researchers may choose to focus on aspects of psychological factors, behavioural factors, environmental factors and cultural factors as well as factors that related to the sustainability and development of ICT, as per indicated in the current SDGs worldwide.

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