

# Sustainable procurement, -for whom and why?

Short version for review

## Abstract

The purpose of this study is to develop an IMP-network inspired approach to study sustainable production. A case study of oil production in Ghana is applied to ground this research empirically. This case concerns the topic of sustainable procurement and consists of two subcases, one in the upstream portion of the supply chain associated with exploration and platform-based production, and the other an oil refinery in the downstream part. The triple bottom line inspired “interlocking circles model” and the systems-oriented “concentric circles model” are applied together with contingency theory rooted in the IMP network approach that also integrates the supply chain management. This provides three key concepts, interaction, interdependency and integration, all associated with value concerns as the foundation for analyses. A conceptual model depicts sustainability, in line with the concentric circles model as systemically intertwined with value and networked in an immediate business, network and wider non-contextual natural and social environment. Sustainable procurement is likewise seen as a networked value rather than, as the triple bottom line posits, a norm “out there”. Sustainability is not limited to one network actor since it is something done through interaction.

**Keywords:** Sustainable production, procurement, Petroleum industry, Case study, Ghana

## Introduction

In this case study, we consider the issue of sustainability limited empirically to procurement in the Ghana petroleum industry. Barron and Gauntlett (2002) point out that the interrelationship between the environmental, economic and social aspects of sustainability is usually represented by one of two conceptual models termed by these authors as (1) the “interlocking circles model” (ICM) and (2) the “concentric circles model” (CCM). The first, and by far most widespread approach, views sustainability from a snapshot perspective in time, while the second view, attaining sustainable production more as a hierarchically sequentially organised set of subsystems. These models are, since the business problem in this study of sustainable procurement, in the literature review challenged with the Industrial Marketing and Purchasing Group (IMP) network approach. This implies focusing on both the issue of sustainability and procurement as networked interaction. This also implies further investigation of the networking aspect of using these two models in a business setting. More precisely, the IMP network approach, encompassing over time a range of studies and conceptual frameworks, is in this study specifically rooted in contingency theory providing focus on networked interdependencies. Besides, the concept of “integration” is considered. This is a key concept in supply chain management (SCM). In sum, this provides an alternative model to consider sustainability from an environmentally embedded interaction-based perspective of purchasing. More precisely, the study is based on a conceptual model forwarded by Janusz et al. (2018) that considers 1) interaction, 2) interdependencies and 3) integration, here in relation to the two described models of sustainable production. The business problem this analytical framework is applied to is associated with the following research issues: (1) What are the drivers of sustainable procurement? (2) How are the elements of sustainable procurement prioritised? (3) How does the procurement policy impact on sustainable procurement?

This study consists of two subcases: one on upstream oil exploration and production on offshore facilities run by a multinational enterprise, the other on a domestically owned oil refinery. This

implies subcases in two different supply chain location: one case in the upstream portion, and one case in the downstream portion. Detailed empirical findings associated with these topics are first analysed applying ICM and CCM in a pragmatic manner seeking aspects of complementarity and conflict. By not omitting one approach for the other, following a pragmatic line of investigation, we also aim to empirically ground the usefulness of these alternative conceptual approaches to sustainable production in further detail and scrutinise these in regards to our proposed IMP-network founded approach. Procurement is in this study therefore understood as an inter-organisational networking activity dependent on integration and collaborative interaction to coordinate flows of supplies to secure perceptions of customer value. The IMP (industrial marketing and purchasing group) -founded analysis directs focus to the impact of interaction, interdependency and integration providing a richer conceptualisation of what constitutes "sustainable procurement" in the described case.

## **Literature review**

### *Two models of sustainable production*

One of two conceptual models (Barron and Gauntlett 2002) usually represents the interrelationship between the environmental, economic and social aspects of sustainability. The interdependence between nature, society and the environment is complex (Cabezas et al. 2003, Mayer et al. 2004, Mayer 2008). Following Singh et al. (2009), society and business therein need to develop and use models as simplifications of reality to understand how to understand procurement as being sustainable. The reasoning behind this sustainability assessment is to provide decision-makers in organisations with a systems perspective that encompasses three aspects of sustainability; nature, society and economy (Mayer 2008, Singh et al. 2009). This study presents and discusses two alternative approaches to conceptualising "sustainable production". This study approaches procurement as a subsystem in the overall production system. The following section briefly described and discussed two alternative approaches to understanding sustainable production: The Interlocking circles model (ICM) and Concentric circles model (CCM). According to Lazlo (2008), such models of sustainability are beneficial by simplifying the complex concept of "sustainability".

Following Barron and Gauntlett's (2002) empirical findings, in the Western Australian Council of Social Service (WACOSS) Housing and Sustainable Communities Indicators Project, the CCM model was at an initial phase argued as most feasible from a business practice perspective. ICM is the most widespread model of sustainability that pictures the three spheres of influence as equals thereby also simultaneous in their impact on production. Elkington (1998) coined this model associated with the triple bottom line (TBL) understanding of sustainable production. This model highlights the need for organisations to measure sustainability in all three areas of economic, social and environmental sustainability on equal terms (Dyllick and Hockerts, 2002). Business models used by many organisations increasingly seek to include environmental aspects of performance in line with the TBL concept (Birkin et al., 2009). TBL involves a fundamental assumption of balanced equality in the interdependency between the three involved dimensions of sustainable production. More precisely, in ICM, "sustainability" is the core value. In essence, this means sustainable industrial (including services) production. Figure one depicts the ICM:

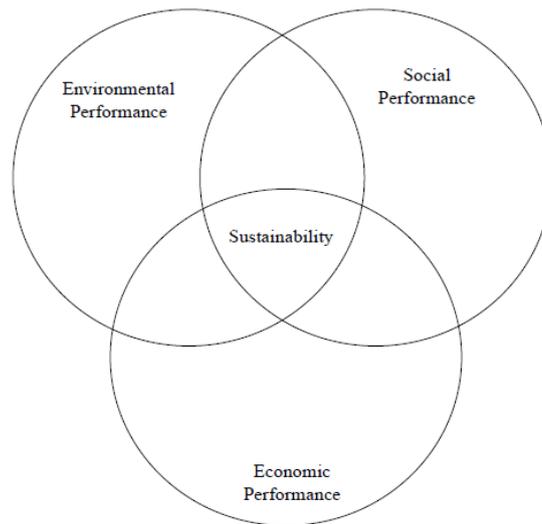


Figure 1. Interlocking circles model of sustainability (Lazlo 2008)

The alternative conceptual model on sustainable production features three concentric spheres; the ‘economic’ and ‘social’ spheres conceptually understood as subsystems. These graphical spheres depict “economy” as dependent on the health of the environmental sphere. This implies a systems-founded transitional route to sustainability; the different spheres in the CCM are interdependent as a hierarchy, or possibly more precisely a form of sequential interdependency. Green et al. (1996) suggest such a transitional process toward sustainability by focusing on the environmental aspects of the supply chain over time through networked interaction. Veleva, et al. (2003) state that empirical research from the pharmaceutical industry supports this approach. These authors (ibid.) suggest that a focus on the environmental dimension of sustainability is not limited to ethical considerations. Sustainable production frequently provides financial savings, which has the additional benefit of contributing to economic viability. Figure two illustrates this model:

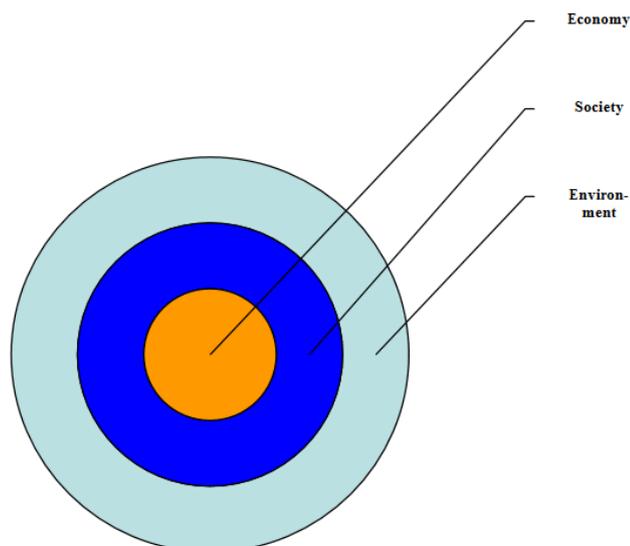


Figure 2. Concentric circles model of sustainability (Lazlo 2008)

According to Thatcher (2014), the ICM and CCM have in common what they consider nature, society and economy as interconnected. They also both have in common that neither takes into consideration the time dimension (*ibid.*). This also implies that interaction, a typical feature of the time-dependent process, is not considered. The most widespread model of sustainability, the ICM, pictures that the three spheres of influence as equal thereby also simultaneous in their impact on production. Elkington (1998) coined this ICM model as the triple bottom line (TBL) understanding of sustainable production. This model highlights the need for organisations to measure sustainability in all three areas of economic, social and environmental sustainability equally. In the current social setting, the TBL has emerged as a seemingly unchallenged paradigm for sustainable development. It involves an approach where meeting the needs of the present, and future generations are classified under three dimensions: environmental, social and economic (Dyllick and Hockerts, 2002), and that the business models used by many organizations increasingly seek to include environmental aspects of performance in line with the TBL concept (Birkin et al., 2009 a&b). However, this model is more than a classification; it also has fundamental assumptions regarding the interdependency between the three involved dimensions of sustainable production.

The first step in this approach to implementing sustainable procurement is to identify and assess the various “components of sustainability” (Krause et al., 2009). Literature acknowledges the elements of the triple bottom line (Elkington, 1998). According to Carter and Rogers (2008) components include economic performance (the financial consideration of business and shareholder value creation), environmental stewardship (preservation of the natural environment and natural resources, waste minimization and reduced emission) and finally social equity, which relates to a firm’s purchasing social responsibility (such as human rights, local community and people development, cultural diversity, fairness and safety). The effective management of the TBL is widely believed as a catalyst in improving efficiency and profitability over the long term (Closs, Speier and Meacham 2011). Fiorino (2010) states that this broader perspective on production, sustainability as an approach, aligns economic considerations with socio-political systems and environmental needs (and the many organisations increasingly seek to include environmental aspects of performance in their business models in line with the triple bottom line concept (Birkin et al., 2009b). The TBL approach suggests that besides economic and shareholder value creation, organisations need to at an equal level, engage in activities that ensure environmental preservation and social development. By adopting the triple bottom line approach, an organisation takes a responsible position on economic prosperity, environmental quality, and social justice (Bai and Sarkis 2010).

The alternative conceptual model on sustainable production features three concentric spheres; the ‘economic’ and ‘social’ spheres in the context of the environment. Rather than the three partially connected circles depicted by ICM, the economy lies here graphically at the centre of the figure. This shows an alternative picture of a sustainable community as the circle within circles. This three-nested-dependencies model reflects a co-dependent reality. It shows that human society is a wholly owned subordinate of the environment—dependent on food, clean water, fresh air, fertile soil, and other natural resources. This also implies a transitional route to sustainability; the different spheres in the CCM are interdependent as a hierarchy, or possibly more precisely, sequentially organised regarding perceptions of what comes first. The concentric circles model is similar to the egg of wellbeing model except that there are multiple levels of subsystems; the largest circle is the natural environment, which encapsulates the subsystem of human society, which in turn encapsulates the subsystem of the economy. Green et al. (1996) suggest such a transitional route, with the environment as the driver. Veleva, et al.

(2003) state that empirical research from the pharmaceutical industry supports this approach. These authors (ibid.) suggest that a focus on the environmental dimension of sustainability is not limited to ethical considerations.

CCM implies that enhancing shareholder value continues to remain the fundamental tenet of any business. This is, however contingent on the environment. Today's environment requires thus a broader perspective of value considerations from the business communities. Policymakers, consumers and the general business stakeholder are increasingly considering the environmental and social impact of the products and services and demanding organisations to be accountable in these regards. Challenges of creating new, environmentally sustainable products and services and socially responsive initiatives now face both domestic and multinational organisations. At the same time, they have concerns about remaining profitable and enhancing shareholder value in the globalised market economy. Concerning procurement, this implies that sustainability is part of the central economic sphere, which affects the outer layers of the social sphere, which again affects the environmental sphere.

### *The IMP network approach*

We now turn to consider using these models to analyse sustainable procurement from an IMP networking approach. Three concepts, following Janusz et al. (2018), are revealed regarding creating and sustaining customer value in the industrial network; (1) interaction, (2) interdependency and (3) integration. Interaction concerns action, interdependency: "the reasoning" for and "the result" of interaction in a network structure, and integration helps characterise the quality of activity links and resource ties in the network:

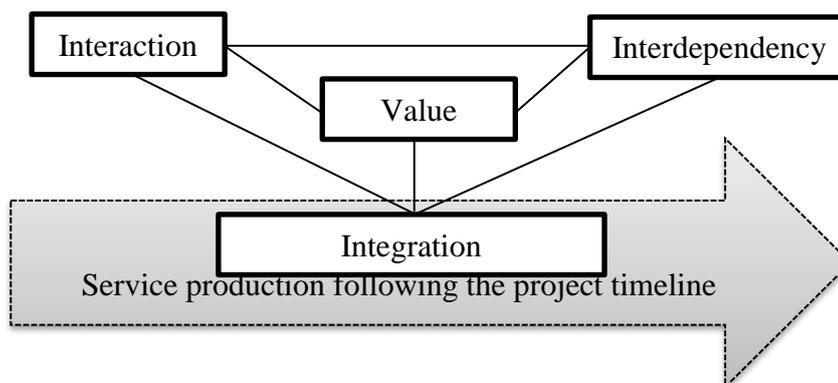


Figure 3. The conceptual framework (Janusz et al. 2018)

These factors are aspects of value creation as a product of interaction, integration and interdependency; it is a complex phenomenon. The position of "value" in the model depicts a belief that this is the principle that importantly guides production. While Janusz et al. (2018) considered this view of networked value creation in a longitudinal study of a project organisation, this study applies the same framework to examine the sustainability of operations in the Ghana oil industry reflected upon using the ICM and CCM models. The following discusses the key constructs in fig. 1. Further discussion of the application of this model will be provided in the full paper.

### **Method**

This is a two-case study. What distinguishes a case study from other research design is the fact that it is an idiographic approach where the researcher is concerned with elucidating the unique features of the case. Voss C. et al. (2002) indicated that case study research, aside from

investigating the "why" and "how" questions, is also particularly suitable for developing new theory and ideas and may also be applied for testing and refining existing theories and therefore must be encouraged. Following Bryman and Bell (2015) this two-case study focuses on collecting data on the focal research problem regarding how sustainable production is understood and practised in their two unique contexts. Analysing the data will apply the alternative TBL, and CCM approaches. These two cases encompass interviewing two companies. Petrol Explore Ghana (PEG) representing the upstream sector and Ghana Oil Refinery (GOR) representing the down-stream sector of the industry. The names are fictive. Detailed empirical descriptions will be provided in the full paper.

#### *The upstream PEG case*

Findings suggest that the organisations' understandings of sustainable procurement to a large extent were found to influence the origination's policy directions towards individual elements of sustainable procurement (economic, social and environmental). The findings on the procurement policies of PEG mainly support this assertion of compliance with the local content laws and the support for sustainable social procurement by the operating organisation. The research findings also indicated that the organisation adopts some form of partnership and collaborative procurement policies (such as long term supply contracts, single procurement and the use of fewer dedicated suppliers) in dealing with its vital strategic suppliers and supplies. This was indicated by the interviewee of PEG who stated that the organisation does not always engage in an open competitive "as some products and suppliers call for a more strategic and collaborative approach to procurement". The study on how the procurement policies impact on sustainability in the up-stream Ghana oil and gas industry produced results that largely reflect the varying influences of the various driving forces of sustainable procurement within the sector and the organisation. The findings point to a strategic procurement policy aimed at a holistic and balanced achievement of the three aspects of sustainability and sustainable procurement, namely, sustainable economic procurement, sustainable socio-political procurement and sustainable environmental procurement. Here also the ICM approach provides the best explanation to the role of sustainability as the norm rather than process. Interaction is networked and guided by norms of sustainability. Sustainability is therefore enacted rather than a norm out there. Sustainability is learned through interaction in an integrated and interdependent network even though a norm "out there" is perceivable.

#### *The downstream GOR case*

The analysis reveals that the issue of networked influence in driving the sustainability agenda in the downstream sector may not be as vital as the upstream sector. As such, matters of public accountability and its associated corporate reputation, on the issue of sustainability, which is mostly determined by public opinion on corporate policies and behaviour, may also not be regarded as a significant driving force of sustainability and sustainable procurement in the downstream sector of the oil industry in Ghana. Sustainable procurement in the down-stream oil refinery sector of the Ghana oil and gas industry was found to be driven by the factor indicated in the existing literature as mentioned earlier, but with varying degree of influence which Laws and regulations and value for money, both of which were found to be primary (major) drivers in the upstream sector, were also found to be significant drivers of sustainable procurement in the downstream industry. The procurement activities of the down-stream public (government) owned organisations (Refinery Company and a bulk oil storage and transportation company) are, however, highly regulated by the public procurement act among other public procurement regulations which ultimately seeks to achieve value for money for the Ghanaian taxpayer. Despite the advocacy of environmental and social sustainability by the objective of the procurement law, the economic goal seemed more paramount within the

downstream public owned organisation. The dominance of cost and value for money in driving the sustainable procurement agenda and policies of the down-stream was demonstrated in response to the question on the prioritisation of the various drivers of sustainable procurement in the procurement activities by the refinery organisation. This implies that sustainable procurement can best be explained using the CCM approach. Value is a focal aim, and this to secure the well-being of the business. Thus, because the evidence reveals heightened awareness of the economic subsystem as focal and intertwined with sustainability as an outer systemic influence. Likewise, as in the preceding case, but with an opposite value, economic concerns are real in this case, and therefore sustainability is considered intertwined as a process in its overall production system. Learning sustainability is in this case more intertwined with value concerns.

**Conclusion**

The economic and social environments are very different in the two cases. PEG is global and a part of a global economy where local economic considerations are weakly felt by the local operator. This is contrary to the GOR case. The impact on network interdependencies of the environment in these two cases also reveals a heightened economic concern in the GOR case also implying increased importance of integration and SCM. The GOR case reveals sustainability embedded in the economic workings of the firm, not as a prioritised external norm. In the PEG case sustainability in procurement is something "out there". The environment is, following the IMP network approach layered as first the contextual economic network, and outside this the non-contextual social and environmental network. Being sustainable is an aspect of institutionalised economic behaviours. However, this approach does not clearly point out the importance of interaction, interdependency and integration and value realisation as core to the economic subsystem regarding how companies produce. Figure 4 illustrates this view of sustainability as intertwined with value perception and layers in a contextual environment the form networks with and a not contextual environment that is largely uncontrollable:

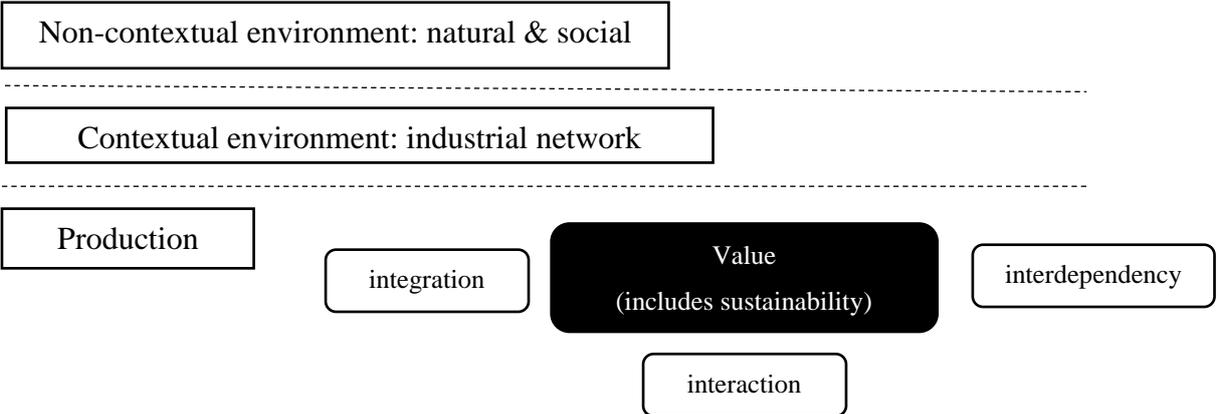


Fig. 4. A model of sustainable production through combining ICM, CCM, SCM, Contingency theory and the IMP network approach empirically grounded through this research.

Sustainability is, following this model, not limited to one person since it is something done through interaction. The reasoning for sustainability is rooted in knowing this value through learning through the network. Why sustainability? The collective of actors enacts sustainability as “value”.

Limitations include that this is a case study limited to the empirical findings generated through this study. Figure 4 is a model that may help the transferability of our results to other industrial

cases. Furthermore, this indicates a need for more research to refine the suggested network-based approach to sustainable production. In this case, the empirical focus was on procurement. Other studies may include other aspects of sustainable production including construction, human resource management, services and manufacturing.

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