DATA PHILANTHROPY IN SOUTH AFRICAN ORGANISATIONS: ATTITUDES, READINESS AND PERCEIVED CONCERNS

Kungela Mzuku and Jean-Paul Van Belle
University of Cape Town, Private Bag, Rondebosch, 7701, South Africa

ABSTRACT

This article presents a qualitative research study which explores the emergent phenomenon of Data Philanthropy in South African corporate organisations. The main research objective is to investigate the corporate attitudes towards Data Philanthropy in the South African banking, retail and telecommunications industries. In particular, the study examines of the willingness, preparedness and concerns of corporations in respect of using their data and supporting data analytical technologies for social good, their chosen level of engagement in corporate social responsibility. Also investigated was and their willingness to change their current engagement to one that requires more efforts and tools to implement. The study includes a review which exposes gaps in literature that the research analysis and discussion will aim to uncover. The study used an inductive approach using thematic analysis. Four main organising themes are used to analyse the data which was collected through interviews namely Corporate Social Responsibility, Willingness, Preparedness and Concerns. A remarkable diversity in detailed sub-themes was uncovered for each of the main themes.

1. INTRODUCTION

Enterprises have access to vast amounts of data which is collected from customers on a day-to-day basis that can be useful to address problems that societies face today (Coulton, George, Putnam-Hornstein, & de Haan, 2015). Sharing this data, and sometimes also their own technical and human resources, with selected academic researchers and non-profit organisations for the purpose of data analysis in aid of social development, is known as data philanthropy. Data Philanthropy is a new form of Corporate Social Responsibility (Soldner,

2016). It was brought into light by the United Nations Global Pulse to combat the United Nations Sustainable Development Goals (Global Pulse, 2015).

The main research objective of this research paper is *to explore the corporates attitudes that corporations in South Africa have towards Data Philanthropy*. It will look at the level of willingness, preparedness as well as highlight the concerns that corporations have with regards to implementing Data Philanthropy. A sub-objective of this research is to explore *the level of involvement that corporations are willing to take on for social good*.

This research paper is significant in the field of information technology as it will help raise awareness about Data Philanthropy as a new phenomenon in South Africa. Apart from awareness, this research brings into light how corporations can use their data and resources to help South African communities in a more efficient way. It was revealed recently that more than 50% of South African citizens are living in poverty (Statistics South Africa, 2017). Ending poverty is one of the United Nations Sustainable Development goals for 2020 thus new methods, such as collaboration from various stakeholders of the country including but not limited to research institutions as well as private corporations, is needed to find new innovative solutions.

2. LITERATURE REVIEW

2.1 Definition of Data Philanthropy

Data Philanthropy is "*a term which describes a new form of partnership in which private sector companies share data for public benefit*" (Pawelke and Tatevossian, 2013, para. 1). Pawelke and Tatevossian (2013, para. 6) has identified four ways in which corporation could contribute towards Data philanthropy, namely
1.   "Share aggregated and derived data sets for analysis under non-disclosure agreements (NDA);
2.   Allow researchers to analyse data within the private company's own network, under NDA;
3.   Real-time data commons: data pooled and aggregated between multiple companies of the same industry to protect competitiveness;
4.   Public/private alerting network; companies mine data behind their own firewalls and share indicators."

Some perceived risks of sharing data include "*weak security systems in developing communities, uncertain legal and regulatory environment, loss of competitive advantage and damage to shareholder relationships*" (World Economic Forum, 2015, p. 10). Although the data has the capability of being anonymized which means that it will not be linked to any person thus having the potential to answer questions that may bring value to the human population (Wolfe, Gunasekera, & Bogue, 2011).

Although data philanthropy appears to be similar to Open Data, it is important to understand that open data can be universally accessed and re-distributed; this is usually *not* the case for data released by corporate data philanthropists.

Although Pawelke and Tatevossian (2013) have identified above the various ways to engage in data philanthropy, Susha, Janssen, and Verhulst (2017) specify a clear difference in

the way the data is shared amongst the corporations as well as the various ways in which it is used. Sharing data through collaboration requires one to consider the kind of data being shared, the actual contents of the data, how administrative the data is, where the barriers of access are. Additionally, how the data is used is dependent on the project objectives and the purpose of the project.

Literature brings into the light what is required from the corporations side in order to solve problems that could help the community using technology, skills and tools. Security is a concern due to weak security systems. Another relevant constraint is the South African Protection of Personal Information (POPI) Act which applies to all South African institutions *"that collect, store, process and/or disseminate personal information as part of their business activities"* (Bruyn, 2014, p. 1315).

2.2 Resources Used to Support Data Philanthropy

In order to adequately perform projects that involve big data, skills in data management and storage are needed. These skills include being able to analyse data and measure results effectively, present data visually, build a result-oriented database can be well utilized with the help of data experts such as data scientists are needed to perform projects which involve big data (Lucente, 2017). Data Philanthropy often includes the sharing, not only of data, but also of the necessary skills to analyzie the data.

Apart from skills, various technical resources can be used to support Data Philanthropy. Social media can act as a platform for information collections, sharing and coordination in the face of disasters (Open Data Institute, n.d.). Although this is one of many, there is no set method or process to implement Data Philanthropy (Pawelke & Tatevossian, 2013). The United Nations Global Pulse expressed that they are in need of what they call a Data Philanthropist. This includes *"research and technology partners that will help design projects and build prototypes to test new tools"* as well as their need for Data Specialists that would be able to train new staff as well as financial support"* (Kirkpatrick, 2013, p. 2).

2.3 Data Philanthropy as a Means of Measuring the SDGs

Data philanthropy as a concept originated from the United Nations wanting to change the future of development work using big data (Kirkpatrick, 2013). It was believed that the data signals which corporations held within their data could help combat the United Nations Sustainable Development goals which include goals such as no poverty, zero hunger, reduce inequalities just to mention a few (United Nations, 2017).

"Those who hold the data increasingly have the power to intervene, or to inform intervention" (Taylor & Broaeders, 2015, p. 231). Basu, Simon, and Wildfeir-Field (2016) wrote about three ways in which corporations can work towards contributing to the United Nations Sustainable Goals. Firstly, investing in projects that aim to improve access as well as environmental and social sustainability through engaging with the public sector and implementing Corporate Social Responsibility (CSR) projects that are targeted at the most vulnerable. Secondly be open to working with organizations from different sectors and geographical areas. Thirdly through using effective measurements and accountability to their CSR projects as they do projects which are part of the core business functions. Data

Philanthropy can be seen as a form of Corporate Social responsibility that the private sector can adopt using the resources and data that they already possess (Soldner, 2016).

Thus, the private sector is encouraged to help the United Nations reach their goals. However, there is scant if any academic research that has investigated the level of involvement to which the private sector is willing to assist. This informed the major research objective of this paper.

2.4 Data Philanthropy in Practice

Data which is collected by the Telecommunications industry is amongst that which is suitable for Open Data projects because it can be collected systematically, it covers large proportions of the population, it contains rich information about individuals and it can be merged with data covering diseases in a specific area (Tomsu, Eggermont, & Snel, 2016). Table 1 blow shows the various case studies that involve Data Philanthropy and it is important to note the use of mobile data in the cases.

Table 1. Notable data philanthropy case studies

Author	Year	Country	Company	Focus (Impact) Area
Bloomberg Philanthropies, 2017	2017	Worldwide	Bloomberg	Public Health – Obesity prevention, Tobacco control, Road Safety, Maternal and Reproductive Health, Drowning Prevention Program
Open Data Institute, n.d.	2016	Indonesia	Open Data Institute	Open-source flood map in Indonesia.
Nielsen, et al., 2017	2014-2015	Brazil	UN Global Pulse,	Analyzed social media data from Twitter which was used to inform communication campaigns to focus their target to HIV/AIDS work which increased the number of HIV tests done in the region.
Aimia, 2017	2014-now	United Kingdom, Canada	Amia	*"The company's data analysts gave more than 10,000 hours of their time to work with more than 40 charities in the UK and Canada"*
Global Pulse, 2015	2015	France, Senegal	Orange	Allowed their mobile data to be analysed for patterns to combat climate change. Orange has also offered their skills to manage the data.

2.5 Corporate Social Responsibility

As mentioned above, Data Philanthropy is a form of Corporate Social Responsibility (CSR). Corporate organisations carry out Corporate Social Responsibility for various motives which include those that are value-driven and connected to the culture that the corporate upholds, those that are stakeholder-driven which are driven by the expectations of the stakeholders of the business and those that are performance-driven and are for financial gain (Carroll, 2016). Ali, Frynas, and Mahmood (2017) found that developing nations were more prone to pressure from external stakeholders such as foreign investors, international buyers and the media to practice Corporate Social Responsibility within corporations as opposed to developed nations where the pressure is from the public. Additionally, external factors can include government,

activists as well as competitors but little attention has been given to the internal pressures (King & McDonnell, 2012). The level of CSR that a firm decides to engage in is dependent on the size, level of diversification, research and development, advertising, government sales, consumer income, labour market conditions and their stage in the industry life cycle (McWilliams & Siegal, 2001).

There is a gap in literature when it comes to the attitudes that individuals in management feel towards conducting CSR. The Johannesburg Stock Exchange requires an integrated report (Johannesburg Stock Exchange, 2014), which means companies must conduct some form of CSR.

The United Nations found that the only companies that were most open to hearing about data philanthropy were those that understood that data philanthropy is not a charity rather it is vital for the well-being of the community in order for the business to continue doing business in that community (Kirkpatrick, 2013). In light of this requirement, if it was not there, would South African corporations still invest in CSR? This paper will aim to find out the following question: *"What are the attitudes towards Corporate Social Responsibility in South Africa within the Telecommunications, Retail and Banking Industry?"*

There are gaps in literature which raised questions that this study will aim to answer. By doing so study could further aid into research for IS researchers and practitioners. Understanding the willingness, preparedness, capabilities and attitudes towards this phenomenon could help researchers to find better ways to carry though the projects in various organizations in the Retail, Telecommunications and Banking industry.

3. RESEARCH METHODOLOGY

This study adopted a exploratory approach to the collection of qualitative data. This allowed for an in-depth exploration of corporate attitudes with regards to data philanthropy for social good. Selecting qualitative data helped create a holistic picture of the concerns as well as the level preparedness and willingness of the organisations.

Face to face semi-structured interviews were conducted. Background research was conducted prior to the interview to ensure that the interviewer was familiar with the organisational context. This background research looked at company public reports (e.g. annual, financial, or sustainability reports), news articles, relevant company blogs and company social media feeds. This helped with regards to asking questions that the interviewee may have deemed as "obvious". It also allowed for the researcher to have an in-depth idea of the environment of the participant and the organisation they were set to interview. The following positions within the organisations were targeted for the interview: Chief Digital Officer, Chief Information Officer, Data Scientist, Data Scientist Team Leader, or Head of Corporate Social Responsibility. Only participants knowledgeable in technology particularly data science, corporate social responsibility/investments were approached as they are the ones who would have been able to provide a perspective on the phenomenon.

If a participant was not able to take part in the interview due to unavailability or location, a telephonic interview was scheduled. Participants received questions and a short video describing Data Philanthropy beforehand to give them time to prepare for the interview. A sample size of 9 organisations was targeted because the nature of the study which requires in-depth verbal data. Unfortunately, during the course of the research phase, only 5 companies

available. One interviewee was available in each company, occupying various positions in all of the industries targeted by the interviewee.

This study followed a thematic coding approach in this research. Thematic coding is a method used to label concepts and categorize them accordingly. Additionally, axial coding was used which is a systematic way of discovering the relationships among themes through relating "categories with their subcategories, test the relationships against data, and test the hypothesis" (Cho & Lee, 2014, p. 8). Both the transcribed text and observation notes were used in the coding process. The thematic analysis was conducted after each interview as "it offers an accessible and theoretically flexible approach to analysing qualitative data" (Braun & Clarke, 2006). The following steps were followed: familiarising with the collected data, generate initial codes, search for themes, review themes, define and name themes, and produce the report. nVivo software was used to conduct the analysis.

4. RESEARCH FINDINGS, ANALYSIS AND DISCUSSION

As mentioned in the research methodology, an inductive approach was used. Upon exploring literature, various themes emerged which helped frame the main research questions that this project aimed to answer. A thematic analysis was used to analyse the data which was collected in this research paper (Braun & Clarke, 2006). The research findings are organized by the research questions which stemmed from the research objectives. The findings will be grouped by Corporate Social Responsibility, Preparedness, Willingness, Concerns and additional themes that arose from the study.

The following section details a list of companies who participated in the study.

Table 2. Organisations that participated in the interview

Company	Number of Employees	Industry
A	22	Mobile-to-Mobile, Telecomms
B	10 000+	Banking
C	160	Telecommunications
D	10 000+	Retail
E	10 000+	Banking

The research questions that this study explored revolved around willingness, preparedness as well as the concerns around Data Philanthropy. There were various gaps found in the literature which did not cover the following questions;

1. What are the attitudes towards Corporate Social Responsibility by South African corporations?
2. What level of involvement are South African corporations willing to take on for social good?
3. What is the level of knowledge that South African corporations have about Data Philanthropy?
4. What concerns do corporations in South Africa have towards participating in Data Philanthropy?

4.1 Attitudes towards Corporate Social Responsibility (CSR)

The participants were asked three questions which aimed to find out what CSR initiatives the company took part, if they did, how the projects were chosen as well what important factors were considered in making that decision.

Company A expressed that their participation in Corporate Social Responsibility (CSR) was based on relationships that they have formed with the school which they helped maintain: *"We knew them personally, we use that as a way to get insight to what they specifically need and we try to respond to that directly"*

Company B expressed that CSR was mandatory within the organisation and thus the following policy was implemented to ensure that all employees took part in the initiative: *"Each department gives feedback that goes up the ladder. Feedback of what you done during the year and project plans for next year"*

Company D stated that there were a number of projects that employees were encouraged to participate in throughout the year, although when asked of participation, the participant responded with: *"I haven't even got a chance to see what is where"*.

Company C on the other hand, has been involved in the field of Data Philanthropy (DP) for the past recent years. Upon justifying why they had taken part in the DP, their response was as follows: *"There was a need for people to do this type of work so people were coming to us"*.

In summary, the following themes emerged.

Table 3. Themes around Corporate Social Responsibility

Company	Summary of Theme
A	Relationship-based
B	Mandatory
C	Need
D	Mandatory
E	Mandatory

4.2 Preparedness

The second research question was: "What is the level of knowledge that South African corporations have about Data Philanthropy?" In order to answer this question, the participants were asked three questions which aimed to find which technologies the companies currently made use of, what the main uses of the data is as well as if the company was looking to hire any additional skills.

With regards to preparedness and capabilities on taking part in Data Philanthropy (DP), Company A stated that they lacked the skills and thus have been looking into hiring graduates to take on the roles of Data Science.

Company B stated expressed that they had a shortage in the skills required to perform data demands in the company and thus the current team is overworked: *"The team is like way overworked because there such a big demand and a lot of the stuff that we've been doing for the past year it's just basically putting out fires really or just trying to get things in place"*.

In contrast, Companies C and E mentioned the shortage of skills that they had faced although they had created a solution to combat this problem: *"We've been taking a whole lot*

of interns as a percentage of our staff in Cape Town and as * said putting them in those training courses, and it's interesting to see when you actually educated then you come to the real world". [Company E]: "*In terms of the specification, it's enough but then in terms of work load yes, we do need to get more people.*"

The following table summarizes the themes which emerged.

Table 4. Themes around Preparedness

Company	Summary of Theme
A	Skills
B	Data-driven, demand, shortage of skills
C	Stakeholders, training
D	Enough skills
E	Profits, costs, revenue, shortage of skills

4.3 Willingness

The third research question looked at what level of involvement South African corporations were willing to take on for social good?

The participants were given six various questions which aimed to find out what they thought of the Data Philanthropy concept, how much resources would the organisation be willing to set aside for Data Philanthropy and whether they thought the initiative was important.

Company A expressed that they would be willing to take part in a Data Philanthropy (DP) initiative only if a favourable environment existed. Should the environment not exist, the company will not partake: "*...so long as where it gets shared is open, transparent, accountable and responsible. Otherwise, you know, no.*"

Company D proclaimed that due to the nature if the business, regulations which the South African Government imposed on the industry make it very hard to participate in DP: "*it there's a lot of regulations that come in it especially when you're dealing with medicine, so I don't know if it's something that I would have time for*".

Speaking on behalf of the organisation, security and usability are the two main components that affected the willingness to participate for Company E. The participant, in their personal capacity however, felt that South Africa would gain in a positive way from the donation of technology skills in the form of hours: "*I think from a personal perspective yes, this is something that is valuable to get these skills out there. From a large corporation perspective, it becomes more difficult because a question mark has been around security and data. There needs to be very strict rules in place already which say how do we manage, how do we do it, what are we sharing, how often, where is it being stored*".

Although security and data were the main factors to be considered, Company E expressed further what their objectives would be should DP be added to the day-to-day business operations: "*The main objective here is to say how do we increase the profitability of the customer overtime, and how do we increase our cost ratio.*"

Thus, the following themes emerged.

Table 5. Most Prominent Themes around Willingness

Company	Most Prominent Theme
A	Use
B	Security
C	Time, resources
D	Regulation
E	Security, practicability, time, profit, decision-making

4.4 Concerns

The last research objective looks at the concerns which South African corporations have towards participating in Data Philanthropy. The participants were directly asked what concerns they had with Data Philanthropy as well as consumer-data related regulations which data philanthropy would affect within their organisation.

Upon being questions about the concerns of which the participant had with Data Philanthropy (DP), Company A highlighted the concerns around the ownership of the data as well as whether the data would provide the value DP so promises: *"The danger of data is being sure about who owns it just to an extent, and then the second extent is this value in data."*

Additional Company B highlighted concerns whether the data is secure and the effects this would have on the customer: *"it's always a bit of a challenge with customer data because for obvious reasons you can't just go ahead and share that"* and *"It becomes very questionable because it provides something public that links to our customer base."*

Security was mentioned again by Company E, in addition to security, Company E mentioned the intended use of the data: *"So one would be security, two also the use. So saying that now we're moving our data we would definitely need to know what they want to do. So simply sharing for the sake of sharing doesn't really mean much in terms of the data. You need to have an objective."*

In addition to security and usability, Company E further expressed their concern for the use of the data thus providing detail as to what form of use the organisation would consider: *"Depends on how do increase the skills, how do you increase the decision making, how do you increase the overall business making of business decisions for our customer"*

Company D expressed time as a concern: *"Yeah I would if it's something that I can easily do I can get involved it's just so busy and I'm the only one there that it's quite hard but yeah it's something that I would do"*

I'm just a little bit concerned about how other companies would take it in terms of the competitive advantage."

Company C highlighted time and skills as factors that concerned the business when they chose to take part in DP. Company C further went to highlight the kinds of skills that were needed to embark on DP, which were not only technical skills: *"these things take lots of time lots of resources and take into account what historically, let's call it the foundation of our skills, and bringing it too this it's a huge change"* [Company C]: *"we had to get lawyers to look at the terms and conditions when you upload the data"*

The following table summarizes the themes which emerged.

Table 6. Themes around Corporate Social Responsibility

Company	Summary of Theme
A	Employee Competency, data ownership, value
B	Security, legacy-systems
C	Regulations
D	Time, competition
E	Usability, Regulations

4.5 Additional Themes

An open-ended question was asked to consider other thoughts that the participants were not asked but felt the need to mention to the interviewer.

Company A highlighted the need to create a favourable environment for Data Philanthropy: *"I think they'll find, they may need to offer more incentive to get people, I mean one would even consider looking at it and making it part of tax credits, philanthropic exercise. So instead of making donations in cash, you get credit, tax credit, bee credits, different forms that people can access."*

Company B questioned the intentions of organisations with regards to customer data: *"I don't understand why people are so secretive over their data but then again it's probably because not everyone is doing it for the better good".*

5. SUMMARY OF FINDINGS BY CASE

Matten and Moon (2008) classified Corporate Social Responsibility (CSR) that corporations undertook into explicit and implicit types. These were used in this section to categorise the forms of CSR performed by each company that participated. To summarize the data which was collected, short case studies descriptions have been created to summarise the thoughts of the various participants in the form of answering the research questions.

Table 7. Summary of findings by company

Company A
- Company A performs implicit Corporate Social Responsibility,
- Receives low levels of publicity
- Only serve Business-to-Business although feels the need to help the community for the greater good.
- Attitude: Open to Data Philanthropy (DP)
- Level of involvement: Willing to share secured data, willing to open platform, willing to donate hours (dependent on the workload at hand), willing to hold the data while being used
- Level of knowledge: Knew about the act but not the name
- Preparedness: Feels they have sufficient resources to facilitate DP
- Concerns: Ownership of data, value

Company B
- Company B performs explicit CSR
- Receives high levels of publicity
- Attitude: Sceptical of Data Philanthropy (DP)
- Level of involvement: None
- Level of knowledge: Did not know about DP
- Preparedness: Has legacy systems thus hard to facilitate modern analytics
- Concerns: Security

Company C
- Company C performs implicit Corporate Social Responsibility,
- Receives low levels of publicity
- Attitude: Open to Data Philanthropy (DP)
- Level of involvement: Willing to share secured data, willing to open platform, willing to donate hours (dependent on the workload at hand)
- Level of knowledge: Currently involved in DP
- Preparedness: Feels they have sufficient resources to facilitate DP
- Concerns: Time, Skills

Company D
- Company D performs explicit Corporate Social Responsibility,
- Receives high levels of publicity
- Attitude: Open to Data Philanthropy (DP)
- Level of involvement: Willing to participate in skills donation
- Level of knowledge: Did not know about DP
- Preparedness: Feels they have sufficient resources to facilitate DP
- Concerns: Time

Company E
- Company E performs explicit Corporate Social Responsibility
- Likes to publicize the Corporate Social Responsibility work they do to as seen on their website (First National Bank, 2017).
- Serves the customer first
- Attitude: Sceptical of Data Philanthropy
- Level of involvement: Currently shares data with the national government, not willing to open   platform to public, not willing to donate hours due to shortage of skills
- Level of knowledge: Knew about openData only
- Capability: Has the technological capability, lacks time and skills
- Concerns: Security, usefulness of data, regulations

6. RESEARCH CONCLUSIONS

The overall objective of the research paper was to explore the corporate attitudes were towards Data Philanthropy in South African Banking, Retail and Telecommunications. The literature review of this paper opened up several questions which were probed through the various participants. In answering the following questions, it was discovered that the companies responded to Data Philanthropy with the same approach used for their Corporate Social Responsibility (CSR). It was also found that in the sample of the study, all large corporations who had thousands of employees performed explicit CSR as opposed to small companies who instead who performed implicit CSR.

Which concerns do South African corporations have towards Data Philanthropy?

Small South African corporations who performed more implicit Coroporate Social Responsibility (CSR) are concerned about the ownership regulations of data, the value that the data will provide to the community and if it will live up to that promise, not having enough skills to participate in Data Philanthropy as well as the limited time available during business operations to dedicate to Data Philanthropy.

Large South African corporations who performed explicit Coroporate Social Responsibility (CSR) are concerned about the regulations around consumer data, security around the data during Data Philanthropy, limited time to perform Data Philanthropy and lastly the regulations and policies which the corporations follow that hinder their freedom to take part in projects such as Data Philanthropy.

What level of involvement are South African corporations willing to take for social good?

Small South African corporations are willing go as far as share data in a secured setting, willing to donate hours and willing to hold the data while being used. Large South African are overall reluctant to be involved heavily in such an initiative.

What are the capabilities do South African corporations lack which would not allow them to easily implement Data Philanthropy today?

South African corporations, both large and small lack the time to as well as the required skills to participate in Data Philanthropy.

What are the attitudes towards Corporate Social Responsibility in South Africa within the Banking, Retail and Telecommunications?

South African corporations both large and small are active in Corporate Social Responsibility, some making it mandatory for their employees to dedicate time to partake in it. Overall South African corporations, specifically those with a high number of employees are reluctant when it comes to taking part in Data Philanthropy due to concerns around consumer data security although the technology and capabilities are available. Small corporations on the other hand in South Africa are more willing to participate in Data Philanthropy but are hindered by the limited skills that they possess and time.

This study was exploratory given the newness of the phenomenon under investigation; indeed most organisations are not aware of Data Philanthropy. Thus only a very small number of organisations could be sampled and their views may not be representative. Indeed, if anything, sample bias means that most companies have even fewer capabilities or less positive attitudes towards Data Philanthropy.

In future, the field would benefit from looking into the specific concerns around Data Philanthropy participation accompanied by situations where South African corporations would and would not participate in Data Philanthropy. It would benefit this study to research whether

introducing incentives to corporations such as tax breaks would incentivize large corporations enough to take part in Data Philanthropy. Both suggestions to future researchers would help provide a starting point for the growth of Data Philanthropy. By finding out what a favourable environment would be to house such an imitative, it could incentivize the South African government to consider modern ways to better service delivery in the country.

REFERENCES

Aimia. 2017. Data Philanthropy. Retrieved May 20, 2017 from: https://www.aimia.com/en/social-purpose/data-philanthropy.html

Ali, W., Frynas, J. G., & Mahmood, Z. 2017. Determinents of Corporate Social Responsibility CSR Disclosure in Developed and Developing Countries: A Literature review. *Corporate Social Responsibility and Environmental Management*, 24 2.

Basu, S., Simon, J., & Wildfeir-Field, N. 2016. *Agenda: 3 ways businesses can help achieve the SDGs.* Retrieved from World Economic Forum: https://www.weforum.org/agenda/2016/02/3ways-businesses-can-help-achieve-the-sdgs.

Bloomberg Philanthropies. 2017. Public Health. Retrieved May 20, 2017, from Bloomberg Philanthropies: https://www.bloomberg.org/program/public-health/#intro

Braun, V., & Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2)) 77-101.

Bruyn, M. 2014. The Protection of Personal Information POPI Act - Ompact on South Africa. *International Business & Economics Research Journal*, pp. 1315-1339.

Carroll, A. B. 2015. Corporate Social Responsibility: The center of competing and complementary frameworks. *Organisational Dynamics*, 44, 87-96.

Cho, J. Y., & Lee, E.-H. 2014. Reducing Confusion about Grounded Theory and Qualitative Content Analysis: Similarities and Differences. *The Qualitative Report,* 19 (32), 1-20.

Coulton, C., George, R., Putnam-Hornstein, E., & de Haan, B. 2015. Harnessing Big Data for Social Good: A Grand Challenge for Social Work. *American Academy of Social Work & Social Welfare*.

Fiegerman, S. 2017. Earnings. Retrieved June 19, 2017, from *CNN Technology*: http://money.cnn.com/2017/05/03/technology/facebook-earnings/index.html

Global Pulse. 2015. Leading Global Businesses, Policymakers Share Commitment to Work with UN to Enable a Data Revolution for Climate Action. United Nations. Paris: Global Pulse.

Johanessburg Stock Exchange. 2014. Retrieved from JSE: https://www.jse.co.za/content/JSERulesPoliciesandRegulationItems/JSE%20Listings%20Requirements.pdf

Kilian, T., & Hennigs, N. 2014. Corporate social responsibility and environmental reporting in controversial industries. *European Business Review*, 26 (1), 79-707.

King, B. G., & McDonnell, M.-H. 2012. Good Firms, Good Targets: The Relationship between Corporate Social Responsibility.

Kirkpatrick, R., 2013. Big data for development. *Big Data*, 1(1), pp.3-4. DOI:10.1089/big.2012.1502

Lucente, I. 2017. Blog: Data Philanthropy - The Analytics Skills for the Community. Retrieved from John Snow Labs: http://www.johnsnowlabs.com/dataops-blog-data-philanthropy-theanalytics-skills-for-the-community/

Matten, D. and Moon, J., 2008. "Implicit" and "explicit" CSR: A conceptual framework for a comparative understanding of corporate social responsibility. *Academy of Management Review,* 33(2), pp.404-424.

McWilliams, A., & Siegal, D. 2001. Corporate Social Responsibility: A Theory of the Firm Perspective. *Academy of Management Review,* 26 (1), 117-127.

Nielsen, R. C., Luengo-Oroz, M., Mello, M. B., Paz, J., Pantin, C., & Erkkola, T. 2017. Social Media Monitoring of Discrimination and HIV Testing in Brazil 2014-2015. *AIDS and Behaviour*, pp. 1-7.

Open Data Institute. n.d. ODI Showcase: Peta Jakarta Real Time Flood Mapping. Retrieved from Open Data Institute Showcase: https://theodi.org/odi-showcase-peta-jakarta-real-timeflood-mapping-jakarta

Pawelke, A., & Tatevossian, A. R. 2013. United Nations Global Pulse. Retrieved from http://www.unglobalpulse.org/data-philanthropy-where-are-we-now

Soldner, M. Writer. 2016. Your company's data could help end world hunger [Motion Picture].

Statistics South Africa. 2017. Poverty Trends in South Africa. Statistics South Africa.

Susha, I., Janssen, M., & Verhulst, S. 2017. Data Collaboratives as a New Frontier of Cross-Sector Partnerships in the Age of Open Data: Taxonomy Developmen. *50th Hawaii International Conference on System Science*, pp. 2691-2700.

Taylor L., & Broaders, D. 2015. In the Name of Development: Power, profit and the datafication of the Global South. *Geoforum,* 64, pp. 229-237.

Tomsu, K., Eggermont, A., & Snel, N. 2016. *Telecom data for efficient malaria interventions. Bloomberg Data for Good Exchange Conference*. New York: Bloomberg.

United Nations. 2017. *Sustainable Development Goals.* Retrieved 10-Oct, 2017 from: http://www.un.org/sustainabledevelopment/sustainable-developmentgoals

Wolfe, N., Gunasekara, L. and Bogue, Z., 2011. *Crunching digital data can help the world*. CNN.

World Economic Forum. 2015. *Data Driven Development - Pathways for Progress.* Retrieved from: http://www3.weforum.org/docs/WEFUSA_DataDrivenDevelopment_Report2015.pdf

APPENDIX: INTERVIEW QUESTIONS FOR MANAGERS.

A semi-structured face-to-face interview was conducted. It contained pre-prepared, open ended questions which usually lead to new questions based on the answers given. The interviews lasted approximately 30-45 minutes. Different interviews were conducted for different participants, depended on their position and the kind of knowledge that they know about the company. The following sample interview questions were asked to manager level individuals or those who hold a hire positions in technolog-based teams.

The interview will be centered on the following themes;
1.   Corporate Social Responsibility (CSR)
    1.1.   What CSR initiatives does the company take part in (Prior to the interview I will look at public records to get the answer but should the company not list any, I will ask this question)
    1.2.   How do you choose which projects to pursue?
    1.3.   In your opinion, what are the 3 main important factors that need to be considered prior to taking on a CSR project?
2.   Preparedness
    2.1.   Which technologies does the company currently make use of?
    2.2.   How familiar are you with Data Analysis/Business Intelligence inside the organization?
        2.2.1. What are the main uses of the data?
    2.3.   Are you looking to hire more skills? If yes, which ones and why?

A short video was then played for the participant: "Mallory Soldner: Your company's data could help end world hunger" which can be found on the following link: https://www.ted.com/talks/mallory_soldner_your_company_s_data_could_end_world_hunger /transcri pt?language=en#t-284930. The video was played from 4:15–5:29 (1 minute 14 seconds). Where the interviews were telephonic, the interviewee was given a brief description of what Data Philanthropy is.

3.   Willingness
    3.1.   After watching this video what do you think of the concept "Data Philanthropy" which was mentioned?
    3.2.   Would it be something that the company would be interested in pursuing (in the long term)?
        3.2.1.   If so, why?
        3.2.1.1. How much resources would you be willing to put aside for Data Philanthropy?
        3.2.2.   If not, why?
        3.2.2.1. If your competitors were to adopt this form of CSR, would that change your mind?
    3.3.   Would you allow a third party to use your data for social good? (Assuming the correct security was in place)
        3.3.1.   Why (not)?
    3.4.   Do you think individuals within your team would volunteer hours to smaller businesses or SMEs that are in need of the skills?
    3.5.   Do you have an in-house made application which you think could be useful in another setting?
    3.6.   In your opinion, do you think Data Philanthropy is important?

4.   Concerns
    4.1.   What concerns do you have around this initiative and why?
    4.2.   With regards to customer data, what privacy related standards and regulations does the company follow?
        4.2.1.   Why those specific ones?
    4.3.   What do you use most of your customer data for?

5.   Any thoughts or questions?
    5.1. Why those specific thoughts or questions?

End of Interview