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Harness the Global Impact of Big Data in Nurturing Social Entrepreneurship:
A Systematic Literature Review

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ABSTRACT

The global impact of social values, norms, and cultures set the growth and future dimensions of most businesses. In global business governess, the sustainability of social entrepreneurship is heavily dependent on peoples' opinions and their social interactions. Nowadays, social media platforms represent the big global repositories of publicly available information that can be exploited by social entrepreneurs to measure and assess the social impact of their business. There is still inadequate research that focuses on assessing social entrepreneurship impact in the area of big data. This paper aims to investigate the potential of big data in global social entrepreneurship. It examines the possibility of global impact of big data in social entrepreneurship.

KEYWORDS

Big Data, Global E-Commerce, Global Enterprise, Global Impact, Social Entrepreneurship, Social Interaction, Social Platforms, Systematic Literature Review

INTRODUCTION

Global entrepreneurship relates to the creation of a socially innovative approach aimed at solving societal problems, and they are not only focus on their personal profit (Rivera et al., 2018). According to (Chell et al., 2010), Social enterprise focuses on social activities which have encouraged a range of learning platforms and fertile environments that will generate individuals to enhance their communities' standard of living. The three very analogous terms of social entrepreneurship hold the diverse connotation of itself. Social entrepreneurship generally refers to a method or practice. Social entrepreneurs focus on the person who conducts the social entrepreneurship, and the concept of social enterprises refers to the tangible output of social entrepreneurship (Seelos & Mair, 2005).

Since the 1990s, social entrepreneurship is an appealing topic of attention among researchers. This is validated by a large number of studies in this particular domain (Saebi et al., 2019) Social entrepreneurs create innovative practice, resource strategies, and organizational structures that

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increase their chances of achieving effective social impact. Social entrepreneurship must be about social value creation, not just about money creation. Evaluating social enterprises' impacts is very crucial for both the enterprises themselves and the government, the government, or any organizations that highly depend on their performance. While considerable attention is paid to the value of social enterprises, there is still a lack of concern in evaluating the business performance that is directly associated with the sustainable operation of social enterprises (P. Lee & Seo, 2017). Issues concerning social entrepreneurship have been discussed for some time, but issues remain about the impact of non-profit organizations and associated industries (Bielefeld & Wolfgang Bielefeld, 2009). Social entrepreneurship is concerned about potential company impact possibilities and issues. Social entrepreneurs, of course, have a long history of their business impact (Moorthi, Srihari, 2017). History of their business impact can be used to predict the communal effect in the social entrepreneurship domain.

Although many researchers do research in the domain of social entrepreneurship, most studies focus on solving technical and business issues (Pappas et al., 2017). There is the nonexistence of studies focus on utilizing the use of big data in solving social entrepreneurship problems (Pappas et al., 2017) and (Sedkaoui & Moualdi, 2018). Social value and data analytics is still understudied (Pappas et al., 2017). In addition, the accessibility of big data allows each distinct in an evolving society to participate in financial accomplishments with respect to social development. (Matriano & Rahman Khan, 2017). The significance of big data analytics is how it can be used to identify valuable data by defining patterns, using unique algorithms, techniques, and new project alternatives (Sedkaoui & Moualdi, 2018)(Proko, 2016). One of the social entrepreneurship research agenda outlines by Bielefeld (Bielefeld & Wolfgang Bielefeld, 2009) is creativity and innovation, which can be utilized with the growth of big data. Big data thru the ability of big data analytics have the potential to change the ways in how entrepreneurs and other stakeholders make decisions (Shamim et al., 2019) (C. Lin & Kunnathur, 2019). Big data analytics refers to techniques and methodologies aimed at transforming large amounts of raw data for analytical purposes (Premkamal et al., 2019). Big data analytics surely assist entrepreneurs that lack skills, data, or information systems to conduct the analysis needed to optimize their business (ur Rehman et al., 2019)(Amankwah-Amoah & Adomako, 2019).

The researchers performed a systematic literature review (SLR) to solve research questions (RQs) proposed in this study. The SLR method helped guide research in identifying, evaluating, and synthesizing the current body of researchers, academics, and professionals' works. (Crucke & Decramer, 2016). It is a precise, clear, and detailed way to find reliable and related articles to answer the RQs produced for this research (Kitchenham, 2004) (Kitchenham et al., 2009). The researchers then present a thorough literature review based on a review of chosen empirical research from high-impact journals from the 2010-2019 period. The objectives of this study were to review on how big data needs in social entrepreneurship.

This paper produces the results of the SLR findings. This study has the following main contributions:

1. This SLR provides the challenges of social entrepreneurship dealing with in the area of big data technology.
2. This SLR analyzes the relationship between social entrepreneurship and big data analytics in business nowadays and how big data needs for social entrepreneurship.

The advantage of this SLR is that it shows the effect of social entrepreneurship in society and provides insights into how big data needs social entrepreneurship. This SLR study also provides reviews of big data in social entrepreneurship and enhancing readers' knowledge.

Table 1. Definitions of social entrepreneurship

Social Entrepreneurship Definition	Authors
Non-profit organizations through business operations in search of new financing strategies	(Boschee & Mcclurg, 2003), (Dwivedi & Weerawardena, 2018)
Create innovative approaches to solve social issues and mobilize the ideas, capabilities, resources and social arrangements needed for sustainable social change	(Alvord et al., 2004a), (McMullen & Bergman, 2018), (Choi & Majumdar, 2014)
As the establishment of businesses to serve the poor	(Saebi et al., 2019)(Searles et al., 2019)(B B. & P Dharma, 2019)
Enterprise activity with a social purpose integrated	(Matriano & Rahman Khan, 2017), (Douglas & Prentice, 2019)
Set of institutional practices that combine the pursuit of economic goals with the pursuit and encouragement of material and terminal value	(Liu et al., 2014)(Gudivada & Tabrizi, 2020)
Use of social developments to address social issues and bring about social change regardless involves business operations	(Liu et al., 2014), (Aquino et al., 2018)
Social entrepreneurship as non-profit organizations in search of alternative financing strategies for the creation of social value	(Austin et al., 2006), (Javed & Yasir, 2019)
Social entrepreneurs are individuals with innovative alternatives to the most important social issues facing society. They are both visionaries and ultimate realists, concerned above everything with the practical realization of their vision.	(Balambika, 2013)(Gupta & Gugulothu, 2018) (Kaushik & Gandhi, 2019)(Din et al., 2018)

BACKGROUND

This section will provide a general summary of the concept of social entrepreneurship. Previous researchers have introduced different definitions of social entrepreneurship. This section also highlights the social entrepreneurship development that started in the nineteenth century.

Social Entrepreneurship: Concept and Definitions

Social entrepreneurship is an attempt to develop a business model that solves present societal problems. (Kostetska & Berezyak, 2014)(S. Dutta, 2019)(Vallaster et al., 2019). There are many social entrepreneurs emerging nowadays. The purpose of the kind of business is not only to make a profit, but the main intention of the business is to generate social goods for society (Saifan, 2012)(Hadad, 2017a). The outcomes of social entrepreneurship are different from conventional entrepreneurship. The model and measurement of its impact also different. Conventional entrepreneurs typically measure their performance based on their profit-making and return, but it different from social entrepreneurs where the main concern of their business is for return to society (Dehtjare & Riashchenko, 2015) (Hadad, 2017b). Although entrepreneurship research has grown since the 19th century, there seems to be no standardized and clear definition of social entrepreneurship. (Hadad, 2017b)(Aliaga-Isla & Huybrechts, 2018). Table 1 shows the definition of social entrepreneurship from research in the early year of 2000 until recently.

Although social entrepreneurship has many definitions, the main ideas stay the same. The idea is included in all of the definitions, which the main idea is to address social issues (Pappas et al., 2017)

The Evolution of Social Entrepreneurship

Social entrepreneurship development started in the nineteenth century. The social entrepreneurship development emerged at a very low rate. Social enterprise then emerges steadily starting in the year of 1990s and above. Figure 1 shows the evolution of social entrepreneurship that was adapted

from the Institute for Social Entrepreneurs (2008) "Evolution of the social enterprise industry: A chronology of key events" (August, 2008). Up until the year, 2015 and above, social entrepreneurship starts to play in the area of big data analytics. The role of big data in multiple areas, which are from information systems, computer and information sciences, management, and social sciences, is becoming clearer. (Constantiou & Kallinikos, 2015)(Pappas et al., 2017)(Buganza et al., 2020). Big data evolution is supported by the growing adoption of artificial intelligence (AI) and the Internet of Things (IoT) that related to mobile devices and sensors, social media, and artifacts (Yang et al., 2019)(Lau et al., 2019). "Big data" refers broadly to the growing amount of data and the ability to use it in a useful and productive way (Pantano et al., 2019)(Editors et al., 2019). Social innovation in social entrepreneurship is based on the power of big data that they have. The need to exploit big data's potential remains to be fulfilled (Pappas et al., 2017). Big data's value is clear in addressing complex technical and business issues (Shorfuzzaman, 2017)(Portela et al., 2016)(D. Dutta & Bose, 2015) there is still insufficient work on the social value of big data and how well big data can be used to tackle complex social issues. (Agarwal & Dhar, 2014). In detail, data is still extremely unstructured and mainly restricted to numbers as compared to other types of data (Pappas et al., 2017)(Rao et al., 2019)(Senekal & Kotzé, 2019).

Big data requires a deliberate and systematic approach to social innovation, as it will give social entrepreneurs social value and competitive advantage. Although entrepreneurs may have different methods to engage in social innovation (S. Zhang, 2019), providing a holistic and coherent strategy will serve as a path that will improve their chances of effective social solutions. Therefore it is essential to know the circumstances that led to effective solutions, along with the strategies, tactics, and concepts of change (Cajaiba-Santana, 2014). It is critical to combine perspective from entrepreneurs and policymakers and to enhance it with current information on social innovation and the use of big data for social good (Trabucchi & Buganza, 2019).

METHODOLOGY

A systematic literature review aims to evaluate and highlight the literature relevant to the research topic by applying a methodology. This study has embraced Kitchenham's proposed methodology (2004) because the finding and selection of papers on a particular topic are well organized and suggest a step-by-step process. In addition, the SLR technique also specifies that there should be RQs to assist researchers in finding the relevant research papers Based on Kitchenham (2004), Systematic literature review includes several operations classified into three primary stages (1) planning the review, (2) conducting the review, and (3) reporting the review.

Planning the Review

Identifying the Need

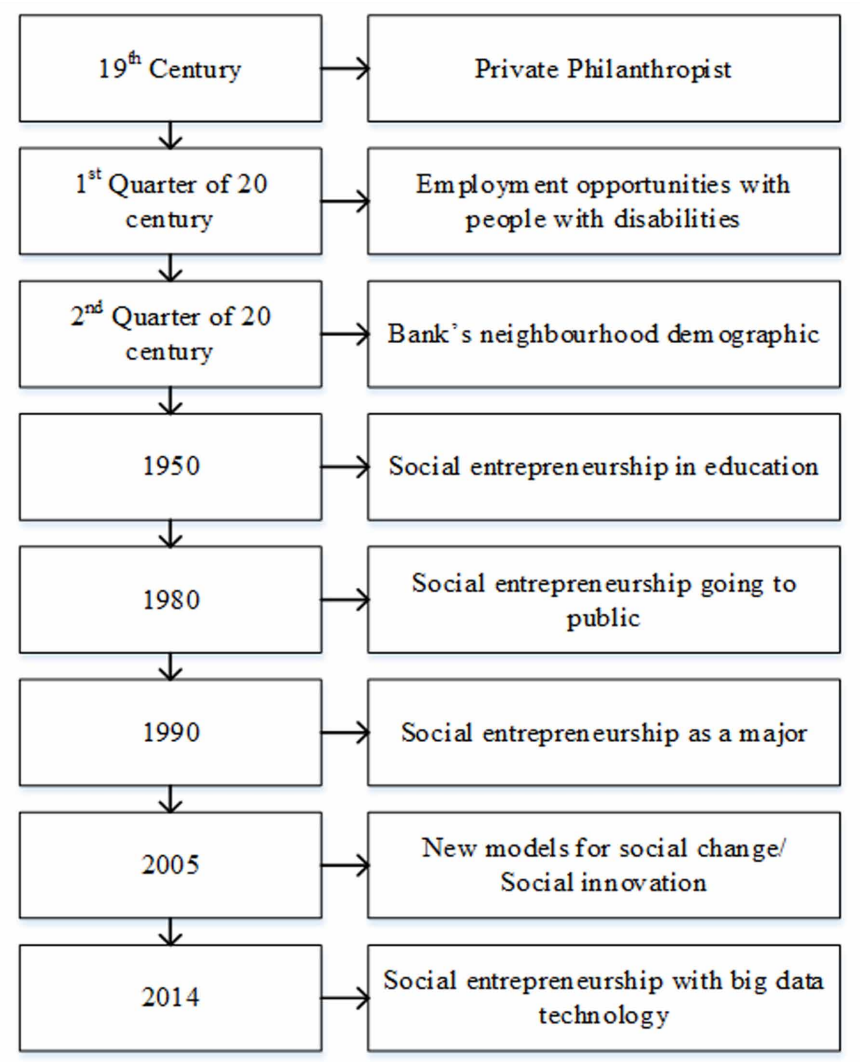
Based on previous section, there is a need for studying the trends of social entrepreneurship so that social entrepreneurs can adapt to the challenges that will happen in the future. Therefore, three research questions have been structured in this study.

Research Questions

The research questions that these study addresses are:

RQ1. What are the challenges of social entrepreneurship in the area of big data technology?
RQ2. How big data analytics needs for social entrepreneurship?

Figure 1. The evolution of Social Entrepreneurship



Conducting the Review

Conduct the Review

This research was divided into three primary phases: the planning phase, conducting the review phase, and the reporting phase. Figure 2 shows the details of each phase

Search Process

Figure 3 shows the searching process for this systematic review. Seed keywords were used in this process to find the relevant articles. The manual search process has been used for searching the specific paper related to this study. In doing a systematic literature review paper, it requires to conduct a comprehensive literature review to find the evidence for the results based on past studies. Four

Figure 2. Conducting the review process

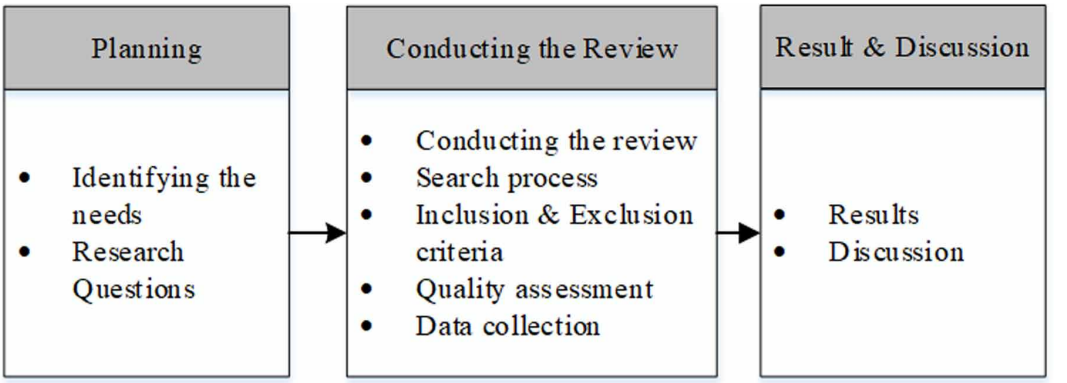
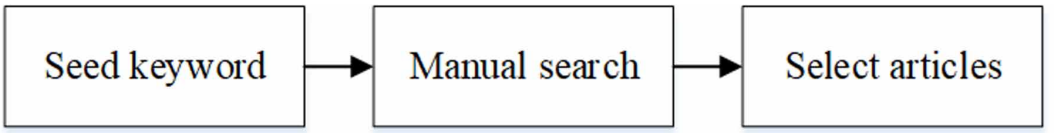


Figure 3. Article searching process



databases were used to collect high impact articles and the justification of choosing the databases shown in Table 2.

The present study selects the research publications that are published within a time frame of 2010 to 2019, assuming that it offers adequate literature related to social entrepreneurship trends and its future challenges. Regarding the keywords used in this search, we employed relevant keywords that included diverse words carrying the same meaning, which referred to "seed keyword" (Jindal and Liu 2008). These are the search queries used in this study:

- Big data AND (Social entrepreneur OR Social enterprise OR Social Entrepreneurship)
- Social impact AND (Social entrepreneur OR Social enterprise OR Social Entrepreneurship)
- Business activities AND social enterprise
- Big data AND Social Impact
- Big data AND Social Impact AND (Social entrepreneur OR Social enterprise OR Social Entrepreneurship)

Table 2. The selected scientific online database

Database	Reason for selection
Science direct	Covers the fields of physics, engineering, science, social sciences, and humanities
IEEE Explore	Covers the technology advancement professional association
Web of Science	provides a comprehensive citation search related to business and professionals
Scopus	Covers the fields of science, art, technology, medicine, social sciences and humanities

Table 3. Inclusion and exclusion criteria

Inclusion Criteria	• Relevant based on the keywords, title, and abstract • Paper that has been published limited to the year 2010 to 2019 • Focus on big data in social entrepreneurship and its future challenges
Exclusion Criteria	• Written in non- English • Not answered the research questions
	• Duplicate articles on the same study • Articles that did not match inclusion criteria

The study then selects the relevant titles, related keywords, and associated abstracts. This process helps us to find the best-matched articles based on contextual search and filtered through the employment of relevant filters. The criteria for searching published material on this topic was also ensured by synonyms words search. For example, "social impact" or "societal impact". This practice validated the extraction of published material very relevant to what was required. The Boolean search criteria also were found helpful.

Inclusion and Exclusion Criteria

The criteria for inclusion and exclusion were used to ensure that only relevant research study is included in the literature search. Periods were selected from 2010 until 2019 because it may be sufficient to see the trends in social entrepreneurship related to big data. Table 3 shows the inclusion and exclusion criteria.

Quality Assessment

The quality assessment has been done in this review by following these criteria:

- Only related articles were selected based on its title, keywords, or abstract.
- No duplicate articles of the same study

Data Collection

The data extracted from each study were:

- Articles years
- Articles keywords
- Full references (journal or conference)
- Summary of the study
- Research questions/issue

RESULTS AND FINDINGS

Findings

This section describes the findings of the systematic literature review. The goal of the selection process, as highlighted in Section 3, was to define as many appropriate papers as possible for the systematic literature review. With the help of common string searches, the study could fetch a total of 14411 research articles. The study then adopted the proposed criteria discussed above to filter the confined and required material for seeking high-quality articles, as shown in Figure 4.

The first step of the execution process is finding any relevant articles regardless, the second step taken in eliminating irrelevant papers based on the inclusion and exclusion criteria, as shown in

Figure 4. Systematic literature review (SLR) execution process

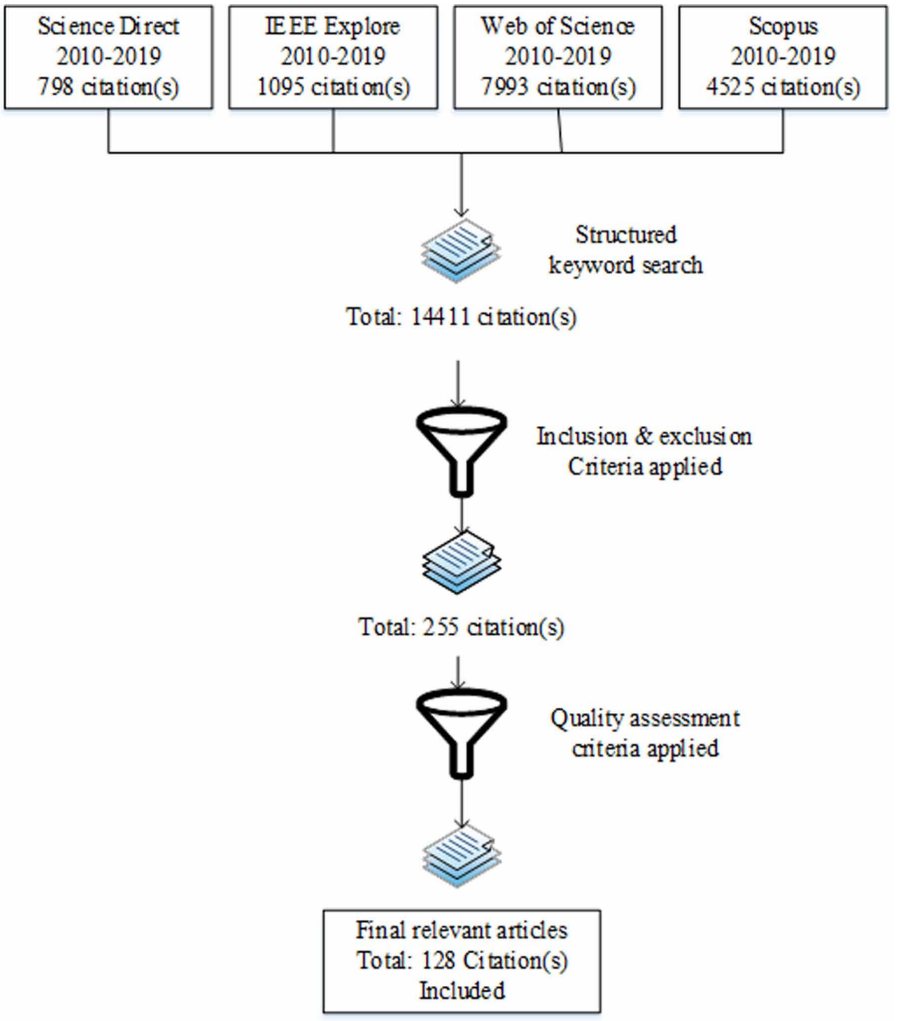


Table 3. In this step, the papers are screened against those that do not match what is needed. Once that is done, researchers look into the inclusion criteria. In this case, we search for papers published between the years 2010 to 2019 and based on the abstract that is most relevant to this SLR study. The remaining papers were then filtered in the final step which is using quality assessment, which reduced the selection to 128 relevant papers. These researchers agreed to review 128 relevant papers in this SLR study.

Results and Discussions

This section provides the findings based on the research question discussed in previous section.

RQ1: What are the Challenges of Social Entrepreneurship in the Area of Big Data Technology?

Various challenges remain in society, and many ways have been made to find a solution to the employment problem. While attention has been paid to technical and economic developments, further

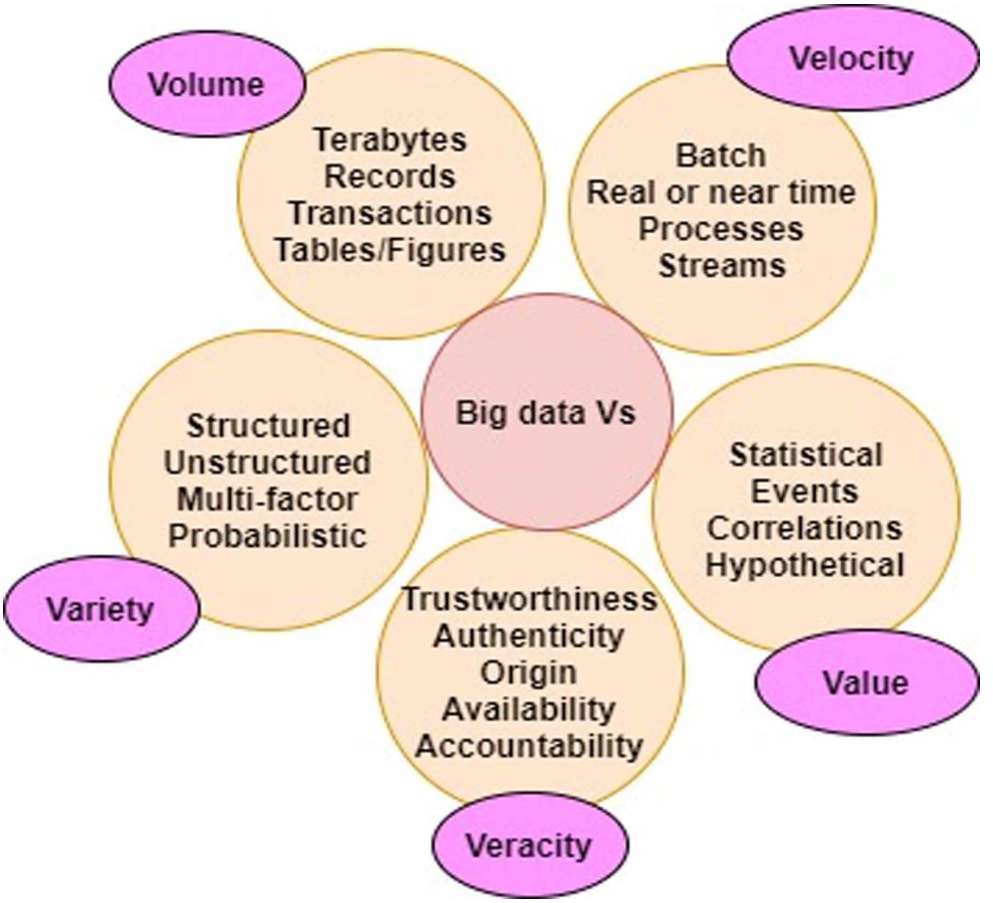
research is still needed to address present social issues and bring about social change (Pappas et al., 2017). Social innovation is a good attempt to bring about social change (Deiglmeier et al., 2008). The challenge is to exploit big data's power to enhance social innovation. Nowadays, more and more social enterprises adopting big data analytics to enhance their business in the context of their risks and performance (Dubey et al., 2019) (Njuguna & McSharry, 2017). They implement data analytics tools to collect, store, manage, and analyze their large datasets. The potential for innovation through data uses and analyses exists, but it should be noticed that there are some challenges to overcome. The difficulties faced by social enterprises are that it is very complicated in many ways compared to those traditional enterprises, because they are easier to exploit big data. So, being a social enterprise is challenging because they required to acknowledge the significance of investing in big data analytics, Social enterprises need to tackle some difficulties in the context of five big data features, which are Volume, variety, value, velocity and veracity, in order to tackle the value from big data. Figure 5 shows the five characteristics of big data.

- **Volume**: Volume relates to the Volume of data a company collects. The Volume needs storage, memory, and computer capacity, and it requires access to cloud computing (Sedkaoui & Moualdi, 2018). In big data, Volume is the big data's most significant feature. Big data must be used to obtain significant knowledge from it. Moreover, according to Demchenko et al., (Demchenko et al., 2013), they stated that Volume is one of the important characteristics of big data, The specific requirements and tools that have been used along with the traditional technologies currently overcome one main issue. The issues are incompatible with IT infrastructures and data architectures. Social entrepreneurs should be able to collect, evaluate, and obtain helpful information from available data in order to benefit from it (Sedkaoui, 2018)(Arun Kumar & Venkatesulu, 2019)(Panigrahi et al., 2019).
- **Velocity**: Velocity relates to the time or speed of processing of big data. Velocity is most related to Volume, as it refers to the rate of the data to be generated and process (Demchenko et al., 2013). Some operations are very crucial and require instant reactions, so fast processing maximizes the effectiveness (Lokhorst et al., 2019)(Benny et al., 2016).
- **Variety**: Variety relates to the type of large data. This data may be in the form of structured or unstructured data. The analysis of these data types can bring new solutions or social innovation for social entrepreneurs. The various type of data makes the development of algorithms that can tackle these various types of data difficult (Sedkaoui, 2018)(Traina et al., 2019)(Moharm et al., 2019).
- **Value**: Value refers to the advantage of the data; the advantage of the data can contribute to the proposed process, activity, and predictive analysis. Advanced technologies nowadays can be used in analyzing big data (Waller & Fawcett, 2013). Big data analysts usually process data and try to make sense of data and produce something that will become beneficial to the company (Ghasemaghaei, 2019)(Mamonov & Triantoro, 2018)(Yu & Yan, 2018)(Stergiou, et. al., 2021).
- **Veracity**: Veracity of Big data refers to information accuracy. This guarantees that the information used is trustworthy, genuine, and reliable from the correct source. Therefore, it is very crucial for the future to find the correct correlations in big data. The main important key to big data is to exploit the available data in order to generate new and valuable information (Sedkaoui & Moualdi, 2018)(Jena, 2019)(Younas, 2019).

The most challenging part for social entrepreneurs is the difficulty of data collection, security, analysis, and how these data can be turned into useful information. This can be done by identifying data patterns, generating new algorithms, tools, and addressing social issues with new alternatives. These several issues need to be addressed in order to take complete advantage of big data.

RQ2: How Big Data Analytics Needs for Social Entrepreneurship?

Figure 5. The five characteristics of big data

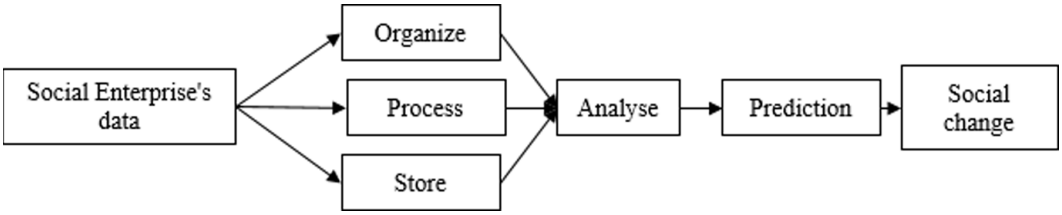


Enhance Social Innovation with Big Data

Big data has become a hot topic nowadays (Rodrigues et al., 2019). The most significant things that help big data are mobile devices, sensors, social media, artificial intelligence (AI), and the Internet of Things (IoT). We can vet that Big data analytical tools and methods are more popular, also due to the use of big data in businesses (Williams & Nadin, 2011)(Mervis, 2015). A variety of companies are producing a huge amount of data, and this provided them new opportunities in seeking excellent business effectively (Osses et al., 2017)(Asghar et al., 2015). An enhanced business decision making was made possible employing Big

data for creating and achieving business goals and opportunities (Duan et al., 2019)(Akter et al., 2019)(López-Robles et al., 2019). Many companies are trying to experiment with techniques that enable them to gather a great amount of data to determine whether there are hidden patterns of data that may be useful to them (Ren et al., 2019). Big data carries the required potential to give many impacts in business, such as generating more income while decreasing risk and predicting future results with higher confidence at low prices (K. Zhang et al., 2019). Social entrepreneurs should learn that big data can not only be addressed by traditional entrepreneurship, but they also have the opportunity to use big data analytics to obtain valuable information and attain social impact using the

Figure 6. Big data analytics in social entrepreneurship



power of big data. Figure 6 shows how big data are managed in social entrepreneurship and can be analyze and bring out social change. Social entrepreneurship needs to evaluate its big data to achieve a social change and sustainability of their business (Pappas et al., 2017).

Based on (Aquino et al., 2018), there are the various potential of big data in social entrepreneurship. It really helps companies to create better decisions in order for the companies to run effectively and efficiently. This importance includes:

- To analyze the unstructured social data,
- To reduce infrastructure cost and response time, and
- Leads to the fast prediction that leads to time and cost
- Big Data Analytics & Prediction for Social Entrepreneurship

Most of the companies in the world have grasped the knowledge as a useful and beneficial resource. The companies run business by analyzing the public data to promote and expand the business (McMullen & Bergman, 2018) (Douglas & Prentice, 2019). Big data analytics is profoundly related to the potential of data because data are valuable material that IT tools harness it (Nafis & Awang, 2018). There are different types of data, whether it is structured, semi-structured, or unstructured. The power of big data analytics and their applications can no longer be proved. The advantages of big data analytics to their businesses have been known to most industries. Big data has new issues concerning Volume, velocity, and variety of data. Knowing that big data means dealing with large amounts of data that are greater than previous data at a greater speed (velocity) and integrating with a large number of data types (Alvord et al., 2004). Big data's value is the ability to identify useful data and make it useful by identifying patterns, exploiting new algorithms, tools, and new project solutions. 'Big data' is the word, which justifies a data analysis revolution (Ku-mahamud, 2013). Big data provides the ability to process and evaluate all data types using big data analytics tools in their original form. The case of many companies' experiences illustrates that data can give valuable benefits for almost all of the business areas. The key to success for a business is to turn data into information and then turn that information into knowledge. Therefore, data in itself is not a power; it is how we make use of the data makes the data have power (McMullen & Bergman, 2018). Big data is about effectively collecting, analyzing, predicting and using data and gaining advantage from it.

Implication of big data on social entrepreneurship have also been identified by (Ge et al., 2020; Huang et al., 2019; Iftikhar & Khan, 2020; C. K. H. Lee et al., 2020; Rialp-Criado et al., 2020). Global social entrepreneurship is the creation of a socially innovative approach that can have massive benefits employing big data. The big data can significantly be aimed at solving societal problems. Social enterprise focuses on social activities which have encouraged a range of learning platforms and fertile environments that have generated individuals to enhance their communities' standard of living. Thus, social entrepreneurship issues and challenges can be addressed by big data concepts and methodologies.

Challenges and Future Research

Big data opens up a number of new social enterprise fields. Most public institutions have comprehended the potential of data analytics. Such companies and institutions generously kept their valuable data publically open so that it could be utilized and analyzed in future research. Such an open-sourcing opportunity helped the enterprises and businesses units in developing innovative solutions in addressing certain social problems. The key point is to think thoroughly about how to transform and evaluate the available data into a form that would help the organizations find useful impacts. The following concepts can help social entrepreneurs to get insights of matter in some interesting manner:

- The social entrepreneurs most commonly learn from data
- They get an understanding of intangible concepts, objects, and matters
- Out of available models, the most appropriate models can be taken
- They can share their new learning based on analyzing existing data
- The efficient utilization of models to seek significant outcomes
- They learn the significant impacts based on their understanding of data and outcomes
- They also learn how to enhance social innovation by exploiting different methods, techniques, and technologies.

Since big data rise in the social entrepreneurship field, the following are the challenges of big data in social entrepreneurship:

- The most study focuses solely on solving technical and business problems. There is a lack of research to exploit the potential of big data to find innovative social solutions (Pappas et al., 2017)
- The social value such their data and its analytics is still lack in research (Agarwal & Dhar, 2014)
- The need to make use of the potential of big data remains to be fulfilled (Desouza & Smith, 2014)
- The value of big data is clear to solve complex business problems (C.-J. Lin & Chen, 2016)
- Based on social problems, data are still unstructured, and social entrepreneurship data are still limited in numbers (Desouza & Smith, 2014)

CONCLUSION

To sum up, we have undertaken this review as an effort to provide scholars view on the global social entrepreneurship impact. This paper has studied global social entrepreneurship within the context of big data in nurturing social impacts. As we know, big data plays an important role in business, but the problem of social entrepreneurship mostly does not focus their business on big data and analytics. Even until now, they still got social entrepreneurs that do not capture their data, and this has led to a lack of research in this field. They just run their business without capture and make use of their data. Social entrepreneurs perceive that big data and its analytics are very important for their future sustainability. The next limitation is related to social impact, where some researchers distinguish between social impact and economic impact as a totally different impact, but some researchers recognize economic impact could be under social impact because of its mission and the overall effect of business. Future research in this area could profitably look beyond the difference and similarities of economic, social impacts and to study the overall perspective on both impacts. Other suggestions are to focus on that social entrepreneurship that has successfully utilized the big data and analytics in their company. This paper aimed to investigate the potential of big data in global social entrepreneurship. It examined the possibility of global impact of big data in social entrepreneurship. As an outcome, this paper addressed the challenges of social entrepreneurship dealing with, how they tackled globally, big data in social innovation, and how big data analytics needed for social entrepreneurship towards achieving social goods and sustainable change.

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