

THE DEVELOPMENT OF AN ACTIVITY ZONE CONCEPTUAL FRAMEWORK TO IMPROVE SOCIAL VALUE IMPLEMENTATION IN CONSTRUCTION PROJECTS USING HUMAN ACTIVITY SYSTEMS

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Current research shows the sporadic success of recent policy and legislative documents which encourage public clients to utilise their expenditure strategically to produce social outcomes in addition to traditional outcomes. Analysing social value outcomes revealed a lack of methodologies or approaches that enabled procurers to deliver social outcomes consistently. Social delivery was excluded from core business objectives and approached as a philanthropic activity. A lack of understanding and inconsistency in the social delivery journey in public projects has led this research to consider the New Product Development concept which underpinned the Generic Design and Construction Process Protocol development. Using the GDCPP can enhance social value delivery by transforming it into a construction project task, similar to that of design and production management, with its activities being task driven and undertaken by cross-functional teams across all phases. An analytical review of the GDCPP advantages and disadvantages revealed that the soft nature of social value was not aligned with the hard system thinking behind the GDCPP. To overcome this issue, a soft system methodology was introduced to overcome this challenge through using Human Activity System models. This study attempts to deliver a conceptual framework/a new activity zone to organise social value delivery processes across all phases of construction projects.

Keywords: social value delivery, human activity system modelling, soft systems methodology, process modelling-new public procurement

INTRODUCTION

Historically, public procurement has drawn the attention of governments, policy makers and public organisations because of its socio-economic impact on the performances of national economies (Thai, 2001). Public procurement is used to reduce the gap between what is offered to solve increasingly complex social problems and the limited resources available to solve them (Mulgan, 2013). McCrudden (2004) stated that in the USA and Europe governments use public procurement to remedy social issues such as ethnic inclusion and youth utilisation. Recently, the UK government has published policy and legislative documents such as the National Infrastructure Plan (2013) and the Public Services (Social Value) Act (2012) to encourage local and central governments and authorities to delivery social objectives for their local communities as a by-product of procuring their infrastructure projects.

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Despite encouraging social value delivery through these policy and legislative documents, the implementation techniques mentioned in these documents (which guide procurers in delivering societal benefits) are limited, fragmented and inconsistent. The process limitation which can deliver social value outcomes has confused public procurers and left them without consistent or standardised approaches when attempting to identify what benefits can be delivered (Public Services Social Value Act, Year on Report, 2014).

This research focuses on the Generic Design and Construction Process Protocol, driven from the process theory, which can be utilised to overcome the construction industry's problems, such as an unstructured learning process, unpredictable results and stakeholders' lack of coordination and communication. These construction problems were found to be similar to the social value delivery problems and thus create an opportunity to utilise such an approach to improve social value delivery processes. The GDCPP was developed in 1998 as a response to the Egan and Latham reports which transferred manufacturing processes to procurement, construction and design activities (Cooper *et al.*, 2005). Although the social value processes can benefit from the GDCPP a number of challenges that can hinder its usage. Therefore, the GDCPP's process thinking combined with Soft System Methodology and its modelling concept, the Human Activity System, is used to overcome the challenges. This paper aims to develop a conceptual framework which provides an enacted social delivery value process independent of individuals' roles.

CONFUSION AND CONFLICT IN SOCIAL OUTCOMES

Despite the inclusion of corporate social responsibility in organisations' strategic management, it has failed to solve the growing flux of social issues because profit maximisation has been their main goal (Porter and Kramer, 2011). Increased complexity in social issues and diminishing governmental resources has triggered a change in how business success is viewed. Societies have changed their business success expectations and now believe that public money should be utilised in a more socially responsible manner (Mulgan, 2013). However, as the range of social issues has grown, conflict and confusion has grown among stakeholders due to their different perspectives on how to approach the topic. Proter and Kramer (2011) argued that private companies tend to have a short term perspective on social value, do not fulfil their clients' requirements and ignore elements that have an influence on the long term impacts of their business. Governments, on the other hand, may have worsened the approach by looking to solve their social problems at the expense of businesses.

In addition, as multiple definitions of social value have emerged, they have relied on the background, understanding and judgement of stakeholders. With each definition a high number of social issues emerge creating potential deliverables. There is also confusion regarding choosing what can be delivered and how the delivery process can be started (Westall, 2012). Social sustainability describes social value from a development outcome perspective (Magis and Shinn, 2009) and social procurement describes it from a procurement perspective (Barraket and Weissman, 2009). Social value (SV) itself has emerged as a term describing the maximisation of additional outcomes which exceed the initial delivered product in order to fulfil the social needs chosen by clients (Public Services Social Value Act, 2012). Accordingly, social value's nature is subjective, diverse and qualitative as it varies across industries, sectors and projects and from one stakeholder perspective to the other (Russel, 2013). In some cases, social value has been viewed as a philanthropic activity which is

analysed independently from market values and which is detached from core business strategies (Porter and Kramer, 2011).

Evidence on the lack of guidance for social value implementation processes

The Public Services Social Value Act (2012) did not contain any information on processes or procedures to assist procurement officers in delivering SV (LePage, 2014). Porter and Kramer (2011) and MacLaren (2011) indicated that frameworks and reliable methodologies which can guide the delivery of social value are still incomplete and, in many business cases, missing. Bratt *et al.*, (2013) concluded that a gap between social value at a strategic level and at a project level exists due to the lack of sound implementation processes which can defend business decisions against public scrutiny. The HM Treasury (2014) *Social Value Act One Year On* report indicated that public procurers were impeded by the uncertainty surrounding SV delivery under current policies which is viewed as fragmented and inconsistent.

Confusion arises as to how public procurers align SV objectives without conflicting with the EU and national rules and regulations (Chevin, 2014). Because public procurers have to comply with procurement rules and achieve commercial competitiveness, they are discouraged from an innovative interpretation of SV policies (Thai, 2001). LePage (2014) argued that scrutinising procurement activities in order to reduce corruption within public contracts forces procurers to become risk averse which reduces the level of organisational support for innovative methods of implementation, creating a need for process standardisation.

The impact of lacking guidance on social value delivery processes

The results of delivering SV outcomes without sound implementation processes has been significant in public construction projects where success has been inconsistent and sporadic (Brat *et al.*, 2013). As the numbers of social issues (which construction projects could attempt to solve) increases procurers are left with the cumbersome task of choosing what and how to deliver without guidance, making these projects lost opportunities (LePage, 2014). Also, public procurers sometimes tend to justify their SV decisions retrospectively because of their soft non-quantifiable nature which conflicts with the prevailing procurement culture of quantifying outcomes such as cost and time. This retrospective justification neglects SV's most important impact which is its long term influence (Russel, 2013).

Because of its qualitative nature, measuring SV's impact varies significantly based on different stakeholders' perspectives and priorities. These diverse perspectives limit the ability to precisely capture social outcomes and thus quantifying SV is hardly achieved (MacLaren, 2011). LePage (2014) explained that, despite the public sector having competent procurement practitioners, these practitioners are unable to assess SV outcomes due to a lack of benchmarking data or sound measurement processes. Russel (2013) explained that because of SV's non-quantitative nature, the assessment process has to contain a certain degree of subjectivity or a qualitative nature which requires a level of flexibility for assessment processes.

The Generic Design and Construction Process Protocol (GDCPP)

Traditionally, construction projects have focused on final products and have neglected delivery processes which, in turn, has reduced consistency and diminished learning experiences which require an improvement to the delivery processes rather than to the final products (Kagioglou *et al.*, 1999). As response, Cooper *et al.*, (2005) have sought to develop a new process protocol based on the New Product Development

(NPD) concept, a manufacturing industry concept, so that the whole product’s development (from the first steps of capturing a clients’ needs to the delivery and replacement of a product) can be considered as ‘one’ consistent process.

The Generic Design and Construction Process Protocol (GDCPP) has emerged to improve delivery processes and final outcomes through process modelling in order to enhance workflows and activities’ perception. The process modelling enables construction teams to manage and co-ordinate these activities in order to achieve final outcomes (Carmichael *et al.*, 2004). Usually project management has focused on the construction phase only and has neglected other phases. In contrast, the GDCPP reviews the whole project life cycle in order to improve business cases, reduce conflicts and eliminate confusion between stakeholders (Kagioglou *et al.*, 1998). The GDCPP projects’ delivery processes consist of overlapping stages and gates where certain activities are performed and data collected in each stage in order to ensure that goals are achieved before moving to the next one (Kagioglou *et al.*, 1999). The gates have flexible mechanisms where a ‘start’ mechanism is conditional upon the delivery of a specific activity in a specific time. The project may proceed when it is not vital to ‘stop’ it when the information or activity needed is not vital (Cooper *et al.*, 2005). Finally, providing feedback from the different phases allows the projects’ performance to be measured and introduces subjectivity to the process (Cooper *et al.*, 2005).

Activity zones (sub-processes)

Activity zones are the sub-processes of the GDCPP consisting of a structured set of activities and processes performed by cross-functional teams aiming to fulfil common project objectives which are task-driven (and not function-driven) such as creating appropriate design solutions. Because tasks are cross-functional, participants of the ‘zones’ are determined based on the specific project task and/or process and are referred to in terms of their primary responsibilities. An activity zone could simply be carried out by a single person or could consist of complex networks of people and stretch between relevant functions and/or organisations depending on the size and complexity of the project. As shown in figure 2, activity zones span across four main stages covering the pre-project, pre-construction, construction and post construction phases and are further broken down into ten sub-stages providing more detail.

Project phases	Phase 0	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8	Phase 9
	Soft Gate	Soft Gate	Soft Gate	Soft Gate	Soft Gate	Soft Gate	Soft Gate	Soft Gate	Soft Gate	Soft Gate
Activity Zone 1	Demonstrating the need	Conception of need	Outline feasibility	Substantive Feasibility Study & Outline Financial Authority	Outline conceptual design	Full conceptual design	Coordinated design procurement full financial authority	Production information	Construction	Operations & Maintenance
	Phase Review	Phase Review	Phase Review	Phase Review	Phase Review	Phase Review	Phase Review	Phase Review	Phase Review	Phase Review
	Pre-Project Phases				Pre-Construction Phase			Construction phases		Post construction Phase

Figure 2: Activity Zone Structure (Source: Cooper *et al.*, 1999).

The activity zones for the Process Protocol were defined as the following:

- Development management
- Project management
- Resources’ management
- Design management
- Production management

- Facilities' management
- Health and safety, statutory and legal management
- Process management
- Change management

The process management activity zone is significant for the construction sector as it plays a role independent of all the other activity zones. Kagioglou *et al.*, (1998) make the distinction between a conventional view of a project manager and the Process Management role where the latter, as the title suggests, is concerned with the enactment of the process, rather than the project. Key to the success of each phase in the process is producing project deliverables (the reports and documentation associated with each phase). In this respect, the Process Management role is to facilitate and co-ordinate the participants required to produce these deliverables.

Soft Systems Methodology (SSM)

Farag and McDermott (2015) concluded that Soft Systems' Methodology (SSM) is a suitable inquiry methodology designed to investigate difficult to define problematical situations; this aligns well with SV's soft nature and unclear definition. SSM uses systems' concepts as the method of enquiring about problematical situations rather than directly producing solutions. SSM is based on the assumption that knowledge is socially constructed and depends on the different perceptions of individuals formulating logical explanations in order to improve common understandings for a certain group of individuals concerning their problematical situation and how should they approach it (Wilson, 2001).

Using Human Activity Systems' models to produce a SV activity zone

Human Activity System modelling (HAS) is the SSM's tool which models the tacit knowledge of the problem situation held by participants in order to produce solutions by comparing these models with real situations. HAS produces informative models by exploring facts and reasoning of the situation from the participants' perspectives (Checkland and Scholes, 1999). Wilson (2001) argued that HAS models use stakeholders' perspectives to find solutions to problems through producing activities which can be performed by stakeholders in order to solve the problem. HAS models are chosen from a wide spectrum of systems. At one end there are the 'primary task systems' models which represent permanent organisational structures and their objectives (Checkland, 1999). At the other end are the 'issue based systems' models which represent the softer issues raised by the stakeholders which are hardly ever located on an organisational map and have temporary relevance.

Developing HAS models

Every HAS model has a root purpose equivalent to business objectives which represents a transformation process. This purpose is called the Root Definition (RD). A RD has multiple elements one of which is the world view (W) upon which any transformation process depends, based on participants' perspectives of the world. Elements which define the people, processes and the environment that contribute to the problem situation are added to make the model richer and to produce a diverse range of activities. Smyth and Checkland (1976, cited in Checkland and Scholes, 1999) indicated that the CATWOE elements improve the overall quality of the models. These elements are: Customers who are the victims or beneficiaries of the transformation (T) process; Actors who implement the transformation (T); the Transformation process which overarches the transformation of inputs into outputs;

world view (W) which makes the transformation (T) meaningful from the perspective of the participants; Owners who can stop the transformation process, and Environmental constraints which are the surroundings of the systems which can affect them but which cannot be controlled by the systems. (Wilson, 2001). Figure 3 shows how HAS models consist of subsystems representing the different elements of the CATWOE, with each subsystem consisting of activities which are performed to achieve the overall objective of the system with the activities logically contingent on others (Checkland and Scholes, 1999).

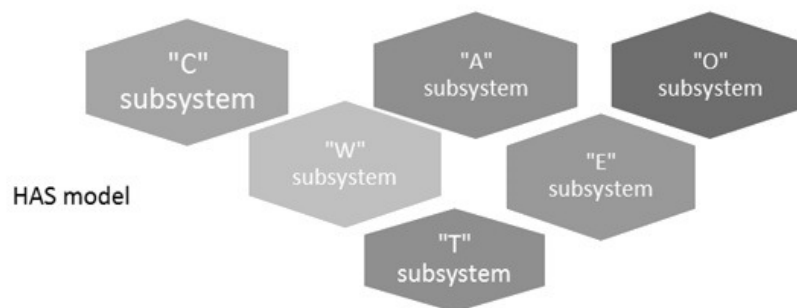


Figure 3: HAS Model and CATWOE Subsystem (Source: Checkland, 1999)

ANALYTICAL DISCUSSION

Advantages and possibilities of the GDCPP

The GDCPP's main advantage is the cross functional processes of the 'activity zones' which can deliver any objectives that have been agreed on by the project team. With the activity zones being linked to a myriad of disciplines, as mentioned earlier, and with them being task orientated they can include and deliver these objectives as part of the core business case of a project. This can be aligned to what Porter and Kramer (2011) argued is needed in the successful achievement of social value; it needs to be a core business deliverable (Design, development, facilities and resource management in GDCPP) and not merely be a philanthropic process. Hence, a SV activity zone would be treated in a similar manner to any of the traditional disciplines of a construction project.

The gap between strategic objectives and operational level activities in SV delivery can be reduced by cross functional teams because the process responsibilities are transferred from senior management to operational level cross-functional individuals who can provide their inputs into the tasks. Through their inputs, the cross functional teams can reduce confusion and ambiguity (which is generally found in SV delivery) by providing a diverse range of information to support the decision making process (Cooper, 1994). Any confusion about SV activities' details can be solved through the processes' logical dependency.

Kagioglou *et al.*, (1999) explained that processes can be broken down from strategic to operational levels through modelling because the processes are multi-levelled and high level processes logically depend on lower level ones. Modelling activity zones produce the multiple level processes responsible for task delivery by identifying 'what' the high/strategic level processes are and breaking them to lower/operational level processes in order to answer 'how' they are achieved. Social value delivery processes can be consistent through what Cooper (1994) indicated as the 'start/stop'

(progressive fixity) approach, because although the processes are reviewed at the end of each phase the approach does not automatically require the project to stop which provides flexibility and allows simultaneous activities to be carried out (which is one of the benefits of the NPD concept).

Disadvantages of the GDCPP and using SSM

The soft and subjective nature of SV was not taken into account when developing the initial concepts of the GDCPP and its activity zones. The NPD concept, as a source of the GDCPP, was developed based on hard systems' thinking which delivers engineering solutions (Cooper, 1994). In hard system thinking the end goal of the system is given at the start of the phase and the problems are well defined which makes the system's main purpose be to find the most suitable solution for a well-defined problem through systematic rationality. However, hard systems with their different stages are insufficient to deal with unclear problem situations, with a flow of messy incidents (Checkland, 1999). Therefore, the GDCPP maintains the characteristics of a hard system with the cross-functional tasks (such as project, design and resource management) being defined at the beginning of the project. This means that, in its traditional form, the GDCPP would not be able to deal with social value delivery and its activities.

Therefore, an approach which can accommodate the soft, subjective nature of social value and which can develop a new activity zone should be used. This approach will be the HAS models, developed through SSM, which have the ability to model activities that can be used to provide a solution to soft issue problems. HAS models' adoption would benefit from the application of the GDCPP because it models the tacit knowledge of project participants and converts that knowledge into activities which can possibly be implemented after discussion between participants (Checkland, 1999). This approach is also aligned with a stance of Kagioglou *et al.*, (1999) who wrote of interviewing cross functional team members in order to answer the 'what' and the 'how' questions regarding the activities. Accordingly, the usage of the GDCPP and the HAS models would strike a balance between the standardisation needed to create and improve the delivery process and the subjectivity needed to deal with the soft nature of the social issues.

Towards an activity zone conceptual model

In this activity zone conceptual model, information (gained via interviews) will be generated from key stakeholders (clients, Tier 1 and 2 contractors) concerning a diverse range of SV outcomes, deliverables and methods of delivery. Similar to what Hindle (2007) argued the information from interview responses is analysed to generate HAS models through textual analysis where CATWOE elements are identified from texts creating initial RDs and its CATWOE subsystems. Each subsystem consists of a group of activities generated by a 'verbs in the imperative' modelling language. As shown in figure 4, these activities are then mapped against the GDCPP phases from phase zero to phase nine. Activities which suit the pre-project phases are assigned based on the clients' understanding and the rest of the activities similarly follow the same logic to be mapped across the full duration of the project. Activities may be divided and used on more than one phase.

Other activities may be used on one phase only depending on how stakeholders view them. Gates between the phases will be activated whereby activities will need information and actions before proceeding to the next level following the concept of

stage gates discussed earlier. This allows clients to understand where they need to intervene between phases zero and nine of the project and gives them a ‘holistic’ view of the project’s timeline so that social value interventions can be planned in inventive ways within the phases.

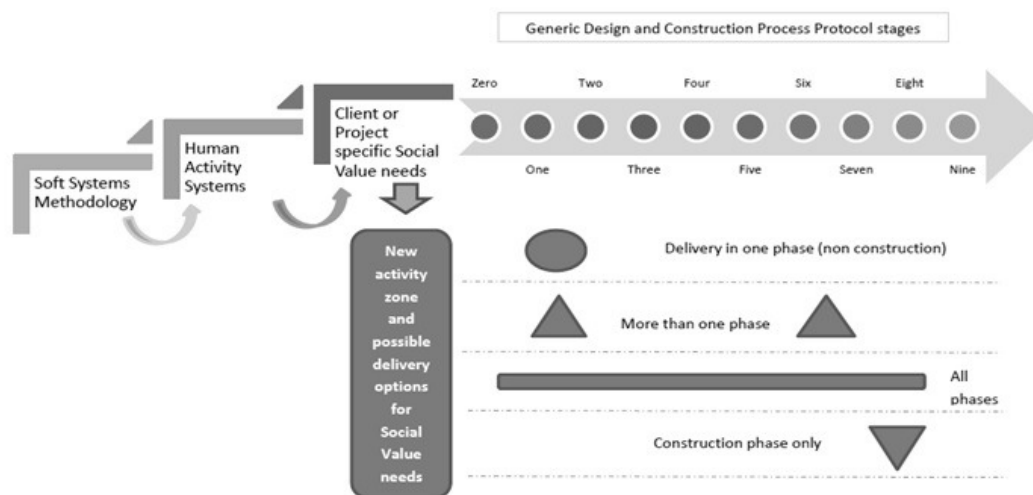


Figure 4: Social Value Activity Zone Conceptual Framework

CONCLUSIONS

Despite social outcomes being promoted through multiple legislative and policy documents nationally, the success of public projects in delivering such outcomes has been inconsistent. Little attention has been given to guiding public procurers in delivering social value outcomes as public documents do not provide consistent delivery methods (because social value was considered more as philanthropy rather than as a core business objective). This study builds on the GDCPP to investigate how to improve social value processes in the construction sector through an activity zone which can standardise these processes. Analysing the advantages and disadvantages of the GDCPP has provided an argument for developing a social value activity zone.

This activity zone will have SV as its project business objectives and will create a task oriented rather than end products’ oriented approach in order to improve the overall quality of delivery processes. The activity zone (framework) focuses on the tasks and processes which guide and support work towards social value, independent of the people, relevant functions and/or organisations that perform those tasks and processes. Given the challenges which have appeared by analysing GDCPP usage in SV delivery, the HAS model, from the SSM, was chosen to deal with the soft, subjective nature of SV as the GDCPP was not designed to deal with anything but hard systems.

Given the complexity of the construction sector, the variety of projects’ conditions, and the different issues that formulate a challenge for this conceptual framework, the model might need further refinement. It is expected that the present study will contribute to social value management by adding a new activity zone that can enhance a project’s social performance. The priority in future research will be to empirically test the model and assess its performance in different settings and conditions.

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