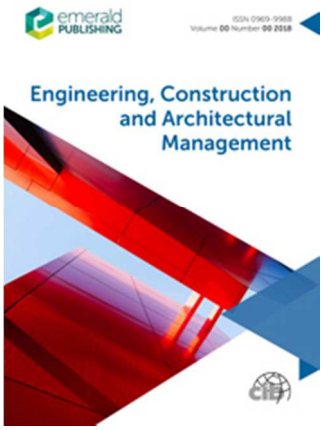

Creating Social Value within the Delivery of Construction Projects: The Role of Lean Approach

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Creating Social Value within the Delivery of Construction Projects

Abstract

Purpose –The purpose of this paper is to present the current knowledge surrounding social value and show how lean approach supports social value realisation in the delivery of construction projects.

Design/methodology/approach – A critical literature review was adopted, to gather the current knowledge surrounding social value from mainstream management sciences, construction management and lean literature. A total of 70 studies were critically reviewed.

Findings –The study establishes that the current level of awareness on social value is still low and there is a dearth of scholarly publications on social value especially in construction management literature. The investigation reveals the potentials of lean approach in supporting the delivery of social value on construction projects.

Social implication –This study conceptualises the community and the physical environment around where the construction project is executed as customers using lean production approach. It shows that the Transformation, Flow & Value view supports smooth workflow which enhances the achievement of social value objectives. This creates a new insight into how social value can be realised in construction project delivery.

Originality and Value –This study extends the on-going debate around the need for social value in construction project delivery and contributes to construction management and lean construction literature on social value. Future studies could build on this to obtain empirical data and develop an approach/method that would support the evidencing of social value delivery on construction projects.

Introduction

The crux of most human endeavours is to create or add value to a system or a process. Value has been understood as the satisfaction or quality derived by the customer from a product or service received (Zeithaml, 1988). Sweeney and Soutar (2001) classified value into three major dimensions. These are (1) Emotional (2) Social (3) Functional. Emotional value is the feeling or pleasure driven by using a product or service (Sweeney and Soutar, 2001). While there is evidence that supports the construction industry's attention to the creation of functional value from its operations (Kelly *et al*., 2014), there is less evidence to support its consideration for emotional and social value (Arroyo and Gonzalez, 2016; Pavez and Alarcon, 2007). However, in recent times, there have been calls to different sectors including the construction industry to deliver social value (SV) from their operations (Arroyo and Gonzalez, 2016; Choi *et al*., 2014; Fernandes *et al*., 2011). This could be due to the impact of the construction industry's activities on social as well as the economic and environmental well-being of people and communities.

Social value is the benefit a community and its inhabitants obtain in terms of social, economic and environmental wellbeing from companies or organisations conducting business around the community. According to Hunter, (2014) social value is what a community receives from an organisation from the execution of its business. This arises from the impact of such operations, whether it has improved or worsened the life of the people in the community. But sadly, this is less practised in the delivery of construction projects. Pavez and Alarcon (2007) observed that most construction management methods focus more on the contract and project with little or no concern on the social elements that relate to the people and the community.

Globally, there are now laws and regulations encouraging the built environment sector to move towards social value creation. For instance, in the USA, we have the Energy Policy Act of 2005 and the Energy Independent and Security Act of 2007; in the UK, the Inequality and Diversity Act of 2010 and the Public Services (Social Value) Act 2012; within the EU, there is the Sustainable Procurement directive 2014 among others. Even with these, the current understanding and conceptualisation of social value, especially in the context of delivering a construction project, still remains unclear. For instance, the term Corporate Social Responsibility (CSR) and Shared Value are sometimes used to mean social value. Although Georgeson, (2012) criticised such narrow perception on social value, it shows the concept is not yet well understood in the construction industry sector.

It has been reported in the UK, Australia and the USA that construction is the sector showing the least commitment to social value creation (Villeneuve-Simth and Chung, 2013; Kernot and McNeill 2011; Barraket *et al*., 2010; Clark and Ucak, 2006). However, Loosemore (2015) argues that the construction industry is well positioned for delivering social value objectives from its operations. For example, the construction industry is the world's largest employer; largest employer of youths and it has the capacity to create local jobs in the communities of operation (Loosemore, 2016a). Despite these opportunities, the concept of social value is yet to receive attention from construction management researchers (Loosemore, 2015a). According to Dreveland and Lohne (2015), lack of clear understanding of value (and its associated concepts such as social value) could make detailed discussion on it difficult, and invariably, its application and practice would be limited.

In recent times, the lean construction approach has shown to be a viable means of creating value and minimising waste on construction projects (Bertelsen, 2004; Koskela, 1992). Previous studies have also explored and shown links between lean construction and sustainable practices (Johnsen and Dreveland, 2016; Fuenzalida *et al*., 2016; Maris and Parrish, 2016; Wu and Wang, 2016; Huovila and Koskela 1998). However, very limited studies have explored the role of lean construction approach as a means to creating 'social value' in the built environment. Also, there is generally less discussion on social value in construction management literature (Loosemore, 2015), and recent reports indicate that social value awareness is still low (Burke and King; 2015; Social Value Act, review, 2015).

This study was therefore undertaken to unravel the current knowledge surrounding social value through a critical literature review. The study presents

findings from a review of the literature on the current knowledge surrounding 'social value' and its drivers. It discusses the relationship between social value, CSR and Shared Value. Additionally, this study aims to show how the lean production concept of "customer" could be used to support social value realisation in the delivery of construction projects. The key research questions addressed are:

(1) *What is the current understanding surrounding social value delivery?*

(2) *How can lean approach support the realisation of social value delivery on construction projects?*

This paper extends the on-going debate around social value from construction management and lean construction perspectives and contributes to the literature on social value in construction management. More importantly, it creates a new insight into how social value can be realised in construction project delivery using lean production philosophy. The paper is structured thus; the first section discusses the current knowledge surrounding social value. The section examines the concept of social value, the need for social value, its current drivers and the relationship between social value, Shared Value and CSR. The second section examines the role of lean approaches in delivering social value on construction projects.

Research Method

The use of literature review in understanding current knowledge and creating new insight for future research agenda is growing in medical sciences, management sciences and more importantly in construction management research (Naoum and Egbu, 2016; Tranfield et al., 2003; Gant and Booth, 2009). In order to explore the current knowledge around social value and provide an insight into the on-going debate from construction management and lean construction perspectives, a critical literature review approach was adopted. Grant and Booth, (2009) confirmed that critical literature review allows for the synthesis of materials from different sources, allows for a degree of analysis and conceptual innovations, provides a conceptual contribution to existing body of knowledge and serves as a launch pad for new research. These attributes of critical review align with the focus of the current study.

However, critical review approach has been viewed to be unsystematic (Grant and Booth, 2009). To overcome this in the current study, a review strategy was developed. Purposive and snowballing sampling approach was adopted in selecting studies included in the review (Bryman, 2015; Sanders, 2011). Purposive sampling approach enables the researcher to select the population (articles or studies) that are relevant in answering the research questions. The goal here is not in the quantitative or statistical analysis of the studies, rather it is in the interpretative analysis of the study included. This means the focus of the literature search would not be rigid as in systematic reviews (Tranfield *et al.,* 2003). This approach allows a search of as many sources as possible and to identify relevant materials that answer the research question. Grant and Booths, (2009) argued that the essence of a critical review is not in quality assessment of the studies, but to interpretively analyse the studies included and provide a conceptual contribution. The focus of the current study is to make a conceptual contribution to the current knowledge around

social value from construction management and lean construction perspectives through interpretive analysis of the studies included in the review in order to answer the research questions. Additionally, Sanders et al., (2012) show that the snowballing approach is used when it is difficult to identify the members of the proposed population for the study from the onset. In this study, snowballing approach was used to identify other relevant articles and materials through a close examination of the reference lists and bibliographies of already identified relevant studies.

The population for the study was literature that focuses on social value and lean in mainstream management science, construction management and lean construction. In achieving this, a robust literature search protocol that selects publications based on source and its relationship to the study research question was developed. This includes combining key terms from the study and subsequently searching on databases, perusing of the identified paper abstract and snowballing of relevant study reference lists and bibliographies. Through this process, relevant materials that align with the research question were identified and critically reviewed.

A search of the literature was done using online databases; Emerald, Elsevier, Scopus, Google scholar, Willey online, Taylor and Francis online. In addition, peer review articles from The International Group for Lean Group for Lean Construction (IGLC) publications and relevant materials that answer the research questions were identified. The search was conducted between January and December 2017. A number of terms and combination of terms that align with the topics were used in the search. These include, but not limited to; 'social value', 'social value in construction project', 'lean project delivery', 'lean thinking' 'value in lean construction', 'value in construction', 'customer in lean production' 'lean production', 'shared value', 'Corporate Social Responsibility', 'lean construction and social value', 'sustainable construction', 'drivers for social value', and 'social value theory'. The articles reviewed were those published in English language and that align with the topic.

However, it emerged from the search that not much had been documented on the social value on some of these databases and journals especially in relation to construction project delivery. For instance, a purposive search on the term "social value" in the Journal of Construction Management and Economics revealed only 14 papers. Again, this confirms that the concept of social value is still at an infant stage in construction management literature (Loosemore, 2015a; 2015). As a consequence, the search was extended to include government reports, technical reports and website materials on social value. This was done to gain an in-depth understanding of the current debate around social value and to ensure no available relevant materials were omitted. A total of 70 studies were critically reviewed.

Current Knowledge Surrounding Social Value

The Concept of Social Value

There is a lack of absoluteness in the definition of 'social value'. According to Choi *et al.,* (2014) social value is complex to define due to its intricate and subjective nature. Nevertheless, various reports and research publications have

attempted to offer definitions and explanations on the concept of "social value" as presented in Table 1. The table presents the definitions of social value and the emerging themes found from the several definitions. The publications in Table 1 are categorised into two; government publications (non-research publications) and research publications. Analysis of the definitions and emerging themes from both government and research publications show that in order to create social value, every business should consider how its operation would improve the social, economic, and environmental well-being of the communities where they execute their business. Applying this to construction, Loosemore and Hoggin, (2015) reiterate that the goal of construction firms, therefore, should not only be to make profits and improve productivity for its stakeholders, but it should include engaging and improving the communities where they build.

Notwithstanding, Table 1 confirms the previous assertions that there is no absolute definition of social value (Loosemore, 2015; Choi *et al*, 2014). For instance, from the government publications, it can be seen that Social Enterprise UK (SEUK) views social value as 'thinking' on how scarce resource should be used, which is too broad. On the other hand, the social value definition provided by HMRC was definite on three elements (social, economic and the environment) as the focus of creating social value. It is worth remarking that the need for SV measurement was highlighted in most of the research publications' definitions. But this was not clearly mentioned in government publications' definitions of social value. This could be due to the empirical nature of the research publication studies and the increasing understanding of the need for measuring the social impact of an organisation's operations. In addition to social value measurement, some authors argued in their definitions that social value is beyond compliance with CSR by organisations (Loosemore, 2016; 2015a). The emphasis on the need for measuring social value from the research publications shows that it is not sufficient to just include the social value in a contract; strategies for measuring it should also be put in place.

Insert Table 1 here.

Furthermore, Table 1 reveals that, despite the current understanding on social value, there is still no clear or single criterion for measuring social value (Retolaza *et al*; 2015; Loosemore and Hoggin, 2015; Choi *et al*, 2014). This means the criteria to be used in measuring or identifying social value and the additional benefits to be created as stated in some of the definitions of social value in Table 1 could differ for different context and audience. It is no surprise Choi *et al*., (2014) assert that social value is very elusive compared to economic value as there is lack of objective approach to measuring its outcomes. According to Burke and King, (2015), subjectivity in social outcome could limit objective measurement in social value, as situations and events could change in the process.

This implies that there should be no prescriptive approach in defining the supposed additional benefits mentioned in the definition of social value above, rather, the nature of the stakeholders in the community, context, and situations should define the additional benefits expected from the process. The implication of this for construction organisations in the delivery of its project is that; the

social values to be created on a project should not be pre-determined outside the project environment, rather they should be identified through direct engagement with the stakeholders in the community. However, this is less practised by construction organisations. Georgeson, (2012) observed that traditionally, organisations use a top-down approach to decide what to provide for a community as part of their CSR. However, this is contrary to the bottom-up approach advocated in social value practice.

The need for Delivering Social Value

The need for delivering products and services with regard to the impact on the economy, the environment and social well-being of the community is increasing in every sector (Choi *et al.,* 2014; Fernandes *et al.,* 2011). According to Ghazali, (2007) organisations that do not care for the environment or contribute to the wellbeing of the community could have their services and products boycotted and image degraded. This suggests that companies can engage in the creation of social value to increase or improve their social image in the eyes of stakeholders. However, it has been observed that the commercial sector is reluctant to practice social value, as it is usually seen as a separate entity from an economic value (Choi *et al*., 2014). This view is also supported by the separation theory (Friedman, 1962), where companies are seen only as a contributing engine to the economic function with less attention to their social roles.

However, charities, social enterprises, NGOs and the public service are calling for the consideration and inclusion of social value practice in businesses (Choi *et al.,* 2014; Croydon Council, 2013). These demands for creating social value alongside economic value are increasing. It has been observed that social value is now a growing organisational issue with five different groups identified by the G8 to be interested in social value (The Social Impact Investment Taskforce, 2014). The groups include government, foundations, social sector organisations, impact-driven businesses, and impact investors. Tomlins (2015) further described the impact-driven businesses and impact investor groups to be customers and users. In construction project delivery, "the impact-driven business group" can be those the construction operations directly or indirectly affect. These groups would expect commitment and contribution to the delivery of social value to the community and the environment from construction companies operating in their vicinity. According to Ofori *et al*., (2000) consideration for the environment by construction organisations would certainly change the way construction projects are executed. However, studies have shown that the construction industry is reluctant about this and more concerned about the short-term cost benefit from projects (Choi *et al*., 2014; Ofori *et al*., 2002).

Current drivers for Delivering Social Value

From the comprehensive literature review, five core drivers for delivering social value were identified as presented in Figure 1 and discussed subsequently (Tomlins, 2015). These include;

- The business imperatives for an organisation
- Business sense of social value

- Global interest in the social value
- Opportunities in the social value sector
- Legislation and regulation

Insert Figure 1 here

Business Imperative for Social Value

There is growing understanding of the measurement of the impact of businesses in recent times with attention being given to business delivery and accounting for social value (Tomlins, 2015; Scot, 2012). The "triple bottom line accounting" that considers social, environmental and financial impacts have been used since the 1990's to measure business influence (Tomlins, 2015). This approach is also known as the 3Ps: that is profit, planet, and people. Traditionally, construction project management operation seems to focus more on profit rather than on the planet and people (Pavez and Alarcon, 2007). However, Burke and King, (2015) observe that commitment to social value objectives make organisations competitive. This shows that investment in social value creation by construction organisations is not a waste, but rather positions an organisation to perform better in its businesses.

Global interest in Social Value impact

The need to deliver social value has been echoed by world leaders. At the G8 meeting held in the UK in 2013, David Cameron, the then UK Prime Minister stated that:

> *"I want to use our G8 presidency to push this agenda forward. We will work with other G8 nations to grow the social investment market and increase investment, allowing the best social innovations to spread and help tackle our shared social and economic challenges". David Cameron Prime Minister, UK World Economic Forum* (The Social Impact Investment Taskforce, 2014, p.2).

The above statement shows the global interest in social value. However, the commitment was beyond the statement above as structures were put in place to support the achievement of the proposal at the end of the G8 meeting in 2013. The three main structures put in place as indicated in the report (The Social Impact Investment Taskforce 2014, 2015) are; (1) The Social Impact Investment Taskforce to drive the process (2) The Working Group on Impact Measurement and (3) The Global Learning Exchange. The commitment of the G8 to this shows their view on social investment as having a potential to support growth, innovation, and to address social problems in the society (Tomlins, 2015). Also, the EU is committed to supporting social investment. Since 2014, 85 million Euros has been given out to social enterprises that are able to demonstrate measurable social impact (Brussels, 2014).

Opportunities in Social Investment Market

Tomlins, (2015) observed that in the UK, the social investment market comprises of the private, the public and voluntary sectors. This means construction organisations could benefit from the opportunities presented by the social investment market. Furthermore, it implies no sector is exempted from

participating in the social investment market and there are numerous opportunities in the social investment market. For example, a current report indicates that the desire for social investment market in the UK was about £1 billion in 2014 (UK National Advisory Board, 2014). The very few construction organisations that focus on delivering social value are benefiting from these opportunities. For instance, in Australia, Boys Town Enterprises deliver social value to the community by engaging disadvantaged youths in residential construction (Loosemore, 2015). This has empowered over 2,000 disadvantaged youths. Also, in the USA, KaBOOM! is another company that focuses on delivering social value and it has raised over $200 million dollars and built more than 2000 playgrounds (Hammond, 2012). In the UK, Blue Skye Company is committed to delivering social value with a focus on offenders (Loosemore, 2015; 2015a).

Business sense of Social Value for the Private and Public Sector

There is evidence that the private sector now sees the business sense of committing to social value in the UK. For example, the Chairman of Carillion Plc (A top construction company formerly operating in the UK), Philip Green stated that: *"Pressure is increasing from the government, the public, the media, regulators, and customers for business to behave responsibly … Consumer scrutiny of business behaviour is growing. Ignoring these pressures is commercially destructive."* (Trading for good report, 2013, p.3). It has also been reported that the Chartered Association of Building Engineers has made creating social value a core point in their service delivery (Raiden *et al.,* 2016). The above statement shows that businesses within the private sector are realising the likely impact of lack of commitment to social value in the delivery of their operations.

Legislation and Regulation Driving Social Value Delivery

In addition to the business imperatives, evidence from literature reveals that various legislation and regulations are now in place from across the world to drive the consideration for social value in businesses (Tomlins, 2015; Loosemore, 2015a; Social Value Act, 2012). For instance, in the USA, there is the Energy Policy Act of 2005 and the Energy Independent and Security Act of 2007; in the UK the Inequality and Diversity Act of 2010 and the Public Services (Social Value) Act 2012; and within the EU, there is the Sustainable Procurement directives 2014 among others.

Understanding Social Value using Firm Theory

It is believed that the goal of every organisation should be to create value, and this should include the creation of social and economic value for the society. According to Porter and Kramer, (2011) social performance is of great importance to every society. However, in practice, less attention is paid to the creation of social value by companies (Fernandes *et al.,* 2011). To understand the concept of social value in firms or organisations, Retolaza *et al.,* (2015) suggest the use of firm theories. One of such theories is the theory of separation. It tends to present an organisation with two core but independent functions which are: ethics and financial performance (Friedman 1962). Ethics,

as shown in Figure 2, is described as the social function of the enterprise, otherwise known as social value.

Insert Figure 2 here.

While this assertion is true, it is flawed because there is lack of integration between the functions as shown in Figure 2. According to Retolaza, *et al.,* (2015) there is lack of clear integration between the economic and social views in the separation theory. This view has made companies/organisations believe that the foundation of the company's operation only lies in the economic gain rather than in value creation (Retolaza *et al.,* 2015). It could be argued that less commitment to the creation of social value could have been influenced by this so-called "separation theory". However, this narrow view on the function of firms has been heavily criticised. Freeman, (1984) called for a shift in the previous practice and advocated the need for complete integration of economic and social values in the operations of an organisation.

This implies companies should not view the creation of social value as a separate operation from the economic value it hopes to deliver to its shareholders, rather, both should be incorporated and delivered as a system with a goal of influencing the society at large. Man-Fong Ho (2011), argues that business organisations cannot function in a social vacuum, but must definitely interact with the communities and the environment where they operate. According to Freeman, (1984) a company's sustainability in business and creation of value is not only for the company's shareholders but also to the society and the environment. This position has great implication for construction clients, main contracting companies and supply chain companies in their operations. Clearly, it requires a defined strategy by these companies and their supply chains to specify how each of their operations would fulfil the economic, social, and environmental needs in the delivery of their activities right from the economic value proposition stage. This means the economic value proposition should not be separated from the social value in the business case. However, companies are mainly seen as economic generating blocks (Groth *et al.,* 1998). Notwithstanding, Man-Fong Ho, (2011) reiterates that for construction organisations to survive in the present day reality, they must pay attention to ethical issues (social value) in the delivery of projects.

This could be demonstrated in new build, maintenance, infrastructure projects, and other operations in construction project delivery. In practice, the theory requires that generation of economic value should be clearly linked with the social elements. It means that social value should not be viewed as an extension of economic value as advocated in the separation theory (Friedman, 1962). Furthermore, what the new theory (theory of integration Freeman, 1984) means for main contractors and construction clients is that the assessments of supply chains' performance should not be limited to the four project key performance indicators (time, cost, quality and safety) alone. It should also include their commitment to integrating economic and social value for the benefit of the society at large. In doing this, Man-Fong Ho, (2011) suggested that the management should develop ethical decision-making guidelines to support employees.

The Relationship between Social Value, Corporate Social Responsibility and Shared Value

While these three concepts show a strong relationship with each other, they are not exactly the same. The World Business Council for Sustainable Development (WBSCSD) defines corporate social responsibility as "a continuing commitment by business to contribute to economic development while improving the quality of life of the workforce and their families as well as the community and the society at large" (WBSCSD 1999, p.3). Shared Value is defined as "Policies and operating practice that enhances the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates" (Porter and Kramer, 2011). Both definitions show the intention to contribute to the economic and social conditions of the communities of their operations.

However, in CSR practice, contributing to the economic and social condition may not occur simultaneously as expected in Shared Value practice. Shared Value has been viewed as an extension of CSR (Georgeson, 2012). Social value, on the other hand, has been referred to "as a wider non-financial impact of programmes, organisations, and interventions including the wellbeing of individuals and communities, social capital and the environment" (Wood and Leighton 2010). The key difference between the two earlier definitions and social value is that social value is not directly tied to the financial gain that would accrue from the process.

This implies that even when there is no obvious financial benefit, a social value could still be delivered, although this does not mean that social value does not result into financial benefits (Pasquire and Salvatierra-Garrido, 2011). For instance, an organisation or corporation could reduce or abandon their commitment to CSR and shared value practice if it is observed that the final outcome does not align with the company's business model. Also, CSR and Shared Value have been criticised as a top-bottom approach to delivering community good (Georgeson, 2012). This implies that the community has little say in the decision process. However, delivering social value is a bottom-up approach. That is, the community has a major say in determining or identifying the social value to be created. All this suggests that social value is beyond CSR and Shared Value practices. The key difference therefore between social value, CSR and Shared Value is that, while CSR and shared value use a top-bottom approach in delivering the community good, social value uses the bottom-up approach.

Social Value in the Context of Construction Project

There has been increased pressure on the construction industry to deliver social value through its processes (Social Value Act, 2012). This is no surprise because of the obvious impact of construction activities on the local economy, community and the environment where it operates. Despite this call, the industry seems not to focus on these issues (local economy, community and the environment) in the delivery of construction projects. Salvatierra-Garrido and Pasquire (2011) assert that the focus of value delivery on a construction project is that of meeting the client's requirement and making a profit for the organisation without due consideration for delivering value (social value) for the larger society. Furthermore, Kagioglou et al, (1999) observe that the construction industry is

keener about the final product than the processes involved in delivering it. This traditional view, when adopted, would not support the delivery of SV on construction projects. This is because the creation of high impact SV emerges from the processes rather than the final product. It is with this understanding that authors such as Farag et al., (2016); Salvatierra-Garrido and Pasquire, (2011) emphasised the need to consider the impact of construction activity on the wider society and to integrate social value delivery into the delivery process of a construction project. However, Porter and Kramer (2011) found that SV is considered to be a philanthropic activity rather than an activity that must be engaged with for successful delivery of a construction project. This means there may still be some reluctance by construction project organisations in considering SV delivery as part of their core function in the project execution process.

However, this does not mean SV is not being implemented on construction projects as some studies have reported some form of its implementation on construction projects in different parts of the world; In the UK (Bridgeman et al., 2016; Bridgeman et al., 2015; Burke and King, 2015; Loosemore and Barraket, 2017), in Sweden;(Petersen and Kadefors, 2016), and in Australia; (Denny-Smith and Loosemore, 2017; Reid and Loosemore, 2017) among others. This shows the need to consider SV in the delivery of construction project is gaining attention. According to Salvatierra-Garrido and Pasquire (2011), the construction industry needs to show more commitment to improving the wider society where they operate because of the impact of their activities on the society.

Social Value in Construction Procurement

The importance of incorporating social value in the procurement process in the construction industry cannot be overemphasised. Recent studies have shown social procurement has the approach used in creating social value in construction project delivery (Denny-Smith and Loosemore, 2017; Pertersen and Kadofors, 2016; Reid and Loosemore, 2016). The use of social procurement in the delivery of construction project has been reported in different parts of the world; in Sweden (Petersen and Kadefors, 2016); in Australia (Reid and Loosemore, 2017) and in the UK (Loosemore and Barraket, 2017; Bridgeman et al., 2016, 2015; Croydon Council, 2013). This could be so since the procurement process drives how the project is delivered. In the UK, Croydon Council reported some case studies on how SV was incorporated into evaluation criteria, tender stage and tender documentation in the delivery of its construction projects.

However, this must be viewed with caution, as Reid and Loosemore, (2017) found from their Australian study that the social procurement is done mostly by organisations to comply with the regulation. The danger with this is that, if organisations view it as a tick box exercise rather than improving the local economy, the local community and environment where they operate, the goal of the entire process would be defeated. This means in addition to the inclusion of contractual clauses that support SV delivery, a personal relationship built on trust should also be developed. Reid and Loosemore, (2017) affirmed that a mixture of contractual and interpersonal approach is the sure panacea to secure social procurement in the delivery of construction projects. Nevertheless, the use of contractual clauses is essential in incorporating SV into the delivery process of the project due to the barriers that respective procurement methods (such as Traditional procurement system, design and build, management

contracting and construction management) used on the project may present. The implication of this for organisations is that they should structure their contracts and add clauses to enable them to deliver social value irrespective of the procurement method used (Cook et al 2014).

Social Value and Construction Project

It is important that every construction project is designed to contribute and improve the economy, the local community and the environment where it operates. A review of the extant literature reveals construction project related social value tailored initiatives as shown in Table 2.

Insert Table 2 here:

The importance of committing to these construction project social value tailored initiatives cannot be overstated. In practice, it entails encouraging the use of local content in the procurement of materials, labour and services. For example, case studies have shown that providing training opportunities has led to the gainful employment of young people and for those Not in employment, education or training (NEET), thus contributing to a circular economy (Alen and Alen, 2015; Croydon Council,2013). Circular economy goes beyond waste prevention and minimisation; it also includes social innovation through engagement with the value chains (Ellen MacArthur Foundation, 2013). Bridgeman et al., (2016) found from their study that providing training and placement opportunities for students influences their future career choice and demonstrates social return investment. However, the practice of these in construction project delivery is still fragmented and unsystematic with supply chain focusing on low value and low-risk activities (Reid and Loosemore, 2017; Burke and King, 2015).

Furthermore, consideration for the environment is also essential in delivering SV on construction projects. The United Nation Conference on Climatic Change held in France in December 2015 is one among many calls to protect the environment (United Nation, 2015). More importantly, construction industry activities have been identified to impact the environment negatively (Green Building, 1999). For instance, 50% of natural resources are consumed in the construction of buildings (Green Building, 1999). To contribute and maintain the social well-being of the stakeholders in the community where construction activities are undertaken, organisations should carefully consider how their operations could impact on the existing natural environment. Research has shown that the implementation of social value by caring for the environment improves the health and mental well-being of the stakeholders living in the community (Georgeson, 2012).

Examining the Role of Lean Approach in Social Value Delivery on Construction Projects.

Search in Lean Production Approach

Various authors have described extensively the evolution of lean production and the TPS in the manufacturing industry (Shah and Ward, 2007; Womack and Jones, 1999). The goal of lean production is to add value and eliminate waste from the product right from design through to the manufacturing or production stage. However, Shah and Ward, (2007) cautioned that lean production should not be viewed as waste elimination alone, but, rather as an integrated process that considers both the product and the processes involved in developing the product. This implies that the focus of lean production is not just on the final product, but also on the processes that culminate in the development of the final product. Sadly, this view is less upheld in the delivery of construction projects. According to Kagioglou et al, (1999) construction project delivery focuses more on the final product than on the processes involved in delivering it. The social value, on the other hand, emphasises the need for every construction project to critically consider the processes involved in the delivery of its final product with the goal of creating a positive influence on stakeholders in the community, the local economy and on the physical environment. In the Toyota Production System (TPS), this entails recognising the problem that would impede flow in the production and incorporate it as a task in the production process (Spear, 2002). This implies understanding the impact of a construction project on the local community, the local economy and the environment, and integrating them into the project execution process would support better value delivery from the construction project.

From the foregoing, it could be argued that the lean production approach or view has more potential to support the achievement of social value delivery on construction project compared to the current traditional view that dominates construction project delivery. This is because the latter focuses more on the product than the process involved in delivering it (Farag et al, 2016; Ballard and Howell; 2004; Kagioglou et al, 1999). However, the view of likening the manufacturing industry (lean production) to the construction industry projects is not accepted by all. For example, Gann, (1996) opined that construction products are usually large and immobile; this implies that construction products are created at the point of consumption, unlike manufacturing where materials are fully produced in the factory before sending it to the market. Although, Salem et al., (2006), agreed that there are clear differences between the manufacturing and the construction industry; they conceded that both operations involve 'production' and 'services' with the aim of meeting customer demands and requirements. Tommelein et al., (1999) also argued that both the manufacturing and the construction industries can be seen as production systems that use processing points and hand over partially completed work to the next customer. This means in both manufacturing and construction projects, the goal is to satisfy the next customer. However, the current understanding of a "customer" in construction project delivery focuses more on the paying client

and this view is too narrow. But in lean production, the customer also includes people who are on the production line.

With this understanding, the concept of a customer in construction project delivery could be widened to include the local communities, the local economy and the physical environment where the project is undertaken. For instance, Salvatierra-Garrido and Pasquire, (2011) challenged the construction industry to move away from the project based context to a more global context that adequately considers the impact of construction operations on the wider customer or community. Furthermore, Spear and Bowen, (1999) from their study that explores the DNA of the TPS show the importance of identifying the customers on the production line so as to design the production system to suit them. This helps in the maintenance of a smooth flow in the production system and also shows the essence of considering the wider customer a construction project could impact. This view is also supported by an earlier call by Ofori (1992) that the construction industry should include consideration for the environment as the fourth objective of measuring project performance in addition to cost, quality, and time. This entails embedding the culture of caring for the environment and people living in the environment. Similarly, Close and Loosemore, (2014) called on the construction industry to view the communities where they operate as an asset rather than a liability. This means, in delivering social value from a lean production perspective, the community and physical environment should be viewed as customers. Despite this call, the construction industry has not really changed its approach to project performance measurement indicators. It could be argued that the non-consideration of social value as an activity that contributes to the achievement of project goals, could have contributed to lack of SV delivery on construction projects (Porter and Kramer, 2011).

However, Arroyo and Gonzalez, (2016); Johnsen and Dreveland, (2016) argued that to deliver viable value in the built environment, effort should be extended to improve the social, economic and environmental well-being of the inhabitants during the design and delivery process. The importance of paying attention to the above-mentioned factors in construction project delivery cannot be over-emphasised as its absence usually leads to what Awakul and Ogunlana, (2002) call interface conflicts. Interface conflict is a conflict that occurs between the internal project group and those outside the project such as the communities, and NGOs situated around the project. Kishor and Ogunlana (2011) identified the consequence of such conflicts to include delays, cost and time overruns and even suspension of the project. Again, this shows the importance of viewing the communities and environment as customers as advocated in lean production.

Bae and Kim, (2008) observe that lean production approaches have a positive impact on community wellbeing, the loyalty of stakeholders, resource saving, and reduces resource depletion among others. However, to achieve this in practice requires having conversations and consideration for each customer in the production process. For the purpose of delivering social value, this must include the community. From a construction project perspective, community refers to people, places or things that could be directly or indirectly affected by the construction project (Close and Loosemore, 2014; Thomson *et al*., 1990). The conversations and considerations (for the community) should include

elements such as people, plants and animals, settlements, and local economies among others. This places the onus on construction organisations to consider the local communities and physical environment as "customers' in the delivery of their services so as to create value. But this is less practised in the traditional approach of construction project management (Paz and Alarcon, 2007; Ballard and Howell, 2004), which in no doubt limits social value creation.

Search in Lean Construction: The TFV Model

Koskela (2000), argued that traditionally, most construction operations focus on Transformation activities (input and output), with little or no attention on Flow and Value generating activities. Following these observations, Koskela, (2000) introduced the Transformation, Flow and Value view (TFV) model in lean construction. While the Flow (F) view focuses on material flow, the Value (V) view focuses on the customer (Koskela and Howell, 2002). The TFV model provides a unique approach to support social value delivery on construction projects. The flow (F) in the TFV model means consideration for the flow in the production or construction process. Koskela, (2000) identified seven process flows; information, task, resources, space, people, material, and external conditions. According to Koskela and Ballard, (2006) proper management of the relationships between these "process flows" is essential for the smooth running of the production system on site. In the delivery of social value on a construction project, various activities are interlinked and the relationships between these activities must be identified and managed for smooth flow. For instance, external condition and people are among "the process flow" conditions identified in the "Flow view" for smooth workflow on construction projects. Using the "Flow view" lens for SV delivery, the "external condition" and "the people" could mean the physical environment and the people living in the community where the project is undertaken.

Studies have shown that construction activities have an impact on the external environment and people and as such, they should be adequately considered for successful project delivery (Salvatierra-Garrido and Pasquire, 2011; Ofori et al., 2000). This means to support the smooth flow of activities on the project, engagement and consideration for (this process flow conditions-external conditions and people) are essentials. This could entail identification with the stakeholders in the community to better understand where the project would best contribute to their social, economic and environmental needs. There is evidence that early engagement of the project team with the communities around the project to identify with their social, economic and environmental needs prevents disputes and conflicts from the communities around the project (Daniel and Pasquire, 2017; Ofori et al., 1992). Awakul and Ogunlana, (2002) also observed that lack of engagement with the local communities around the project contributes to the interference of construction project.

Furthermore, in the construction phase, maintaining a smooth flow in the delivery of materials and execution of tasks would prevent "push" and support "pull" approach as observed in Koskela *et al*., (2007). The push approach supports the delivery of materials and commencement task as shown on the master programme, even when the space for work and the work is not ready. The lack of consideration for "the process flow conditions" lead to "push" on construction projects which contributes to the non-achievement of tasks as

planned on construction projects (Ballard and Howell, 1994). In practice the "push" approach could lead to site congestion, accident and pollution of the environment, thus reducing the achievement of social value delivery on the project. However, the "pull" approach which is the focus of "the process flows", allows delivery of materials and commencement of tasks based on the real-time situation on site. This supports Just-in-Time delivery, thus reducing congestion on site. This means the "pull" approach has the potential to support SV delivery on a construction project as it helps in reducing congestions on site and environmental pollutions.

The focus of the (V) "value generation view" in the TFV model is to create value from the customer's perspective (Koskela, 2004). It must be noted that the term customer as used here is not limited to the paying client alone who is seen as the internal customer, rather, it includes both the internal customers (client) and external customers (local community and the environment). Although, the concept of value generation from the customer perspective has been in production for many decades (Shewhart, 1931); the construction industry is yet to embrace this concept in its practices. One of the key principles in the "value generation view" is to ensure customer requirements are satisfied (Koskela, 2000). According to Koskela and Howell, (2002), the decision-making process that supports value generation view should be decentralised and all the stakeholders in the development process should be given a clear say. This means, in adopting the "value generation view" to support social value delivery on construction projects, the management of the construction process should include consideration both for the internal and external customers by engaging them in some of the decision making process. Georgson, (2012) asserted that social value is built on "bottom-top" approach so as to allow the customers make an input in the decision process. This clearly aligns with the "value generation view" in the TFV model. This means the value generation view in the TFV model could empower the local communities where construction projects are undertaken to make an input by identifying activities that would improve the life of the people around the project. In reality "the bottom top approach" requires construction organisations to consult with the community (customer) in the design and delivery of its operations so as to create high impact social value. However, Koskela and Vrijhoef, (2000) found that the "bottom-top" approach is absent in construction project management and this hinders innovation in construction project delivery.

Also, the "value generation view" empowers those doing the work to contribute to the production process on site as advocated in the Last Planner System (LPS) (Ballard, 2000). In the LPS, each trade in the construction process is viewed as a customer and allowed to make an input to the production process on site (Ballard and Tommelein, 2016). According to Ballard, (2000); Ballard and Tommelein, (2016) the LPS process contributes to the development of a reliable and predictable plan. However, its implementation is still fragmented and recent studies tend to report that its crucial elements are not fully implemented on construction projects (Daniel et al., 2017). Nevertheless, the use of the LPS in managing project production on construction projects is on the increase due to its capacity to manage complex relationships and develop a predictable plan through collaborative planning (LCI, 2017; Daniel et al., 2017; Ballard and Tommelein, 2016). Fernandez-Solis et al, (2012) found that the LPS has been

implemented on over 200 projects with on-time delivery of construction projects. It could be argued that the on-time delivery of construction projects through the use of LPS will not only benefit the client and main contractor, but also the local community around the project, the environment, and the local and national economy. For example, the environmental pollution, noise pollution, road congestion etc. that could arise from such construction activities would be eliminated quickly. This shows that the application of LPS; a lean construction approach, would support the achievement of SV delivery on a construction project.

Search in Lean Principles

Womack and Jones, (1996) found that in delivering products and services based on lean principles, identification of value from the customer perspective should be among the core principles to be observed. The lean production approaches for delivering value identified in Womack and Jones, (1996) include: (1) Identify customers and specify the value (2) Identify and map the value stream (3) Create flow by eliminating waste (4) Respond to customer pull (5) Pursue perfection. From the lean principles above, to identify customers in the context of construction project delivery could mean to identify the elements that make up the communities with a view to specifying the value from their perspective. Delivering value from lean project production perspective supports the reduction of non-value adding activities; improves transparency and collaboration (Johnsen and Dreveland, 2016; Fuenzalida *et al*., 2016; Maris and Parrish, 2016; Wu and Wang, 2016; Huovila and Koskela 1998).

Additionally, responding to customer "pull" as advocated in lean production could mean the customer/communities receive what they require at the right time, in the right quality and quantity. This would certainly curtail the emergence of interface conflict on projects (Awakul and Ogunlana, 2002); thus, supporting the social value delivery of projects.

The pull principle that supports continuous improvements, offers opportunities for construction organisations to reflect on the feedback received from the communities on the social value delivered. Through such feedbacks, the social value created can be improved upon in the future. Table 3 further shows the link between lean principles and social delivery in a construction project.

Insert Table 3 here:

One of the key goals of lean is to satisfy the stakeholder or customer requirement (Shah and Ward, 2007; Koskela, 2000). It is worth noting that stakeholders, as used here, refer to both internal and external stakeholders (Awakul and Ogunlana, 2002). However, the best approach to achieving the stakeholder requirement as advocated in lean is by consulting with the stakeholder. Khodeir and Othman, (2016) observed that this lean principle of meeting the stakeholder's requirement support social value delivery because it encourages consultation with the local people community (external stakeholder) and it helps in the identification of the social value to be delivered from the community perspective. This approach would support the delivery of high impact SV to the local community because of their direct involvement. Piercy and Rich,

(2015); Lee and Shin,2010, argued that a good lean organisation would focus on improving the quality of life in the local communities where they operate and those of its employees. However, this is often overlooked (Womack and Jones, 2005). Additionally, Khodeir and Othman, (2016) pointed out that providing equal job opportunities and future job prospects for the employees (internal stakeholders) would enhance the achievement of social value with regard to the meeting the requirements of the internal stakeholders.

The use of standardised processes and lean techniques supports the achievement of social value delivery (Govindan et al, 2014; Faulkner and Badurdeen, 2014; Piercy and Rich, 2015; Tezel et al, 2016). Piercy and Rich, (2015) showed that the use of visual management (VSM) a lean technique support the better working condition which contributes to the achievement of high health and safety performance. Similarly, Tezel et al, (2016) found that VSM and 5S enhance communication on construction site and improve health and safety practice in projects. This implies that a carefully planned production process and the application of lean construction techniques would contribute to the health and wellbeing of both internal and external stakeholders (Govindan et al, 2014; Faulkner and Badurdeen, 2014; Piercy and Rich, 2015). In practice, the VSM could be used to communicate with the local community about future work notices that may cause some disturbance, road diversions, and planned road closures among others. This would reduce the impact of such activities on the social and wellbeing of the people in the community, thus contributing to social value delivery. Also, the 5S would improve working condition of the workers on site through better ergonomics which could reduce stress. Leon and Amodio, (2017) observed that lean principle improves working environment which in turn reduces stress. According to Govindan et al, (2014) and Nahmens and Ikuma, (2012) standardised process not only reduces non-value adding activities, but it also supports social improvement on the workers.

As shown in Table 3 the lean principle of reducing cycle time and variability in the production process contribute to the achievement of SV delivery in construction projects (Khodeir and Othman, 2016). In order to reduce cycle time in material delivery and in sourcing for labour, these could be sourced locally from the local community. However, in reality, this practice not only reduces cycle time but it also; create job opportunity for the locals and contributes directly to the local economy; reduces pollution on the environment, as a result of the reduction in transportation of people and materials. All of these are evidence of SV generated as a result of the application of lean principles of reducing cycle time.

Finally, using the lean principle of reducing variability in the production process would support the use an integrated supply chain which would, in turn, minimise variability issues in the workforce and in the product and services delivered. In practice, it entails have a long-term relationship with the employees and the supply chain. Piercy and Rich, (2015) observed that such practice support the development of strong cohesion among the workers and supply chain.

Summary of Findings

The aim of this paper is to explore the existing knowledge around social value and to evaluate how lean production philosophy could support the realisation of social value in construction project delivery. The study found that:

- Social value emphasises the need to critically consider and create a positive influence on the individual stakeholders in the community and on the physical environment. It connotes a shift from the traditional goal of getting the lowest cost or price to the goal of delivering satisfactory service/product to both the individual in the community and the physical environment in the community-especially in executing construction projects.
- Freeman's (1984) integration theory shows that creation of social value should not be a separate operation from the economic value, rather, both should be incorporated and delivered as a system with the goal of influencing the society at large.
- The low commitment to the creation of social value by construction firms could have been influenced by the so-called "separation theory" postulated by Friedman 1962.
- The case for delivering social value is not with the legislation and regulation alone, rather, it includes other elements such as the business sense of it, global interest, and social value market opportunities among others that could support both private and public sectors (construction organisations) in delivering businesses in a more efficient way.
- The key difference between social value, CSR and shared value is that, while CSR and Shared Value use a top-bottom approach in delivering community good, social value uses a bottom-up approach.
- Lean production philosophy supports the achievement of social value objectives in construction project delivery, as it helps construction organisations to conceptualise the communities and physical environment where they operate as their customers, rather than mere people and place.
- The "flow" and "value" in the TFV support smooth workflow in the construction process and development of reliable construction programme through the application of the LPS principles- a lean construction approach.

Conclusions

The purpose of this study was to determine the current knowledge surrounding social value and to evaluate the role of lean production philosophy in achieving social value objectives in construction project delivery. The study establishes that the current level of awareness on social value is still low and there is a dearth of scholarly publications on social value, especially in construction management literature. The study found that there is still no clear or single criterion for measuring social value delivered. This means the criteria to be used in measuring or identifying social value could differ for different contexts and audiences.

The study found that lean production approach and the TFV model have the potential to support the delivery of social value objectives on construction

projects. The lean production approach enables construction organisations to conceptualise the community and the physical environment where they operate as their customers, rather than mere people, places and things. This further encourages their commitment to the delivery of social value to the local community and physical environment around their construction projects. Additionally, the "flow" and "value" views in the TFV model support smooth workflow in the construction process and in the development of reliable construction programme. This contributes to the on-time delivery of construction projects through the application of the LPS principles, thus, enhancing the positive contribution of a project to the society, the environment and economy.

The study reveals that the separation theory propagated by Friedman, (1962), tends to separate social value from economic value, thus making organisations care less about delivering social value. However, this view was challenged by Freeman, (1970) in his integrated theory. This implies that construction organisations should not view the creation of social value as a separate operation from the economic value, rather, both should be incorporated and delivered as a system with a goal of influencing the society at large. The results of this investigation show that the current driver for social value delivery is not only the legislation but also, its business imperative, the global interest in social value, the opportunities for social investment and the business sense in delivering social value. This implies the commitment to the delivery of social value on construction projects or organisations should not be seen as a tick box exercise that is compliance driven since there are other benefits such as the business sense of doing it.

The investigation confirms that there is a relationship between CSR, Shared Value and social value. However, CSR and Shared Value are not the same as social value. The study found that while CSR and Shared Value use a top-down approach in making decisions on the nature of support to be provided for the community, social value decisions are made based on the customers' perspective (the communities) through an all-inclusive conversation and engagement with stakeholders. The study concludes that conceptualising the community and physical environment around the construction project using the lean concept of customer and TFV model would support social value realisations in the delivery of construction projects. This study is based on literature review evidence and the findings serve as a foundation on which future studies can be built upon. Obtaining empirical evidence on social value practice with the aim of developing an approach for evidencing social value in construction project delivery will form the next stage of the research by the authors.

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Table 1: Meaning of social value

Sources	Authors	Definitions & explanations on "social value" concept	Emerging theme
Government publication	**HMRC, 2010, p.2**	Sustainable Procurement Task Force define social value as *"a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits to society and the economy, whilst minimising damage to the environment" (HMRC, 2010, p.2).*	▪ Generate benefit to society ▪ Generate benefit to the economy ▪ Minimise damage to environment
Government publication	**Social Enterprise UK, 2012, p.3**	Social Enterprise UK defines social value "as a way of thinking about how scarce resources are allocated and used"	▪ Way of thinking ▪ Efficient use of scarce resources
Government publication	**Social Value Act, 2012, p.2**	The Social Value Acts of 2012 in the UK (also known as the Public Service Act) defines: *Social value as "the additional benefit to the community from a commissioning/procurement process over and above the direct purchasing of goods, services and outcomes"*	▪ Additional benefits to community ▪ Benefits arising from business execution process
Research publication	**(Loosemore, 2016; Loosemore, 2015b)**	Social value creation focuses on solving social, economic and environmental problems by engaging with communities where the work is executed, this is beyond compliance with CSR	▪ Is beyond compliance to CSR ▪ Engage with communities to solve social, economic & environmental problems
Research publication	**Choi *et al*, 2014 p.32**	"Social value is more elusive than economic value as there is no means to measure its outcomes and may have different impacts depending on the context and audience"	▪ Measurement of social value subjective ▪ It impact influence by context
	Loosemore, 2015 p.728	"While there are many definitions of social value, there is one thing that most commentators agree on: that there is as yet no widely accepted methodology or	▪ No accepted single criteria for measurement

		generic criteria for measuring social value"	▪ Social value varies from place to place
Research publication	**Wood and Leighton 2010, p.20**	"Social value refers to a wider non-financial impact of programmes, organisations, and interventions including the wellbeing of individuals and communities, social capital and the environment"	▪ Wider non-financial impact of business ▪ Wellbeing of individual ▪ Wellbeing of the community ▪ Wellbeing of the environment
Research publication	**Loosemore and Higgon, 2015**	Social value in the construction industry is concerned with the positive contribution of the construction sector to the wider social, economic and environmental wellbeing of the communities in which it builds and they are seen to be doing so.	▪ Positive contribution of construction activities to the community's: ▪ wider social wellbeing ▪ economic wellbeing ▪ environmental wellbeing ▪ Measuring the contribution
Research publication	**Mumford and Gustafson (1988)**	Social value is the generation and implementation of new ideas about how people should organise interpersonal activities, or social interactions, to meet one or more common goals.	▪ Collection & implementations of ideas to meet common goals ▪ Engagement with individuals in community to identify and meet social need

Table 2: Social Value Delivery in the Context of Construction Project

Construction projects Social Value initiative	Authors
Creating skills and training opportunities such as apprenticeship	Burke and King, 2015; Reid and Loosemore, 2017; Croydon Council, 2013
Contracting social enterprises	Loosemore, 2016; Loosemore and Barraket, 2017
Creating employment for long-term unemployed	Petersen and Kadefors,2016
Creating career advice and recruitment opportunities	Petersen and Kadefors, 2016; Croydon Council, 2013; Bridgeman et al., 2015, 2016
Activities engaged in to meet the local community need	Reid and Loosemore, 2017; Petersen and Kadefors, 2016
Creating employment and employment pathways for the disadvantage and the minority	Petersen and Kadefors, 2016; Bridgeman et al, 2016
Sustainable approach to the delivery of services	Croydon Council, 2013
Use of locals and local contents in procurement	Croydon Council, 2013; Petersen and Kadefors, 2016
Consideration for the environment	Reid and Loosmore, 2017; Petersen and Kadefors, 2016;
Use of social procurement approach and responsible sourcing	Reid and Loosemore, 2017; Petersen and Kadefors, 2016; Denny-Smith and Loosemore, 2017
Integration of social value into the construction project activity	Farag et al., 2016

Table: Link between Lean Principles and Social Value Creation

Lean Principles	Link to Social Value Generation	Authors
Meeting stakeholders and customer requirements	• Consult local people • Enhancing employee skills • Participation in the local community programme • Creating employment during and after construction	Khodeir and Othman, 2016; Piercy and Rich, 2014; Govindan et al, 2014; Womack and Jones, 2005; Shah and Ward, 2007
Reduction of waste through process standardisation/use of lean techniques	• Safety, health and wellbeing of worker • Workforce empowerment • Transparency of process to the workers, the supply chain and the local community • Reduction of pollution to the environment • A greater picture of how construction process influence or impact the community around the project	Tezel et al, 2016; Nahmens and Ikuma, 2012; Khodeir and Othman, 2016; Piercy and Rich, 2015
Reduction of cycle time and variability	• Local sourcing	Piercy and Rich, 2015; Khodeir and Othman, 2016

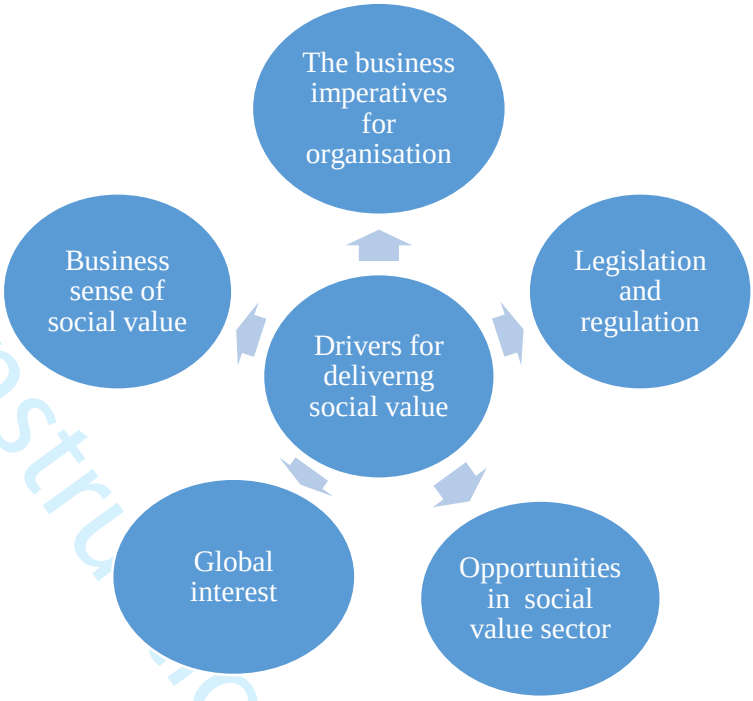

Figure 1: Drivers for delivering social value

Source: Tomlins,(2015)

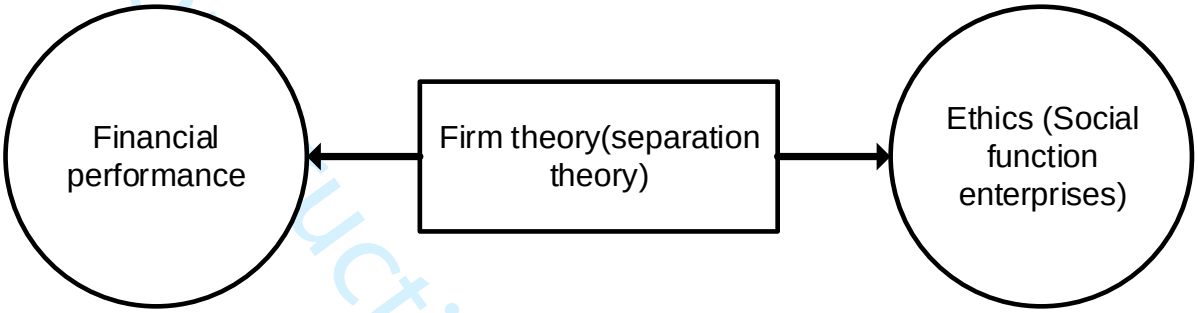

Figure 2: Function of an organisation