A Component-based Method for Stakeholder Analysis

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Abstract: Stakeholders can facilitate or hinder an organisation's performance significantly. The identification and management of the stakeholder is one of the key business activities for organisations. Although stakeholder identification is the first step of stakeholder analysis, there is little attention paid to the methodologies for stakeholder identification. This paper uses a system view point and proposes a component-based method for stakeholder identification and analysis, which focuses on the artefacts as linkage between different sub-systems of an organisation. Stakeholders, identified through components, include the processors who produce, use, communicate and control the component making process. The identified stakeholders can then be mapped into a stakeholder relationship map according to the components that are being used to identify the stakeholders. This method provides a novel approach to identify stakeholders through artefacts and define stakeholder relationship, through the artefacts they are involved in. Hence, it provides a comprehensive and better understanding of stakeholder management.

1 INTRODUCTION

The term stakeholder refers to individuals or groups that affect, or are affected by, the achievement of an organisation's goals. Stakeholder analysis is the process of identifying all stakeholders and sorting them in a desired fashion (Freeman, 2010). Stakeholder analysis normally starts with stakeholder identification which includes engaging with domain experts, brainstorm self-selection, engaging internal staff, analysing existing documents, or using pre-defined stakeholder checklist (Calvert, 1995); (Chevalier and Buckles, 2008). Most stakeholder identification approaches rely significantly on the experience and interpretation of the analysts.

Once stakeholder identification is completed, stakeholders are then categorised. Some commonly used categorising parameters include urgency, legitimacy, power (Mitchell et al., 1997), levels of directness of the influence (Liu, 2000), degrees of interest and influence (De Lopez, 2001); (Eden and Ackermann, 1998), internal or external forces, roles of stakeholders (Freeman, 2010), responsibilities (Kamal et al., 2011), position (Preston and Sapienza, 1990) and perceptions and concerns (Ockwell, 2008). Most stakeholder analysis methods define stakeholders by their activities or their influence on the unit system.

Whilst looking at the elements within an organisation, there are activities, artefacts and human beings involved. Whilst the majority of stakeholder analysis methods focus on the activities and human beings, there is little attention placed on artefacts. Amongst the artefacts, materials, parts, components and products are objects that are modified and processed by activities. For artefacts to move along the production pipe, every artefact instance depends on a process normally involving human beings. Hence, the relationship between artefact instances can be used to reveal the relationship between human beings.

This paper focuses on the linkage between artefacts and proposes a component-based method for stakeholder analysis. We define the relationship between outputs and components, to develop a system view of organisations. The component-based product structure can then be utilised to identify the stakeholders and examine stakeholder relationship.

2 OUTPUTS, ORGANISATIONS AND STAKEHOLDERS

2.1 System View of Organisations

The concept of 'a system' has been widely adopted

across numerous fields to provide a logical way for analysis and management. An organisation can be seen as a system that has inputs, processes, and outputs and also contains various parts integrated to accomplish the shared goal (Senge, 1990). The system view enables management to view the organisation in flows, processes and relationships, to achieve optimal results (Seddon, 2008). The flows, processes and relationships in a system are usually defined by the sequence of activities and tasks. Hammer and Champy (1993) defined business process as a collection of activities with a goal that takes one or more types of input to create a valuable output to the customer. Eriksson and Penker (2000) argued that business process focuses on addressing how work is performed rather than describing the output of a process. This process/task-centric approach does not necessarily consider the artefacts processed and modified in the system.

Artefacts, however, can also be seen as the linkages in a system, as artefacts within a system can normally be defined at the input and output of the sub-systems inside the system. The sub-systems pass artefacts from one sub-system to another; with the output of one sub-system acting as the input of its succeeding sub-system. By focusing on the input and outputs between sub-systems, a more artefact-centric perspective for examining organisations emerges. In order to understand organisations from an artefact-centric perspective, it is necessary to define artefacts within an organisation, as well as the relationships between those artefacts.

2.2 Outputs and Components

The output of a system is the desired artefact of the system's customer. The outputs include both the products of routine works and those from projects. An organisation, as a system that has input and output, could have various sub-systems that perform part of the sum of tasks required for the production process. Materials and parts are therefore modified and passed from one sub-system to another, which ultimately defines the total supply chain of the organisation. By viewing the supply chain of a product as an analysis unit, an organisation can be conceptually structured into segments based on the parts that each supply chain produces. The output requires various parts and components to be processed and modified, along the chain. Outputs must therefore be broken down into components. Each component is formed by sub-components, which can also be seen as components on a smaller scale. The term 'component' refers to any type of

raw materials (or services) or parts that are required in order to deliver a output that is desired by the end customer of a system. The breakdown of the output into components should reflect the interaction of suppliers in the supply chain, and should stop at the level where the component is still meaningful to the system.

There is an interdependent relationship between the output and its components. Components are needed to produce an output and the component would not be produced if there were no demand for it. A component, however, can be used within the production of more than one output. The more outputs a component contributes to, the less dependent a component is on a specific output. On the other hand, the completion of an output depends on the availability of its components. When a component becomes unavailable, potentially the production of the product would also have to stop, unless an alternative equivalent component could be found. The alternative component might already exist in the system supply chain, yet it is possible that this will have to be sought from a supplier currently outside the system. If there is no alternative for a specific component, then output production is highly dependent on supplier securing future component production.

2.3 Stakeholders and Components

A component is made-up of its sub-components, which in turn requires processors to transform those sub-components into the component. The activities within an organisation can be classified into substantive activities, communication activities and control activities (Liu, 2000). All activities are processed, or are managed, by human beings. Hence, there are people who conduct substantive, communication and control activities for each component. Substantive actionees are those who make the component and supply it to another sub-system; control actionees control the production activities; and communication actionees communicate on behalf of the component with related sub-systems during the production process. Apart from those people, there are a group of people who benefit from the component, and they are the beneficiaries. Beneficiaries include those who benefit economically from the component and those who receive the component.

Due to the direct linkage between a component and its stakeholders, the stakeholders of the output are naturally identified. Hence, an output to components structure diagram inevitably reveals the

stakeholder relationship of a given set of outputs and components.

3 COMPONENT-BASED STAKEHOLDER ANALYSIS

3.1 Defining Unit System

The first step of component-based stakeholder analysis is to define the unit system. Defining the unit system helps us to scope the analysis. A unit system is the focal centre for the stakeholder analysis; it may relate to specific product, part of an organisation, the whole organisation, or even a whole industry; depending on the purpose of the stakeholder analysis.

3.2 Identifying Outputs of Unit System

Once the unit system is defined, the analyst needs to identify the outputs, i.e. those produced by the unit system for its customers. The outputs can be either tangible goods or intangible services.

3.3 Component-based Structure

Component-based output structure de-compartmentalises the output into components. Each component can contain rich information about the component in terms of processors, related outputs, location etc. This rich information, at the component level, can then be used to provide analysis concerning each component part and/or the output as a whole. The output de-compartmentalisation process should stop at the level where the component is still meaningful and useable to the unit system. Tangible goods can easily be broken down into components, since the materials and parts can be physically identified. However, the component-based product structure of intangible services might be less straightforward. It might be a piece of information, a service that contributes to the service or tangible goods offered as part of the service.

For instance, a department at a university plans to offer a new degree programme, MSc International Management. The new degree programme as an output contains components including degree modules, supervision, programme support, lecture rooms, academic staff, administration staff, and students. A newly designed degree is an intangible output, but it contains both tangible and intangible components.

3.4 Component Description

Once the component-based output structure is produced, a component description is needed to identify the stakeholder and the link between outputs and components. A component description should contain information including component name, unique identifier, sub-components, substantive actionees, communication actionees, control actionees, beneficiaries and contributed outputs. More columns, such as date of production and location of component, can be added as needed depending on the nature of the component. The component description provides essential information based on the component, and therefore enables component-based stakeholder identification, analysis and component planning.

Table 1: Component description example.

Component description	
Component name	Strategic Management
Unique identifier	MMM0002346
Sub-components needed	Lectures, Text books, Exams,
Substantive actionees	Module convenor
Communication actionees	Programme administrator
Control actionees	Board of study, Head of school, Programme director
Beneficiaries	Students, University, Department
Contributes to	MSc International Management, MSc Marketing and International Management

Table 1 is an example component description for the module, strategic management, as a component of the new MSc degree programme. The component description shows all the stakeholders and component related information.

3.5 Identifying Stakeholders

Stakeholder information is included within the component description, i.e. substantive actionees, communication actionees, control actionees and beneficiaries. Analysis can therefore identify all of the stakeholders, and production processes, through the component description and relationship between components. In the example component description shown in Table 1, the stakeholders identified through the module would be module convenor, programme administrator, board of study, head of school, programme director and students.

3.6 Mapping Stakeholder Relationship

Based on the information in the component-based output structure and component description, the analyst can reveal the relationship between components and outputs and between components. Since all of the stakeholders, three types of processors, are linked to components, the component-based output structure naturally shows the relationship between all of the stakeholders; identified through components.

4 DISCUSSION AND CONCLUSIONS

The majority of stakeholder analysis methods use processes or activities as the bases for modelling and analysis. We define stakeholder analysis by considering the relationship between output and components. The component-based output structure and component description provides an alternative approach for stakeholder analysis. Component-based stakeholder analysis approach provides a systematic foundation to stakeholder analysis, due to the dependent relationship between components and outputs. Component-based stakeholder analysis provides a stakeholder relationship map revealing the interdependency between the unit system and stakeholders, allowing the organisation to better manage their stakeholder relationships.

The component-based approach can apply to both tangible and intangible products. Moreover, the component-based product structure can be used to simulate the supply chain of each product. Using the information stored in each component, an organisation can keep track of all stakeholders and/or processes involved in the production and planning of each specific instance of a product. If a problem occurs with a component, or sub-component, then the producer knows instantly which stakeholders or processes are affected, and potentially which end product customers will be affected; supporting future improvements in the supply chain, and appropriate risk assessment concerning product recall. Furthermore, component may be used as a modelling base in enterprise resource planning system to gain overall control of products across all departments, as it can provide an alternative management perspective to conventional process-based modelling. Practices and information may also be shared on the basis of component instead of the basis of functional processes.

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