The influence of lean thinking on philanthropic organisations’ disaster response processes

Keratiloe Mogotsi and Fanny Saruchera
Wits Business School, University of the Witwatersrand Johannesburg, Johannesburg, South Africa

Abstract

Purpose – This paper aims to reveal the philanthropy landscape processes for dealing with disasters and examine the influence of lean thinking in managing philanthropy for disasters. It sought to leverage continuous improvement and maximise disaster response and humanitarian logistics efficiency.

Design/methodology/approach – A sequential quantitative, qualitative research methods strategy was utilised involving data collection with literary analysis and two sets of online surveys with 212 NGO staff members in Malawi, Mozambique, South Africa and Zimbabwe. In addition, in-depth key informant interviews were conducted with 23 staff members at various management levels from these countries.

Findings – The study found that lean thinking had a positive, statistically valid influence at a 95% confidence level. Community incorporation, government support and collaboration with other philanthropic organisations were critical success factors. When lean thinking tools were applied (any tools), philanthropic organisations experienced waste reduction and value addition, where waste reduction accounted for 67% variation, and value-addition accounted for 58%, respectively. These were the same benefits experienced in other industries, thus, justifying lean thinking’s applicability in the non-profit sector. Lean was most helpful about the communication and duplication of efforts challenges humanitarian or philanthropic organisations face when responding to a disaster.

Practical implications – The study equips leaders and philanthropic organisations with suggestions to manage and respond to disasters in a lean and effective manner. The study helps philanthropy leaders rethink their funding and response models to pursue lean policies catering to humanitarian organisations and the communities they serve.

Originality/value – The study closes significant gaps in the literature and practice by adopting a multi-sectoral lens that borrows from business and manufacturing tools into a non-profit context. It enables documentation of processes and logistical management by philanthropy organisations for continuous improvement and elimination of waste to ensure efficiency in the philanthropic role of alleviating the impact of disasters. The study also affirms the need for philanthropic organisations to incorporate community feedback, use lean tools to collaborate with other responding organisations and work closely with the local authorities to fulfil the government’s supportive role: the primary source and executor in disaster response.

Keywords Philanthropy, Lean thinking, Disasters, Humanitarian logistics, Organisation of philanthropy, Southern Africa

Paper type Research paper

Introduction

Catastrophic events originating from meteorological sources have existed since the beginning and will continue to prevail in this world (Lee, 2018). This current situation worldwide is the imminent and devastating effects of climate-related and sometimes unnatural disasters, which know no boundaries and have affected over 200 million people in 109 countries resulting in approximately $250 billion in economic losses annually (Hartz, 2017). The frequency and magnitude of disasters such as cyclones, tsunamis, drought, earthquakes, wildfires and flooding are expected to increase with climate change (Ottenhoff, 2015). It is thus almost assured that this is a situation people must adapt to and co-exist with, to reduce the catastrophic effects on people. “Humans can correct nature, reduce the severity of biological accidents and eliminate some diseases. Very often, this is done through philanthropy” (Payton and Moody, 2008, p. 67). Philanthropy is often a response to the human realities of life changes and disasters (Rotolo and Berg, 2011). Philanthropy could be the agent to change the response and reaction to disasters as they are responsive and active in supporting the government to provide aid and relief (Hubbs, 2015). Thus, a particular focus is required on how philanthropic organisations, as the change agents, execute their response processes.

Motivation for the study

Literature from the business sector in operations research and project management provides numerous frameworks and theories like lean thinking to accomplish business goals...
efficiently and effectively. The introduction of lean thinking in manufacturing and operations management has placed value and waste reduction at the forefront resulting in businesses pursuing it if there is a need to increase value and eliminate waste (Joosten et al., 2009; Mogotsi et al., 2022; Shahriar et al., 2022).

People are often found wanting in disasters, and infrastructure is increasingly destroyed from one disaster to another (Van Niekerk, 2017). The research problem is that humanitarian and philanthropic organisations continue to flag waste and inefficiencies in disaster management despite using tools such as lean thinking (Mogotsi et al., 2022). Studies such as Kovacs and Spens (2009) highlighted the challenges of humanitarian logistics and found coordination of response activities to be a key contributor. Consequently, tools such as lean have proven successful in various sectors but need context-specific implementation (Radnor and Walley, 2008). The research problem thus revolves around the presence of coordination challenges, waste and inefficiency issues faced by philanthropic organisations that still require a particular context-specific focus in the literature to determine if lean can achieve value maximisation and waste reduction (Shahriar et al., 2022).

This study, therefore, attempted to uncover the philanthropy landscape processes for dealing with disasters and investigate how lean thinking could be incorporated into the management of philanthropy for disasters to leverage continuous improvement and maximise efficiency by reducing waste. It was thus the pursuit of the study to interrogate how lean principles and practices can be used to organise philanthropic processes in the event of a disaster/humanitarian crisis.

Significance of the study

The UN has listed philanthropic actors and organisations to contribute to the 2030 agenda for sustainable development (World Bank, 2016). Philanthropy organisations, particularly institutionalised ones such as foundations, humanitarian organisations and trusts, have more flexibility to pursue sustainable development goals. With Africa being a key growth space, the study is crucial to close significant gaps in the literature and practice and enable documentation of processes by philanthropy organisations for continuous improvement and elimination of waste to ensure efficiency in the philanthropic role of alleviating the impact of disasters.

In response to the 2018 disasters statistics, Mami Mizutori, a representative of the Secretary-General for Disaster Risk Reduction, said, “floods, droughts, storms and wildfires affected 57.3 million people underlining once more that if we want to reduce disaster losses, then we must improve how we manage disaster risk” (Uluçak, 2019).

This study borrows lean principles and practices from the operations and process improvement literature to address and manage disaster risk. It investigates the influence of these principles and practices to guide philanthropic efforts with efficient processes that eliminate waste whenever faced with any disaster in the Southern Africa region.

Literary review of constructs

Lean is an operational practice that hailed from the manufacturing industry back in the early 1960s when Toyota engineers realised their processes were not efficient, with machines sitting idle and parts being wasted. The engineers implemented a new production system (commonly known as the Toyota Production System–TPS). They found it worked exceptionally well to eliminate waste in their processes and maximise value to the customer (Zhou, 2016). Lean is “a set of principles, tools and methods that form a management philosophy where value is defined as what a customer is willing to pay for” (Maasouman and Demirli, 2015, p. 1171). Joosten et al. (2009) defined it as “an integrated operational and socio-technical approach of a value system, whose main objectives are to maximise value and thus eliminate waste, by creating cumulative capabilities” (p. 343). Lean has proven to be a robust process to improve overall operational performance for various businesses (Pakdil and Leonard, 2017).

Some authors describe lean as the concentration on value creation and the elimination of waste (Pearce et al., 2018; Talapatra and Gaine, 2019). The lean principles include lean thinking, identifying value, mapping the value stream, creating flow, establishing pull and seeking perfection to focus on the customer and their claim on a product (Schuh et al., 2016). The introduction of lean thinking has placed value and waste reduction at its core resulting in businesses pursuing it if there is a need to increase value and eliminate waste (Joosten et al., 2009).

One of the gaps identified in the literature is the lack of research into how to manage and organise philanthropy and use business phenomena (such as lean) in order to manage the humanitarian, philanthropic organisations such as foundations and NGOs to achieve their set of goals (Boin and Lodge, 2016; Phillips, 2018; Rotolo and Berg, 2011).

There appears to be not so much literature on how philanthropy makes decisions, particularly in the context of disasters, and this gap has been present in the field for a long time (Boin and Lodge, 2016; Eikenberry et al., 2007; Gao and Hafsi, 2017; Gronbjerg et al., 2000; Phillips, 2018; Rotolo and Berg, 2011). This study, therefore, addressed these gaps and enabled an investigation and assessment of the applicability and impacts of lean in humanitarian, philanthropic organisations when responding to disasters.

Influence of lean thinking on philanthropy

Whilst Lean thinking promotes value in the eyes of the customer (Talapatra and Uddin, 2019), non-profit organisations need to assess the value of their actions in the eyes of the beneficiary. In the business world, an action creates value if “it is right the first time, a transformation takes place (desired change), and the customer wants to pay for it” (Teeuwen, 2011, p. 32; Rahman et al., 2020). In the non-profit space, the same would hold, except customers do not pay for it, but if they could, they should feel that they would (Teeuwen, 2011).

Lean thinking in the philanthropic sector is not popular in the literature, but studies have advocated for its use in
development work. NGOs and non-profits are encouraged to improve how they work by applying lean and six sigma, which encompasses the thinking used to help people and communities suffering from crises such as disasters (Parris, 2019). Lean thinking was partially analysed at World Vision (Parris, 2019). It was found that it is very similar to their transformational development agenda to ensure they assist in the essential need, build capacity, involve local communities in decisions and ensure they manage resources effectively, ethically and efficiently. The experience of this study demonstrated that “lean and six sigma readily apply in development and humanitarian work” (Parris, 2019, p. 33).

Although lean thinking has been successfully applied to various sectors of manufacturing, banking, IT and health care (Masouman and Demirli, 2015), it comes with some criticisms in the literature. These are critical success factors for organisations implementing lean thinking tools to reduce waste and successfully maximise value. According to some authors, some organisations struggle to implement lean thinking, and various reasons are cited. Zhou (2016, p. 459) explained that the success of lean implementation depends on the following:

1. Leadership and management.
2. Finance.
4. A supportive organisational culture of the organisation.

If any of these are not in support and not fine-tuned for lean thinking, its success may be affected (Radnor and Walley, 2008). Societal and cultural effects were also raised because lean would not succeed, as certain cultures promote lean activities better than others (Pakdil and Leonard, 2017). In their study of culture effects, Pakdil and Leonard (2017) found that “organisations with an individualist value are more likely to maximise employee involvement and firm efficiency whilst collectivist cultures are more focused on control, standardisation and long-term philosophy” (p. 712). Implementing lean well requires an enterprise-wide management system that creates a culture that encourages staff to solve problems and implement continuous improvement (Pearce et al., 2018). Such impact of culture on organisational performance has also been proven from a reverse logistics perspective (Saruchera and Asante-Darko, 2021). Without the acceptance of the organisation’s culture and ownership by staff, lean alone would be unable to deliver value with minimal waste if the actions of staff and processes did not change (Saruchera, 2022; Schwageman and Ulmer, 2013).

A few instances of lean thinking are discussed in a philanthropic setting. For instance, the Project Management Institute project with the Red Cross, Plan International and CARE USA to develop innovative, lean ways of managing NGOs (Foundation supports disaster management through innovative philanthropy, 2017); a capability-building study for NGOs providing Refugee aid in Europe (Kaltenbrunner and Reichel, 2018), NGO competency development during disaster reconstruction (Von Meding et al., 2009) and a review of international NGOs during disaster reconstruction (Ismail et al., 2014).

The core principles of lean are, however, still not manifested as waste is still prevalent during the response, with duplication of efforts, competition and provision of unusable goods still taking centre stage in the humanitarian philanthropy arena (Aeberhard, 2008; CAPSI, 2019; Cerase, 2018; Ha, 2016; Hidayat and Egbru, 2010; Jones and Wilkie, 2016). A similar study focusing on lean and agility concepts at the World food programme in Sudan post-crisis requested future research like this investigating the impact of lean thinking in the reconstruction phase of disasters and consider other humanitarian organisations aside from the World food programme (Cozzolino et al., 2012).

Lean studies have also been conducted in various business operations. However, there still needs to be a gap in the literature about how lean thinking could transform business operations into sustainable business practices and, most importantly, how lean applies to philanthropic organisations (Caldera et al., 2017). Future research is recommended to use lean thinking to develop a holistic system to augment lean thinking principles with sustainability concepts (Caldera et al., 2017). This applies to non-profit organisations with an element of operations in their service.

Calls have been published for revised models of humanitarian aid, which decentralise power and eliminate current response paradigms (Bennett et al., 2016). Lean studies in Southern Africa are also limited, with calls for more lean practices research (Maware and Adetunji, 2019). Therefore, this paper’s contribution was to assess the influence of lean thinking in a philanthropic setting to address some of these gaps.

The paper grounds itself in lean thinking theory, and there are five fundamental principles of lean thinking instituted by Schuh et al. (2016), Mogotsi et al. (2022) and Nave (2002):

1. Identifying value.
2. Mapping the value stream.
3. Creating value flow.
4. Establishing pull.
5. Seeking perfection in the process.

**Critical success factors for lean thinking**

Nave (2002) identified the causes of issues in lean thinking implementation to emanate from these facts:

1. Lean addressing management theory as a secondary or tertiary issue.
2. Improvement theories need to address policies, formal and informal.
3. Not addressing how managers are measured and rewarded for process improvements.
4. Improvement theories not addressing the general theory of management used by the organisation and
5. the organisation’s values. (p. 77)

Despite these drawbacks, improvement theories such as lean thinking still succeed and deliver desired outcomes if lean and its tools allow for an improved management strategy (Nave, 2002).

Pearce et al. (2018) emphasised the importance of management commitment for lean success. “Commitment by top management is vital; management intentionally or unintentionally sabotages implementations and must work to create interest in the change by visibly connecting to the project” (Pearce et al., 2018, p. 95).
Organisations that would have succeeded in lean would need management support and a straightforward navigation and change management system for socio-technical and cultural issues (Joosten et al., 2009).

Some studies were done to implement lean tools in various industries (Jones and Wilkie, 2016; Joosten et al., 2009; Pearce et al., 2018; Shakiri et al., 2015; Zarbo, 2012), and change management was found to be crucial to the success of lean. One of the studies found that there are always pockets of resistance to change and that coaching is more important than doing things to achieve cultural change and make lean implementation a success (Jones and Wilkie, 2016).

Lean implementation failures are primarily attributed to cultural factors and a lack of change management to sustain lean improvements. Nevertheless, does this mean it could be a better improvement tool for non-profit organisations? No, it does not. It implies that there may be some challenges in cases where change management needs to be catered for. If the tools are not implemented and sustained, the realisation of maximum value and minimal waste becomes compromised (Nave, 2002). This paper uncovered that lean is a reality in the non-profit space for disasters and proposed ways that lean could be implemented successfully to organise philanthropy to assist with disaster relief.

**Methodology**

Authors find that mixing methods helps to serve theoretical, methodological and practical purposes to enable the study to understand products of scientific enquiry and the process itself (Brannen, 2005). Brannen (2005) further argued that value is obtained through mixing methods and leveraging the strengths of quantitative and qualitative methodologies. Phase 1 of a study utilising quantitative techniques provides a sampling frame for qualitative interviews in Phase 2 to contextualise and provide more insights. Mixed methods have been proven in terms of their complementarity and ability to bring out multiple viewpoints (Saruchera et al., 2014) and unpack complex phenomena.

In support of these views, the study pursued three phases, as outlined in Figure 1 below:

The sequential methods helped to provide a “mutual validation of data and findings and produce a more coherent and complete picture of the investigated domain than any mono-method research could yield” (Kelle, 2006, p. 293).

Phase 1 adopted an electronic survey tool to assess the philanthropy landscape and gauge the current incorporation and understanding levels of lean thinking. Based on the survey results, the study then conducted qualitative interviews with multiple units of analysis, using the humanitarian and philanthropic organisations involved with the disasters to assess their processes and lean thinking. Then, the interviews and survey findings were synthesised to assess the lean impact of disaster philanthropy.

**Figure 1** Research process flow

---

Lastly, philanthropic organisations implemented a few lean principles for disaster response. Another survey was carried out a few months later to assess the influence of lean thinking in disaster response and logistics.

**Sampling strategy**

The survey population entailed all philanthropic organisations specifically focusing on disaster relief and aid in Southern Africa. This study’s most relevant sampling strategy was homogenous/group sampling (Bhardwaj, 2019), as this process entailed choosing individuals with similar characteristics, such as philanthropic organisations responding to the same disaster. The philanthropic organisations were grouped according to the responses provided in phase 1 to separate them by their levels of understanding and incorporation of lean thinking.

The first survey yielded 62 useable responses, and the second post-lean implementation survey yielded 150 responses. The response rate was satisfactory for the size of the population under study, as the representation was above 60%.

With 12–26 responses deemed acceptable for qualitative research (Isaacs, 2014), the study conducted 23 interviews with various staff members from humanitarian organisations to validate the study. The qualitative interviews provided perspectives from the organisations presented in Table 1.

**Data analysis and screening approach**

Phase 1 of the study dispensed a questionnaire via Survey Monkey (https://www.surveymonkey.com/analyze/2BMbCUHpcEjLhCcK_2By4PrKf17TsJ4FqJ8gcirAGfOTQ_3D). Data could also be screened in Survey Monkey for errors, incomplete data sets and number verification for answers to each question. Some participants with no access to the Internet filled in the questionnaire using pen and paper at the civil society regional dialogue held in Mutare, Zimbabwe, 2–4 March 2020. The questionnaires completed manually were captured along with the data extracted from Survey Monkey. The data was then exported to SPSS for further analysis.

A similar process was followed for the post-lean survey. All the post-lean surveys were conducted solely on Survey Monkey. Pre- and post-lead survey instruments are presented in Appendices 1 and 2, respectively.

---

**Table 1** Interview respondents’ summary

<table>
<thead>
<tr>
<th>Name of organisation</th>
<th>Number of staff interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amnesty International</td>
<td>3</td>
</tr>
<tr>
<td>Save the Children</td>
<td>2</td>
</tr>
<tr>
<td>World Vision</td>
<td>1</td>
</tr>
<tr>
<td>Red Cross</td>
<td>1</td>
</tr>
<tr>
<td>Help Age</td>
<td>1</td>
</tr>
<tr>
<td>Action Aid</td>
<td>6</td>
</tr>
<tr>
<td>Doctors without Borders</td>
<td>1</td>
</tr>
<tr>
<td>SAYOF – Southern Africa Youth Forum</td>
<td>1</td>
</tr>
<tr>
<td>NANGO – National Association of NGOs</td>
<td>2</td>
</tr>
<tr>
<td>Partnership for Development</td>
<td>1</td>
</tr>
<tr>
<td>Men against Gender-Based Violence</td>
<td>1</td>
</tr>
<tr>
<td>Genesis</td>
<td>1</td>
</tr>
<tr>
<td>African Risk Capacity</td>
<td>2</td>
</tr>
</tbody>
</table>
Twenty-three qualitative interviews were conducted with various philanthropic staff during the data collection period from March–April 2020. The interviews aimed to probe the processes pursued by the staff and their understanding of lean techniques for efficiency and effectiveness. The interviews were recorded and then transcribed and uploaded for analysis. Qualitative analysis was done through Atlas.ti which has appropriate functionality for qualitative data analysis (Hwang, 2008). A licensed version of Atlas.ti was utilised to ensure optimum functionality.

The research design also had an experimental component using surveys as experimental designs, which allowed researchers to introduce and control some variables to assess the effect of those variables post their use; to compare the status before and after their implementation (Park and Park, 2016). This resulted in two surveys issued to humanitarian and philanthropic organisations to assess their current response processes before introducing and implementing lean tools. The second set of surveys assessed lean tools’ influence on the disaster response performed by philanthropic organisations.

The quantitative surveys collected 212 responses from humanitarian organisations. Then the qualitative component yielded 23 in-depth interview responses from staff members of various philanthropic organisations in the Southern African region.

Findings

The first survey concentrated on assessing the leanness of organisations to gauge if they had any awareness and/or implementation of lean techniques, wherein 62 responses were received. The second survey focused on assessing the influence and applicability of lean thinking in a philanthropic setting during disaster response, and 150 responses were received. Table 2 profiles the characteristics of the study’s respondents based on country representation, organisational activities and years of experience.

A total of 212 respondents were thus received from various humanitarian or philanthropic organisations in Malawi, Mozambique, South Africa and Zimbabwe.

Sixty-two useable questionnaires were received from various philanthropic organisations in survey 1 to assess the awareness and knowledge of lean thinking (survey available in Appendix 1). These represented the four countries under focus. 70% of the sample focused on humanitarian aid, education and advocacy-related activities during disaster response, with the rest focusing on health, agriculture and reconstruction. They had all experienced various types of disasters and attended to them if there was any impact on people, such as drought, flooding and cyclones. According to the responders, the key driver for their involvement was responding to human suffering, not necessarily the type of disaster that had struck. The second sample comprised 150 respondents working in various areas of humanitarian work. More than half of the sample focused on food aid and women’s rights issues during disaster response (survey available in Appendix 2). On average, most of the respondents emerged from philanthropy organisations from South Africa (44% for both surveys). They had at least some presence in South Africa, indicating that South Africa influences activities in other SADC countries represented in the study.

Collinearity, normality and heteroskedasticity tests were run to ensure the appropriate regression analysis. The variables that measured waste reduction and value addition were plotted against lean thinking as the dependent variable and found that the regression model was appropriate as the criteria for regression were satisfied. Table 3 illustrates the regression results for the influence of lean thinking.

The $p$-value for waste reduction and value addition regression analysis was significant at 0.000. Figure 2 reports a perfect bell shape indicating the normality of the data for analysis. The $p$-plot in Figure 3 also met the criteria, validating regression analysis to assess the impacts of lean thinking tools.

In the literature and practice, lean thinking tools reduce waste in organisational processes and increase value to

### Table 2 Profile of survey respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-lean implementation (phase 1) ($n = 62$)</th>
<th>Post-lean implementation (phase 2) ($n = 150$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td><strong>Country representation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malawi</td>
<td>5</td>
<td>8.06</td>
</tr>
<tr>
<td>Mozambique</td>
<td>12</td>
<td>19.74</td>
</tr>
<tr>
<td>South Africa</td>
<td>30</td>
<td>48.38</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>15</td>
<td>24.19</td>
</tr>
<tr>
<td><strong>Organisational activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructure issues</td>
<td>4</td>
<td>6.45</td>
</tr>
<tr>
<td>Vulnerable group advocacy activities</td>
<td>24</td>
<td>38.70</td>
</tr>
<tr>
<td>Health issues</td>
<td>15</td>
<td>24.19</td>
</tr>
<tr>
<td>Food provision and distribution</td>
<td>12</td>
<td>19.35</td>
</tr>
<tr>
<td>Reconstruction</td>
<td>7</td>
<td>11.29</td>
</tr>
<tr>
<td><strong>Years of experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 10 years</td>
<td>46</td>
<td>74.19</td>
</tr>
<tr>
<td>10–19 years</td>
<td>10</td>
<td>16.12</td>
</tr>
<tr>
<td>20 years or more</td>
<td>6</td>
<td>9.68</td>
</tr>
</tbody>
</table>
customers and end-users (Dumitrescu and Dumitrache, 2011; Mogotsi et al., 2022). Principal component analysis was conducted on the value addition questions and waste reduction questions to check if these impact and contribute to variation. The results are displayed in Table 4 below.

Table 4 shows that the value-addition items are significantly positive, with a p-value of 0.000. The positive nature of the results indicated a positive relationship where the greater lean thinking principles are applied; the more value-addition is experienced for each factor. Table 5 illustrates the factor analysis results for waste reduction impact.

Waste reduction also reported a significant p-value of 0.000, with positive results indicating a positive relationship with lean thinking. When lean thinking is applied, the philanthropic organisation experienced waste reduction and value addition, whereby waste reduction accounted for 67% variation and value addition accounted for 58%, respectively.

Regression analysis was further employed to test two hypotheses which pertain to the effect of using lean thinking principles. The results are displayed below:

Hypothesis results for the influence of lean thinking

Two hypotheses were thus stated to pertain to the influence of lean thinking in the conceptual framework. The hypotheses were:

H1. There is a positive relationship between lean thinking principles and waste reduction.

H2. There is a positive relationship between lean thinking principles and increased value to beneficiaries.

Table 6 summarises the regression results for the influence of lean thinking.
The influence of lean thinking in philanthropy

Keratole Mogotsi and Fanny Sarachera

Table 4 Factor analysis results for value addition impact

<table>
<thead>
<tr>
<th>Component matrix</th>
<th>PC1</th>
<th>Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H7VA2</td>
<td>0.84</td>
<td>H7VA1</td>
</tr>
<tr>
<td>H7VA3</td>
<td>0.77</td>
<td>H7VA2</td>
</tr>
<tr>
<td>H7VA1</td>
<td>0.761</td>
<td>H7VA3</td>
</tr>
<tr>
<td>H7VA4</td>
<td>0.673</td>
<td>H7VA4</td>
</tr>
<tr>
<td>% of Variance</td>
<td>58.268</td>
<td></td>
</tr>
<tr>
<td>KMO test</td>
<td>0.729</td>
<td></td>
</tr>
<tr>
<td>Bartlett test</td>
<td>150.547</td>
<td></td>
</tr>
<tr>
<td>(p-value)</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 Factor analysis results for waste reduction impact

<table>
<thead>
<tr>
<th>Component matrix</th>
<th>PC1</th>
<th>Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H8WA2</td>
<td>0.898</td>
<td>H8WA1</td>
</tr>
<tr>
<td>H8WA3</td>
<td>0.857</td>
<td>H8WA2</td>
</tr>
<tr>
<td>H8WA4</td>
<td>0.824</td>
<td>H8WA3</td>
</tr>
<tr>
<td>H8WA1</td>
<td>0.682</td>
<td>H8WA4</td>
</tr>
<tr>
<td>% of Variance</td>
<td>67.119</td>
<td></td>
</tr>
<tr>
<td>KMO test</td>
<td>0.712</td>
<td></td>
</tr>
<tr>
<td>Bartlett test</td>
<td>270.503</td>
<td></td>
</tr>
<tr>
<td>(p-value)</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

Two columns are presented in Table 6, where the first one is related to the impact on value addition to the beneficiaries, and the second is related to waste reduction. The internal and external determinants of lean thinking significantly impact waste reduction and value addition at 99% confidence levels.

Internal determinants have a 0.308 impact on value addition and a 0.444 impact on waste reduction, while external determinants have a 0.415 impact on value addition and a 0.432 impact on waste reduction. This implies that lean thinking positively impacted beneficiaries’ waste reduction and value addition.

Qualitative findings

It took a much work for the respondents to clearly articulate the processes they followed, especially the operational staff, as most guidance and procedures came from their head offices, which were only sometimes in the base country. The philanthropic organisations were unprepared and had not devised response strategies given the other philanthropic actors, which created “silos; we could have integrated our responses in other interventions” (Respondent 1, Senior level, male).

The response processes need to be better articulated and vary from organisation to organisation. What was clear was that the first few days post the disaster event is an assessment, after which the organisations report to the ground to assist with the various human needs.

Respondents presented several flaws and challenges in understanding the response processes followed by humanitarian organisations. These were essential to capture as they contributed to the disaster processes and guidelines execution or lack thereof. These results contributed to painting the picture of what transpired during disaster response – good and bad alike.

The respondents flagged numerous challenges during disaster response. They all echoed the challenge of competition and rivalry, with respondent 2 (Senior level, male) stating:

What I saw in Beira was ‘organised chaos’. From a macro level, this is a systematic issue. The competition brings in the resources. The competition may have a good side, which means that money goes to those who can put it to good use.

At a micro level, the downside of the competition was felt. Many people needed different support needs (Food, shelter, protection). However, organisations would want to provide one part and leave the other, e.g. food versus other needs, NFIs or shelter, for example.
Corruption and politicising of aid were also raised as significant challenges, as one of the CBO staff observed:

Politisation and corruption of aid. Some of the food and items did not reach the beneficiaries. They were taken by people who were managing the process. Instead of the items going to Chimanani, there were incidents where arrests were made of truckloads of blankets and food going to Harare. There is a lot of corruption and theft associated with aid.

Respondent 5 (senior level, female) staff also observed:

Bureaucracy within action aid country program was a challenge. It takes a while for management to understand the urgency of the matter. Only a few organisations are available for preparedness activities, but when it comes to emergencies, many organisations are mushrooming. Recovery is challenging because the support level goes down as many organisations fizzle out.

The United Nations agencies often took the lead during disaster response, but even that did not seem to alleviate the challenges. One of the CBO staff observed,

The UN has a cluster system. However, the cluster system did not work.

Everyone wanted visibility. Distributions were supposed to be channelled to the cluster so that support could come from a single basket. Organisations were not interested in the cluster system but preferred to do individual distributions.

Collaboration, therefore, remains a challenge.

One respondent, respondent 18 (senior level, male), flagged another challenge in response, which she stated as follows:

Consistent exclusion of older persons from humanitarian responses. Even at a global level, there is no recognition. For instance, in the context of COVID-19, Older persons are not included. However, older persons are the highest risk group. There seems to be no legal framework is needed to push the agenda for older persons, be it in Africa or globally. Convention for the rights of older persons is ongoing.

The respondent echoed this to the COVID-19 pandemic, where there was inadequate care and planning for the elderly (above 60 years) in all disaster response plans. She emphasised the need for better coordination:

Coordination is an area that needs to be improved and factor in the various groups of people. In the response, it is also important to know what each institution can bring on board, e.g. CSOs, community structures, or citizens. Rwanda, for instance, is capitalising on community structures so they can reach everybody effectively with the minimum exclusion of the vulnerable people on the ground.

The respondents, therefore, highlighted the challenges in disaster response: bureaucracy, politising of aid, corruption, poor collaboration, poor coordination, duplication of efforts, competition and rivalry and not catering for vulnerable groups. These challenges are similar to what was highlighted in the literature.

Discussion of findings

The contribution and role of philanthropic organisations in disaster response are critical (Kaltenbrunner and Reichel, 2018). Like Von Meding et al. (2009), the study reported that many NPOs respond to disasters. New organisations become established as a result of disaster impacts such as what was witnessed after cyclone Idai in Zimbabwe (CAPSI, 2019), Hurricane Katrina in the USA (Eikenberry et al., 2007) and the tsunami in Indonesia (Kitamoto, 2005). Disasters indeed trigger great altruism and philanthropic response to alleviate the human suffering consequences of the disaster. The study thus sought to investigate the processes these philanthropic organisations follow when responding to various disasters in the Southern African region.

The study found that philanthropic organisations have multi-faceted processes influenced by the type of organisation, disaster type and accessibility to funding and resources. There is no set, ‘one size fits all’ process; instead, every organisation responds in their own way, often overwhelming the communities they serve. It also depends on the experience and ranking of staff members, as some of the staff members interviewed in the study needed help to articulate what process their organisation pursued. Each organisation does an “assessment” to assess the impact of the disaster to gauge the magnitude of response, and they use the results of the assessments for fundraising and commencing their response.

The findings detailed the limited response processes currently in place for some of the organisations, and it was found that communication and collaboration was a vital challenge as responders went about their own way to respond and meet their donors’ demands – even when such donor demands were not aligned to the community needs at the time of response.

The challenge with such an approach is the documented duplication of efforts, wasting time and resources and reducing effectiveness in attending to the community needs. This is in line with Bahadory et al. (2019) findings, where they state, “strategy requires coordination and collaboration among NGOs to provide complete assessments and offer more precise understandings” (Bahadory et al., 2019, p. 70).

The sector is criticised as resistant to learning from past mistakes and thereby struggling to implement learnings into continuous improvement (Bennett et al., 2016). The same challenge was found in this study and continued to prevail during the COVID-19 pandemic response, as explained by respondents 7 (Junior level, female), 8 (Junior level, female), 9 (Middle level, female) and 10 (Senior level, female) in their in-depth interviews. There is more focus on competing for visibility and obtaining resources than on putting processes and structures in place for an effective response to help the people affected.

Zakour and Gillespie (1998) also found that current response processes need more comprehensive geographic cooperation with other organisations. Although their study is now more than two decades old, it is still relevant and similar to what this study found, as respondents in the qualitative interviews described how different types of organisations came to assist victims, some of which were from other countries and continents. The UN agencies were reported to assume the leadership position of heading cluster meetings. However, this act discouraged some organisations from participating, with some going straight into the communities without coordinating with other responders. Humanitarian organisations have been criticised for “inadequate responsibility, self-interest, duplication of efforts and failure to coordinate with others. There is also evidence of rivalry and conflict between international NGOs and national and regional agencies” (Ha, 2016, p. 376). These sentiments prevailed in the findings of the study.
Successful disaster response processes involve managing various stakeholders, assessing efforts and strategic planning to ensure that appropriate supplies are obtained in the right quantities and given to the right people (Ngwenya and Naude, 2016). This was difficult for the humanitarian organisations in Southern Africa, with most of them having conflicting donor demands and fighting for survival in the shrinking donor space.

When lean thinking tools were applied (any tools), however, philanthropic organisations experienced waste reduction and value addition, where waste reduction accounted for 67% variation and value-added accounted for 58%, respectively. This positive relationship is echoed in various industries where lean has been applied successfully, as the lean philosophy is to reduce waste and increase value to end-users (Makwana and Patange, 2019; Talapatra and Gaine, 2019). This section interrogates these findings and compares them to findings in the literature where lean has been applied to different industries.

**Waste reduction**

Waste manifests itself in many forms: monetary waste, human skills waste, time-wasting and environmental waste, as witnessed by Caldera et al. (2017). The respondents in the study reported through the questionnaire and the in-depth interviews that waste was present in their disaster response with evident duplication of efforts and community members not receiving what was required. Respondent 6 (Middle level, female) described how the duplication of efforts overwhelmed the community members in Malawi, such that needs were continuously unmet. This posed a challenge as philanthropic organisations needed to put the community members at the centre stage, which is a prerequisite for lean thinking (Teeuwen, 2011).

This is not the first time; however, lean thinking has delivered a waste reduction in a non-profit setting. Cozzolino et al. (2012) reported that lean tools and principles helped to improve effectiveness and efficiency in the emergency supply chain. This study has added to the body of knowledge to report lean thinking’s effectiveness in reducing waste, not just in the supply chain but in the response processes overall. Other non-profits like World Vision have implemented their approaches to waste reduction—the LEAP (learning through evaluation with accountability and planning) strategy similar to lean principles; to use tools to provide structure and direction while addressing waste (Parris, 2019). Therefore, the need for lean thinking in addressing waste is described as greater in the non-profit sector as the work they embark on focuses on helping people and improving livelihoods for people adversely affected by disasters (Parris, 2019).

**Value addition to beneficiaries**

NGOs and non-profits have previously been encouraged to improve their work by applying lean tools and six sigma methods to help their communities cope with poverty and crises (Parris, 2019, p. 33). The study highlights these sentiments and continues to encourage lean thinking as the results statistically prove that lean thinking enables philanthropic organisations to provide maximum value to their beneficiaries. The study results also show that community incorporation is of paramount importance. Placing the community members at the centre stage drives philanthropic organisations to be guided by community requirements, thereby delivering what is genuinely required, in the right quantities, at the right time, to the right people. These are recommendations highlighted by Yodmani (2001), who further emphasised that incorporating communities would help to reduce their vulnerability to disasters.

In Australia, Japan and the USA, O’Brien et al. (2006) reported that risk reduction is achieved by focusing on communities and building their resilience so that mortality rates are as low as possible so communities can recover quickly from disasters. Examples of such risk reduction achievements include Florida, USA’s recovery from numerous hurricanes, the Kobe, Japan recovery from the 1995 Hanshin Awaji earthquake and the recovery of Darwin, Australia, from cyclone Tracy in 1974 (O’Brien et al., 2006). This is contrary to the study in Southern Africa, where development agencies and philanthropic organisations were driven more by donor mandates as the donor space continued to shrink. Community incorporation, though an essential prerequisite for successful disaster response, still required much work by philanthropic organisations, who were still heavily driven by resource constraints and adaptation to match the needs of funders.

Lean thinking promotes placing the “customer” at the centre stage where the customer is indeed the community members that the philanthropic organisations serve. Yodmani (2001) further recommends that community focus is at the household level to incorporate all affected individuals. This holds with what the study found, as respondents in the in-depth interviews described how vulnerable community members are hard to reach and, in some cases, human rights violations are experienced during aid delivery, as described by respondent 6 (Middle level, female). Philanthropic organisations in Southern Africa could benefit from more investments into community incorporation to increase the value to beneficiaries. The study confirmed that using lean tools appropriately will enable such organisations to maximise value for the beneficiaries.

**Conclusions, contributions and recommendations**

Essentially, disasters will continue to strike Southern Africa in various ways. Major disasters will continue to ignite and stimulate benevolence by individuals and philanthropic organisations. In Africa, this was witnessed during disasters such as cyclone Idai, flooding in Southern Africa, Ebola outbreaks in Central and West Africa and more recently, pandemics in the form of COVID-19, which caused immense havoc worldwide. While the disasters cannot be stopped, strides can be made to mitigate the impact and enable the affected area to become economically active again, with fewer lives lost and less damage to infrastructure. With a growing number of philanthropy actors in Africa, these are naturally motivated to take an interest in lending a helping hand. Thus, the study found that it becomes necessary to have a management and organisation strategy to dispense philanthropy to mitigate the impact of any disasters and guard against debilitating effects.

This study sought to explore lean principles and practices to leverage their benefits in organising philanthropy. The study tested the uses of lean techniques in Malawi, Mozambique,
South Africa and Zimbabwe, given these countries are prone to disasters and have a significant base of philanthropic organisations that responded to the devastating cyclone Idai in March 2019 and the COVID-19 pandemic, which affected most countries worldwide. The study found that lean thinking tools positively influence philanthropic organisations when there is serious management commitment, teamwork and adaptability to change in a philanthropic organisation’s setup. These factors allow the organisation internally to implement and sustain lean tools. The study recommends the adoption of lean tools, mainly focusing on improving coordination and communication to.

Implications of the study
The practical implications for philanthropy management are summarised below:

1. Use of lean tools in disaster response processes

The use of lean thinking tools and practices is highly applicable in the non-profit sector. Essential tools were shown to reduce waste and improve value to beneficiaries significantly. Thus, the study recommends for the management of philanthropy organisations consider employing any of these lean tools in disaster response: visual management, value stream mapping, kaizen events and standardisation.

2. Philanthropy organisation’s attention to internal determinants

Internal determinants include the factors of management commitment, teamwork and adaptability to change (Mogotsi et al., 2022). It is recommended that philanthropic organisations attend to internal dynamics, with management at the forefront and supporting change and implementing lean tools. With management commitment, it becomes easier for lean tools to be sustained. It is also recommended that a culture of teamwork and adaptability to change is encouraged and rewarded, so that staff members are eager to participate in change initiatives. They can work together effectively to bring the changes to fruition. When this is done, the organisation is more likely to succeed in executing and sustaining any lean tools to improve efficiency.

3. Philanthropy organisations’ attention to external determinants

External determinants include the factors of government support, community incorporation and other philanthropic organisations responding to the same disaster (Mogotsi et al., 2022). Every effort needs to be made by philanthropic organisations to use lean tools like visual management to determine who is doing what and “where”, given the high volume of philanthropic activities after a disaster event. Visually displaying such information and working closely with the local authorities will successfully manifest the benefits of lean thinking. Furthermore, communities remain at the heart of the problem, as nothing can be solved effectively without their incorporation.

4. Implications to policymakers

Governments otherwise referred to as the first sector, are the primary authority of countries and are responsible for disaster response and reconstruction (Kitamoto, 2005; O’Brien et al., 2006; Ottenhoff, 2015). Their involvement is critical, and this study has shown that their support is fundamental for lean thinking principles to succeed. The non-profit organisations support the government (at least theoretically); thus, the government as the leader should seek guidance and mechanisms for non-profit organisations to conduct philanthropic work. A positive relationship yielded between government support and the success of lean principles at a 99% confidence interval.

This implies that the more robust government support is, the more lean thinking tools can successfully avoid the administrative chaos witnessed in disasters like Hurricane Katrina (Eikenberry et al., 2007). Therefore, policymakers and municipal authorities can benefit from this study by implementing mechanisms to organise philanthropic actors, as these tend to grow substantially after the disaster. Policy-makers can also utilise lean tools such as visual management to become the central point for all regional activities and govern philanthropic work.

Some of the duplications of efforts and waste challenges come about due to the need for more data and information from the necessary authorities, thus leaving philanthropic actors to do what they believe is best. Numerous staff members echoed this in the in-depth interviews. In times of disaster, they could not wait and needed to act swiftly, as some governments only declared cyclone Idai a disaster weeks after it happened and weeks after lives had already been lost.

Therefore, this study provides practical tools from lean thinking and evidence from the field for policymakers to consider and adopt for future disasters. The results showed that humanitarian organisations could be more effective with increased government support and direction, thereby reducing waste and increasing value to the communities affected.

The study provides implications for both philanthropy researchers and operations management researchers. For philanthropy researchers, it is imperative to uphold the authority role of the first sector and the ensuing supportive role of the third sector, creating guidelines for disaster philanthropy to separate who does what in disasters. The framework provided in this study provided guidelines for the factors to be considered by philanthropic organisations, such as management commitment, teamwork, community incorporation and government support.

This, in turn, provides guidelines for researchers to consider these factors when researching disaster philanthropy activities. It also creates opportunities for future research in this field.

Implications for academic research and theory:

For operations management researchers, this study opens the floodgates for investigating non-profit organisations as lean thinking principles have tested positive and are statistically valid in the non-profit sector. Researchers can now consider the non-profit sector in operations management investigations, as the benefits of tools such as lean thinking cut across industries.

These results are a contextual contribution to the theory of lean thinking as they have provided positive results in non-profit organisations. For lean thinking to be successful, it requires strong management commitment, teamwork and integration with other organisations and authorities (Jones and Willke, 2016; Nave, 2002; Nguyen, 2015; Pearce et al., 2018). This is valid in the non-profit sector as all the internal and
The influence of lean thinking in philanthropy
Keratiloe Mogotsi and Fanny Saruchera

external determinants tested positively and were statistically valid.

Lean thinking requires management commitment, teamwork and strong adaptability to change for an organisation to achieve waste reduction and value maximisation.

Externally, organisations must incorporate community inputs, support government authorities and coordinate with other philanthropic organisations to achieve waste reduction and value maximisation benefits. This is a unique contribution of the study to the theory of lean thinking, as it has factored in the dynamics non-profit organisations face during disaster response. These factors were echoed loudly by respondents in the in-depth interviews and thereby statistically proved that these external factors are equally crucial for lean thinking to succeed.

Study limitations and future research
Methodologically, the study presents a few limitations as there was insufficient time to conduct a longitudinal study. Such long-term methods as case studies and time series could be considered for future research, as the dynamics of disaster response change over time. The first few months of a disaster reflect immediate disaster responses, i.e. responding to the crisis, saving lives and providing primary care like food, shelter and health material (Kitamoto, 2005). Soon after that, the focus shifts to reconstruction and rebuilding lives. It is helpful to investigate disaster responses many years after the disaster event as communities rebuild.

Lastly, the study could not coach philanthropy practitioners on lean thinking as it typically happens in practice. Philanthropy practitioners have been introduced to the concept and primarily implemented 1 or 2 lean tools in their organisation without having a coach to help them sustain the implemented changes. Such coaching is expected in the business world and other sectors, where it can take up to 12 months for people to receive lean training and implementation. Longitudinal approaches with added dynamics, such as the provision of coaching, are recommended for future studies.

It would be interesting for future studies to take this further and investigate ways to effectively utilise lean thinking for other responders like government, the private sector, military forces and individual giving. The socio-economic conditions in the region are vast and affect the operating environments for philanthropic organisations, so it would be essential for future studies to delve into other countries in Africa and focus specifically on the socio-economic and political conditions.

The use of business principles in organising philanthropic acts is a growing field of research; thus, future studies could also explore other lean and agile principles that were not covered in this study, such as the theory of constraints and lean six sigma. The possibilities are endless for what can be achieved through applying process improvement theories in the non-profit context.

References


The influence of lean thinking in philanthropy

Keratloë Mogotsi and Fanny Saruchera


The influence of lean thinking in philanthropy

Keratiloe Mogotsi and Fanny Saruchera


Appendix 1. Questionnaire for survey 1

Phase 1 Survey Questions

Sections of the survey
Please enter a response for each question below.

Background information
1. What activities does your organisation focus on during disaster response [ID]? 
   a) Food provision and distribution
   b) Health issues
   c) Infrastructure issues
   d) Women and children/ vulnerable group issues
   e) Reconstruction
   f) Other (please specify) .................................................................

2. Select the top two disasters that your organisation typically responds to [ID] 
   a) Drought
   b) Flooding
   c) Earthquakes
   d) Cyclones
   e) Tornadoes
   f) Excessive temperatures (e.g., heatwaves/ cold fronts)
   g) Tsunami
   h) Terrorist Attacks
   i) Other (please specify)

3. What is your position in the company [ID] 
   a) Senior Manager or executive
   b) Middle Management/ Supervisor
   c) Administrative/ Operational staff

4. How many staff members are in your company [ID] 
   a) 1 – 15
   b) 16 – 30
   c) More than 30

5. How many countries does your organisation operate in? [ED] 
   a) 1-3
   b) 4-6
   c) 7 and above

6. Of the total number of countries that your organisation operates, how many countries are in Southern Africa [ID]? 
   a) 0
   b) 1-3
   c) 4-6
   d) 7 and above

7. What is the primary focus of your organisation overall? [ID] 
   a) grant making
   b) humanitarian issues
   c) environmental issues
   d) community issues

(continued)
The influence of lean thinking in philanthropy

Keratiloe Mogotsi and Fanny Saruchera

Journal of Humanitarian Logistics and Supply Chain Management

Volume 13 · Number 1 · 2023 · 42–60

8. Where is your head office located (Town, Country) [ED]
   Type in response..........................

9. How long has your organisation been in existence? [ID]
   a) 0–5 years
   b) 6 – 10 years
   c) 11 – 15 years
   d) 16 – 20 years
   e) 21 – 25 years
   f) 26 – 30 years
   g) Over 31 years

10. Lean thinking involves implementing tools to reduce waste and maximise value to the end user (beneficiary). For how many years has lean practice been incorporated into your organisation? [ID]
   a) less than 3 years
   b) 3 – 6 years
   c) Above 6 years

LEAN PERCEPTION

11. According to your understanding, what are lean thinking concepts and philosophy used for in organisations? (Select the top three that apply) [LEAN]

   a) Cost Savings
   b) Continuous Improvement
   c) Waste Reduction
   d) Tools and techniques to improve the operation
   e) Fully integrated management philosophy
   f) A way of life
   g) Comprehensive system of organising and managing supply chains
   h) Headcount reduction
   i) Other (Please Specify) .................................................................

LEAN DRIVERS

12. What drivers would influence the implementation of lean thinking tools and concepts in your organisation? (Select all that apply) [ED]

   a) Reduce cost
   b) reduce inventory and assets required
   c) improve flexibility/visibility
   d) improve utilisation of your facility
   e) Reduce lead times
   f) Improve quality
   g) Improve service responsiveness
   h) reduce labour requirement
   i) Improve relationships with suppliers
   j) Improve supply quality and reliability
   k) Maintain a good reputation with donors
   l) Other (Please Specify) .................................................................

13. How does implement these drivers of improvement influence the accomplishment of your organisation's goals and reaching victims of disasters (please describe) [ID]

   ........................................................................................................
   ........................................................................................................

(continued)
The influence of lean thinking in philanthropy

Keratiloe Mogotsi and Fanney Saruchera

Journal of Humanitarian Logistics and Supply Chain Management
Volume 13 · Number 1 · 2023 · 42–60

LEAN IMPLEMENTATION STATUS

14. Below is a list of lean tools used in practice. Please rate the level of implementation of each of these tools in your organisation when responding to disasters (rate each tool) [LEAN]

<table>
<thead>
<tr>
<th>Lean Tools</th>
<th>Very high</th>
<th>High</th>
<th>Neutral</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workplace organisation (SS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality certifications (e.g., IQS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Standardisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous improvement program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changeover reduction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process Mapping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value Stream mapping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cellular Layout</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error proofing (poka-yoke)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaizen Events</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDCA Problem solving</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Just-in-time (JIT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total productive maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benchmarking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One-piece flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Six Sigma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BENEFITS OF LEAN IMPLEMENTATION

15. What benefits have you experienced from implementing any of the lean tools listed above when responding to disasters? Choose all that apply by placing a tick next to the benefit you have experienced and rate how high/low the benefit experienced:

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Very high</th>
<th>High</th>
<th>Neutral</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>A decline in purchasing cost [VALUE]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved product development, e.g., enhanced delivery kits to the beneficiaries [VALUE]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A decline in logistics cost [VALUE]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improvement in beneficiary penetration [VALUE]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased just-in-time service [VALUE]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to handle unexpected events [REDUCTION]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in culture within the organisation [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Becoming more attractive to donors [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved product service quality [REDUCTION]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue Generation [VALUE]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced Waste [REDUCTION]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A decline in inventory cost [REDUCTION]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased beneficiary satisfaction [VALUE]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased productivity and efficiency [VALUE]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CHALLENGES OF LEAN IMPLEMENTATION

16. The following are possible challenges of implementing lean thinking tools. What could be some of the challenges of implementing lean thinking tools and concepts into your organisation when responding to disasters? Please rate each type of challenge:

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Very high</th>
<th>High</th>
<th>Neutral</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company cultural changes [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of time [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backsliding to the old ways of working [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of budgets [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of willingness from management [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee resistance [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate knowledge and know-how [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk of disruption in operations [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficult to quantify the value of lean [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failure of past lean projects [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need to integrate other organisations [ID]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. Please describe any other tools and techniques that your organisation has used to respond to disasters [ID]

18. If you have utilised techniques other than those listed in question 10, which techniques work better for your organisation than lean techniques and your own and why [ID]

19. Please describe any other challenges faced by your organisation when responding to disasters [ID]

(continued)
Appendix 2. Questionnaire for survey 2

Phase 2 Survey Questions

Legend for coding purposes

<table>
<thead>
<tr>
<th>CODE</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1, H2 – H6</td>
<td>Hypothesis 1, 2 - 8</td>
</tr>
<tr>
<td>MC</td>
<td>Management commitment</td>
</tr>
<tr>
<td>TW</td>
<td>Teamwork</td>
</tr>
<tr>
<td>AC</td>
<td>Adaptable to change</td>
</tr>
<tr>
<td>CO</td>
<td>Communities</td>
</tr>
<tr>
<td>GV</td>
<td>Government</td>
</tr>
<tr>
<td>OP</td>
<td>Other philanthropy organisations</td>
</tr>
<tr>
<td>VA</td>
<td>Value</td>
</tr>
<tr>
<td>WA</td>
<td>Waste</td>
</tr>
<tr>
<td>DESC</td>
<td>Descriptive</td>
</tr>
<tr>
<td>ID</td>
<td>Internal determinant</td>
</tr>
<tr>
<td>ED</td>
<td>External determinant</td>
</tr>
</tbody>
</table>

Sections of the survey

Please enter a response for each question below.

Background information

1. What activities does your organisation focus on during disaster response [DESC]?
   a) Food provision and distribution
   b) Health issues
   c) Infrastructure issues
   d) Women and children/ vulnerable group issues
   e) Reconstruction
   f) Other (please specify) ...............................................................

2. What is your position in the company [ID H1]
   a) Senior Manager or executive
   b) Middle Management/ Supervisor
   c) Administrative/ Operational staff

3. How many staff members are in your company [ID H2]
   a) 1 – 15
   b) 16 – 30
   c) More than 30

4. How many countries does your organisation operate in? [DESC]
   a) 1–3
   b) 4–6
   c) 7 and above

5. Of the total number of countries that your organisation operates in, how many of these countries are in Southern Africa [DESC]?
   a) 0
   b) 1–3
   c) 4–6
   d) 7 and above

6. How long has your organisation been in existence? [ID H3]
   a) 0–5 years
   b) 6 – 10 years
   c) 11 – 15 years
   d) 16 – 20 years
   e) 21 – 25 years
   f) 26 – 30 years
   g) Over 31 years

(continued)
7. Lean thinking involves implementing tools to reduce waste and maximise value to the end user (beneficiary). To what extent have you implemented lean tools and techniques in response to the COVID-19 pandemic? (LEANS FILTER)

a) No implementation
b) Little implementation
c) Some Implementation
d) Extensive Implementation
e) Complete implementation

Please indicate the extent of implementation of each of the following practices in your organisation.

Where: 1. No implementation (NI), 2. Little Implementation (LI), 3. Some Implementation (SI), 4. Extensive Implementation (EI), and 5. Complete Implementation (CI)

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Code</th>
<th>1. NI</th>
<th>2. LI</th>
<th>3. SI</th>
<th>4. EI</th>
<th>5. CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>We have a leadership development process that ensures a deep understanding of the work so that these leaders can teach others.</td>
<td>H1MC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Our leadership development ensures a deep understanding of the philosophy of respect for people and continuous improvement.</td>
<td>H1MC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>We have a people development process to teach employees about the work and expected results.</td>
<td>H1MC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>We have a people development process to teach employees how to use the right tools and solve problems together.</td>
<td>H1MC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>We have a process of frequent monitoring of work by leaders through observation, questioning and guidance to employees.</td>
<td>H1MC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Our staff is engaged in group meetings to report progress.</td>
<td>H2TW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>We are working to lower delivery times to the communities we serve.</td>
<td>H2TW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>We have low setup times to prepare food parcels/donations in our facility.</td>
<td>H2TW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Long production cycle times prevent responding to communities.</td>
<td>H2TW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Long supplier delivery times prevent responding quickly to community requests.</td>
<td>H2TW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Our staff are crucial to problem-solving teams.</td>
<td>H3AC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Our staff drive suggestion programs.</td>
<td>H3AC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Our staff lead processes in improvement efforts.</td>
<td>H3AC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Our staff undergo cross-functional training.</td>
<td>H3AC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Our beneficiaries seldom visit our facility.</td>
<td>H4CO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Our beneficiaries give us feedback on the quality and delivery performance.</td>
<td>H4CO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Our beneficiaries are actively involved in current and future aid specifications.</td>
<td>H4CO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Our beneficiaries frequently share current &amp; future demand information with our organisation.</td>
<td>H4CO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>We regularly conduct community satisfaction surveys.</td>
<td>H4CO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>We frequently are in close contact with our host government.</td>
<td>H5GV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Our host government seldom visits our facility.</td>
<td>H5GV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>We seldom visit our host government’s offices.</td>
<td>H5GV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>We give our host government feedback on the quality and delivery performance.</td>
<td>H5GV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>We strive to establish long-term relationships with our host government.</td>
<td>H5GV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>We dedicate a portion of every day to planning and reporting activities.</td>
<td>HBOP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>We communicate our activities with other NGOs regularly.</td>
<td>HBOP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>We maintain excellent records of our activities in the communities.</td>
<td>HBOP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>We pool our activities visually for active sharing with other NGOs.</td>
<td>HBOP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
The influence of lean thinking in philanthropy
Keratiloe Mogotsi and Fanny Saruchera

Please indicate your level of agreement/disagreement with the impact of lean tools and principles in your organisation. 1. Strongly disagree; 2. Agree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly Agree

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Code 1</th>
<th>2. NI</th>
<th>3. SI</th>
<th>4. EI</th>
<th>5. CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>Visual management using simple visual indicators helped us to identify occurrence of problems.</td>
<td>Nut</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Communication with other philanthropic organisations helped us to plan our responses.</td>
<td>Nut</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>The lack of structuring a chain of help and creating standards made decision-making lack facts and data.</td>
<td>Nut</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Our work tasks have been designed to ensure quality is built in and very little is spent on checking the quality.</td>
<td>Nut</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please indicate your level of agreement/disagreement with the impact of lean tools and principles in your organisation. 1. Strongly disagree; 2. Agree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly Agree

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Code 1</th>
<th>2. NI</th>
<th>3. SI</th>
<th>4. EI</th>
<th>5. CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Visualising information helps us to plan what to deliver in the right quantities.</td>
<td>HBB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Process improvements help us to deliver to our beneficiaries faster</td>
<td>HBB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Our active involvement in improvement work enables us to provide what is reported to be needed by our communities.</td>
<td>HBB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Continuous challenging of the beneficiary signals helps us to avoid waste connected to operations &amp; storage.</td>
<td>HBB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>