A FRAMEWORK FOR MANAGING STAKEHOLDERS ALONG THE MARITIME TRANSPORT CHAIN

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ABSTRACT

The main aim of this paper is to conflate stakeholder and process-oriented thinking in one comprehensive methodology to create a new perspective on change processes along the maritime transport chain.
The maritime transport chain is characterised by a complex multi-stakeholder environment with various actors from both the public and private sector whose different extents of influence can affect the design of maritime transport chains. Improvement measures along maritime transport chains frequently face conflicts of interests of involved or affected stakeholders that can become a relevant obstacle during the implementation process. In previous research the authors outlined a stakeholder management framework that is intended for application to change processes in maritime transport and logistics chains. This paper intends to develop that framework further. To accommodate needs from the logistics background, process analysis will be integrated into the framework. Steps in the stakeholder management framework will be introduced in detail, showing how each step should be performed for the underlying purpose. The paper is based mainly on a literature review and analysis.
Combining stakeholder management and process analysis, a comprehensive tool will be developed to support the implementation of projects along the maritime transport chain. The methodology developed ensures that stakeholders' needs and influence and their adequate involvement in project implementation are dealt with conscientiously.

Keywords: stakeholder management, maritime transport chain, process analysis

INTRODUCTION

Various stakeholders from both the public and private sector with different reaches of influence can affect the design of maritime transport chains. Moving goods comprises interaction of the private transport sector realising the flow by offering its various services according to market demand and the public sector providing the necessary infrastructure embedded in re-

lated policy settings. Further transportation takes place on different geographical scales, enabling local exchange of goods up to global trade. Volatile environments due to economic changes, policy implementation or technological enhancements determine the interaction of actors along transport chains. Further change processes along transport and logistics chains very often face conflicting interests of involved or affected stakeholders that can become a relevant obstacle during implementation. In particular, the complexity of intermodal transport chains as well as the international context in which project or policy implementation is embedded are push factors for conflicts. However, the success of change processes very often depends on the involvement and support of relevant stakeholders.

In Wolff and Flämig (2012) it was shown that stakeholder management offers an opportunity to deal with the challenges described above. The authors outline the development of stakeholder orientation from the pure recognition that stakeholders claim their interest in an organization or policy, firstly focusing on stakeholders internal to the organization and then also integrating externals, up to the insight that integrating stakeholders means a benefit for designing change processes. Further they present and analyse different fields of application and methodological approaches for the stakeholder concept. They state that among these many different approaches to stakeholder management no methodological approaches are known that address explicitly change processes along the maritime transport chain (Wolff & Flämig, 2012, pp. 4-12). In conclusion they base the need to apply the stakeholder concept for successful implementation of change processes along the maritime transport chain on five arguments. These are the involvement of various stakeholders in transport chains, its changing or volatile environments, the importance of involving relevant stakeholders in change processes, their conflicting interests, and the complexity of the implementation background (Wolff & Flämig, 2012, p. 13). The authors further propose an outline for an appropriate stakeholder management framework. Finally they state that in order to accommodate stakeholder management in the context of maritime transport and logistics chains a reasonable transformation is required. They derive process analysis as an adequate amendment as '*it reveals for each stakeholder their influence on respective processes as well as interactions and interfaces between involved stakeholders'* (Wolff & Flämig, 2012, p. 15). This amendment tends to gain transparency on functional and institutional aspects of the maritime transport chain by a structured and common method.

Within this paper the framework introduced in Wolff and Flämig (2012) will be developed further. To accommodate needs from the logistics background, process analysis will be integrated into the framework. Therefore the theoretical embedding of process-oriented thinking and approaches to process analysis will be outlined in section two. In section three, first the developed framework will be set in context of project management and relevant terms will be defined. Second, the steps of the comprehensive stakeholder management framework will be introduced in detail, showing how each step should be performed for the underlying purpose. The last section includes concluding remarks and an outlook for further research.

THEORETICAL EMBEDDING OF PROCESS-ORIENTED THINKING AND APPROACHES TO PROCESS ANALYSIS

Process-oriented thinking implies a strong emphasis on how work is done in contrast to a product' focus emphasis on what is done (Davenport, 1993, p. 5). The main basics of process thinking are the dualistic view of structures and procedures (e.g. Rosemann, 1996, p. 6 ff.;

Baumgarten, 1999, p. 227; Weske, 2007, p. 68), which is two perspectives of one entity: the organization (Nordsieck, 1934, p. 119 ff.). The composition or structure of a corporation aims at setting goals and determines its elements to pursue its objective whereas working procedures determine the order of activities and directly realize the achievement of goals (Hennig, 1934, pp. 3-8; Kosiol, 1962, p. 185).

A deep impact on process thinking originated from Porter (1985) and his theory development on value chains due to the fact that his understanding of a value chain implied process characteristics (e.g. Davenport & Stoddard, 1994, p. 143; Delfmann, 2008, p. 927). According to Porter (1985) the value chain of a firm is a system of interdependent activities that are the building blocks with which a firm creates a product. These activities require resources and use or create information. Furthermore, the value chain is embedded in a larger stream of activities that is termed value system and consists of the firm's value chain as well as the value chains of preceding suppliers or ensuing channels and buyers (Porter, 1985, p. 33 ff.).

Rosemann (1996) states that sensitization for process-oriented thinking can be referred to different approaches for process optimization (Rosemann, 1996, p. 8). According to Becker (2008) there are three main concepts for optimizing processes: continuous improvement, business process re-engineering and business process improvement (Becker, 2008, p. 20 ff.). The continuous improvement process (CIP)[1] which follows a process-oriented way of thinking in contrast to an innovation- and results-oriented-thinking (Imai, 1986, p. xxix). In contrast, business process re-engineering is a '*fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed*' (Hammer & Champy, 1993, p. 32). Business process improvement is a compromise between above mentioned concepts for optimizing processes (Becker, 2008, p. 20 ff.) and is described as a '*systematic methodology to help an organization make significant advances in the way its business processes operate*' (Harrington, 1991, p. 20).

First established for production companies, process management and analysis also became important for logistics in the 1990s and has been discussed in relevant literature. Weber (1992) states that logistics is characterized by a flow-oriented perspective and is responsible for the coordination of the whole process chain on a strategic and operative management level. Thereby the process chain involves various actors like external logistics service providers, suppliers, distribution channels, etc. (Weber, 1992, p. 885 ff.). Baumgarten and Wiegand (1996) state that only efficient process management can avoid an isolated improvement on department level that hampers an integrated optimization along the logistics chain. They suggest understanding the logistics chain including supplier and customers as an overall system targeting time, costs and quality improvements (Baumgarten & Wiegand, 1996, p. 53). In order to facilitate this mind-set Baumgarten (1993) introduced the so-called logistical process analysis resulting in process cost and the process sequence analysis. This approach is intended to identify potential for optimization specifically for time and cost reductions (Baumgarten, 1993, p. 14). Klaus (1998) says that even though logistics claims to be a holistic discipline it still lacks an overall integration of organizational structures, of technologies in particular of information technologies as well as the integration of behaviour in the course of lean management principles which implies effective cooperation between teams or companies to build up reliable customer-supplier relationships (Klaus, 1998, p. 61 ff.). To overcome this lack of

[1] The CIP was established in the course of Kaizen. According to Imai (1986) '*Kaizen means ongoing improvement involving everyone, including both managers and workers.*' (Imai, 1986, p. 3)

integration Klaus (1998) introduces the system of flows as expansion of the underlying mind-set that consists of the network of resources, the net of flows and processes and the objects of flow. Identifying and integrating these three elements is seen as the basis of logistical integration and optimization (Klaus, 1998, p. 66 ff.). According to Kuhn (1995) the main requirement for business alliances along the supply chain is precise coordination and information exchange. Thus planning and steering of logistics systems have to be made transparent and rateable by process models. The process analysis approach developed by Kuhn and called in German the 'Prozessketten-Instrumentarium' (in English process chain instrumentation) aims to visualize the flow of material and information in order to identify potential for optimization (Kuhn, 1995, p. 9 ff.). Delfmann (2008) introduces process management as logistics strategy (Delfmann, 2008, p. 927 ff.). The author emphasizes the importance of process orientation for recent enhancements in planning, management and steering of supply chains and defines process management as strategy-oriented analysis, evaluation, design, steering and control of the value-added process within and between organizations (Delfmann, 2008, p. 929). According to the author the main objective of process analysis is creating process transparency, with process analysis serving as a basis for continuous improvement or radical process optimization but also for process-oriented instruments of evaluation, monitoring and steering (Delfmann, 2008, p. 930). Pfohl (2010) puts much emphasis on systems thinking in logistics, understanding a system as a set of related elements. He states that flow-oriented or process thinking substitutes costs for autonomy by costs for coordination and by this enables shorter lead times and more flexibility in terms of service quality. He understands flow oriented thinking as shaping systems thinking and stresses the dimension time in contrast to capacity (Pfohl, 2010, p. 29).
Based on the literature review it can be stated that process analysis as part of process management is a common tool in organizations and logistics systems to create a transparent base for improvement. It thereby reveals that the focus of process analysis is on costs, quality and time. Even though the importance of stakeholders, players or actors is mentioned by several authors (Kuhn, 1995, p. 13; Baumgarten & Wiegand, 1996, p. 53; Weber, 1992, p. 885 ff.) this perspective is not specifically considered in this context.

A FRAMEWORK FOR STAKEHOLDER MANAGEMENT

In Wolff and Flämig (2012) a definition of stakeholder management was given as underlying for research activities undertaken:

> *'Stakeholder management aims at planning, organizing, motivating, directing, and controlling stakeholders by understanding and evaluating them from the perspective of an organization, or to determine their relevance to a project or policy as well as to derive adequate involvement strategies for change processes.'(Wolff & Flämig, 2012, p. 13-14)*

According to Cleland (1995) stakeholder management is embedded in the project management process (Cleland, 1995, p. 38) and in the same way it is understood here. Referring to the main project phases according to Pinto (2010) stakeholder management conclusively has to be integrated to set up the project (conceptualization phase), during the planning of the project (planning phase), the execution phase and the termination phase (Pinto, 2010, p. 32). The integration of stakeholder management already in the conceptualization phase ensures the

basis for a project with full awareness of its strengths and weaknesses, opportunities and constraints in respect of the project's stakeholders. Likewise the stakeholder participation process can be launched during the planning phase, in particular when projects emerge very clearly and the objective is not under consideration. Involving stakeholders during the execution phase appears to be too late (Pinto, 2010, p. 32).

According to Varvasovszky and Brugha (2000) stakeholders are understood as '*actors who have an interest in the issue under consideration, who are affected by the issue, or who [...] have or could have an active or passive influence on the decision-making and implementation process*' (Varvasovszky & Brugha, 2000, p. 341)[2]. The definition of Varvasovszky and Brugha (2000) defines very clearly the relationship of stakeholders to what they call issue under consideration (Varvasovszky & Brugha, 2000, p. 341) but in order to be more precise regarding the reference point the notion '*issue under consideration*' will be translated to relevant terms along the project life cycle.

As a consequence the following definition of the term *stakeholder* is underlying to related research activities:

> Stakeholders are defined as actors who have an interest in the issue addressed, who are or will be affected by the project facing the issue or could have an active or passive influence on the conceptualization, planning or execution of the project.

Steps that ought to be considered within a framework of stakeholder management for the underlying purpose were derived in Wolff and Flämig (2012). Furthermore it was shown that the main transformation of the stakeholder management framework that is to be developed is to accomplish needs from the logistics background by partially integrating process analysis in the stakeholder management process (Wolff & Flämig, 2012, pp. 14-15).

Thus the following steps constitute the stakeholder management framework:

- Clarifying objectives.
- Identifying and mapping stakeholders.
- Scoping processes.
- Profiling stakeholders.
- Developing involvement strategies.

Following the argumentation above, the stakeholder management framework will be integrated in the project management process. Further stakeholder management is an iterative process and therefore each step is intended to be a building block of a toolbox that can be applied and in some cases has to be repeated and adapted during all project phases. This principle can also be found in Karlsen (2002) or Wadenpohl (2011). Thus the framework will be designed as a toolbox including several building blocks that can or have to be applied, revised and adapted during the project life cycle. So the framework developed will be named ***stakeholder management cycle (SMC)***, as outlined in Figure 1.

[2] A comprehensive overview of stakeholder definitions and their evolution can be found in e.g. Mitchell et al., 1997, p. 858; Gärtner, 2009, p. 82 or Freeman et al., 2010, p. 206 ff.

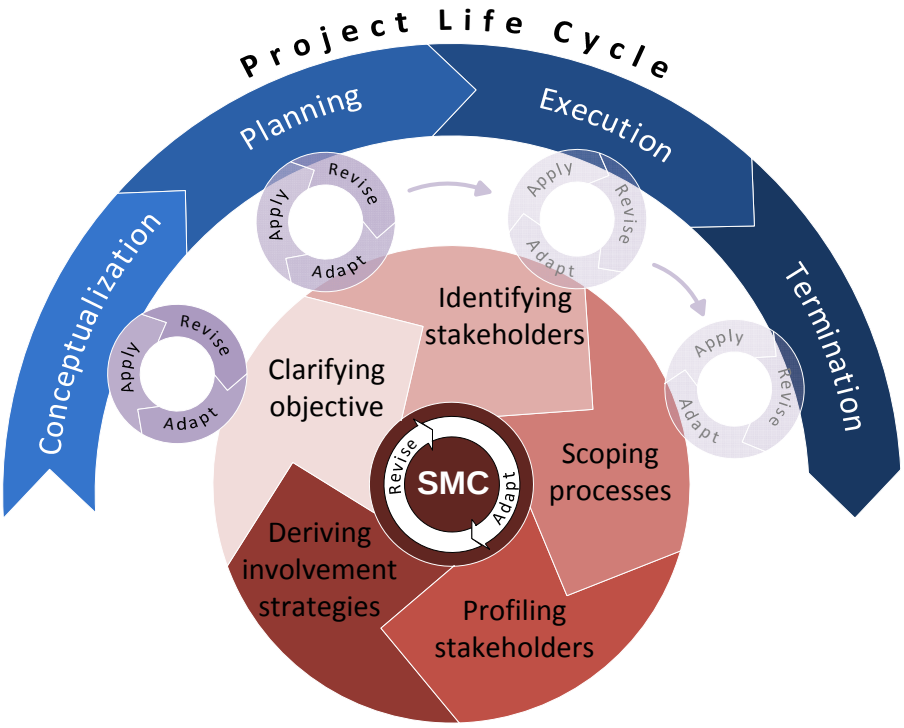

Figure 1: Stakeholder management cycle embedded in the Project Life Cycle (author's design)

In the following each step is specified.

Clarifying the objective

In a first step the objective has to be clarified. Many authors stress the importance of taking this step for the ensuing analysis but provide no further guidance on how to do it (Varvasovszky & Brugha, 2000, p. 338; Karlsen, 2002, p. 23; Görgen & Klien, 2009, p. 88). According to Grimble (1998) clarifying the objective of the stakeholder analysis requires to define the underlying problem that will be addressed, the objectives of the analysis, the main decision-makers, the expected or intended outputs, and how they will be targeted. The author further states that in a second step system boundaries have to be defined in order to develop an understanding of the system (Grimble, 1998, p. 4-5). Zimmermann and Maennling (2006) do not directly provide help on how to perform this step but indirectly refer in almost every building block of their approach to the objective of the change process or change objective respectively (Zimmermann & Maennling, 2006), which consequently ought to be defined at the beginning.
Refining the above-mentioned ideas it seems reasonable to define the objective of the SMC in order to determine expected outputs and to choose relevant building blocks of the SMC with which to target this objective. This will depend on the problem addressed and the resulting change objective of the overall undertaking. Regarding the system boundaries the relevant parts of the maritime transport chain have to be identified, which likewise depends on the problem and change objective. In particular the definition of system boundaries will later determine the identification of relevant stakeholders.
Summing up, the following questions are to be posed to derive the objective:

- What is the problem addressed?
- What is the change objective of the project in which the SMC is embedded?

- What is the objective of the SMC?
- What are the system boundaries of the SMC with regard to the transport chain?

Furthermore, it is crucial at this stage to define a working plan with an underlying time schedule, to plan efforts for each task, to build a team and to allocate tasks as is usually done in almost every other project context.

Identifying and mapping stakeholders

In a second step stakeholders have to be identified and mapped. Some authors follow the underlying stakeholder definition to create a stakeholder list by transferring the definition to questions posed to a group of experts (Grimble, 1998, p. 6; Varvasovszky & Brugha, 2000, p. 341). Other authors develop a list of stakeholder groups for the specific application purpose, e.g. almost every stakeholder analysis/management approach in the context of strategic management in corporations comprises a list with stakeholder groups such as stockholders, employees, customers, etc. (e.g. Rhenman & Adler, 1968, p. 25; Ackoff, 1974, p. 63). Also approaches in the field of development cooperation provide such a list facilitating the stakeholder listing. Liebl (1996) calls it a generic stakeholder list that then has to be specified (Liebl, 1996, p. 105).

The SMC follows this approach by first generating a list of generic stakeholders. The maritime transport chain comprises the shipper or consignee, shipping lines, terminal operating companies, hinterland transport providers, inland terminal operators, forwarders, port authorities, planning authorities, customs etc. (Bichou & Gray, 2005, p. 417; Rodrigue et al. 2009b).

Nevertheless it has to be specified on the one hand which kinds of stakeholders are relevant with regard to the purpose of the SMC and on the other hand which concrete companies or organizations belong to the different kinds of stakeholders. The listing of stakeholders will be based on the underlying stakeholder definition. Referring to the underlying stakeholder definition the following questions need to be asked for every generic stakeholder group:

- Who has an interest in the problem addressed?
- Who is or will be affected by the project facing the problem?
- Who could have an active or passive influence on the project?

For further evaluation, stakeholders can be clustered with regard to their importance. This is particularly relevant if a large number of stakeholders is identified in the first step. A common way to categorize stakeholders is to differentiate between primary and secondary stakeholders (regarding corporations see e.g. Clarkson, 1995, Freeman et al. 2010, with respect to projects see e.g. ODA, 1995a and ODA, 1995b, Winch, 2007 or Cleland & Ireland, 2010). Many authors cluster stakeholders into relevance groups in a structured way by means of attributes. These attributes are manifold and adapted to the problem background. They exhibit a single attribute such as the influence of stakeholders on the change process (Görgen & Klien, 2009, p. 88) or the resources controlled (Brinkerhoff, 1991, p. 32 ff.). Other authors choose various attributes for classification such as purpose and motivation, beliefs, resources, special knowledge, commitments and relationships with other stakeholders (Mason & Mitroff, 1981, p. 97 ff.) or power, legitimacy and urgency (Mitchell et al., 1997, p. 865 ff.). The same principle of classifying stakeholders but with respect to different attributes is applied by Zimmermann and Maennling (2006) in development cooperation. According to these authors it is crucial for the identification of stakeholders relevant for a specific system intervention to consider their legitimacy and role, their resources as well as their connections (Zimmermann & Maennling, 2006, p. 11-12).

Based on Zimmermann and Maennling (2006) an approach has been developed for the SMC framework. As the term legitimacy reflects acceptance by public consent, only the notion *role* will be used with respect to the maritime transport chain. The *role* of stakeholders is interpreted as their influence with respect to the problem addressed and the realization of the change objective.
Transferred to the maritime transport chain those stakeholders with a strong steering influence and market position are considered as having a strong role (Wolf, 1997, p. 1091). *Resources* in context of the maritime transport chain are understood as assets, financial resources, human resources (including the corresponding know-how) (Hildebrand, 2008, pp. 166-168). Furthermore the *connections* of stakeholders and whether and how they are connected to other stakeholders are of interest. Applied to the maritime transport chain, this is understood as the variety, quantity, and quality of being related to other players. In this context different forms of cooperation can be considered. In terms of the degree of cooperation these are informal relations without contractual basis, subcontracting, strategic alliances, joint ventures etc. In terms of the direction of cooperation, vertical and horizontal cooperation as well as mixed forms are differentiated along maritime transport chains (Hildebrand, 2008, pp. 78-81).
This stage of the process is intended to single out primary and secondary stakeholders. These aspects do not have to be investigated in detail as they will be picked up again for profiling the stakeholders in terms of their power. Thus a rough estimation will be sufficient at this stage. However, the ensuing analysis can thereby be carried out with a stronger focus on the relevant stakeholders.
The identification of relevant stakeholders can be further refined by creating a stakeholder map visualizing their role and interaction.

Scoping processes

The objective of this step of the SMC is to visualise processes and to allocate responsibilities for single processes to the different stakeholders. Therefore the focus here will be on process modelling.
According to Gadatsch (2000) formal methodologies to model processes can be divided into graphic and script-based methodologies. The latter make use of a formal notation inspired by programming languages and enable a very precise specification of modelled processes but without graphic illustration these methodologies lack clearness and also require a deep methodical knowledge on the user's part. Graphic methodologies can be divided into object oriented, flow oriented and document oriented. Thus flow orientation exhibits as data or control flow oriented (Gadatsch, 2000, p. 109 ff.). Document oriented methodologies are determined as a description of the processing of documents and not related to other processes (Gadatsch, 2000, p. 110 ff.). Object oriented methodologies originate from software development and develop process and data models separately what impedes following the control flow and order of activities (Gadatsch, 2010, p. 99 ff.). Flow oriented methodologies model the process as the core element that transfers data steered by organizational units (Gadatsch, 2010, p. 70). Thereby data flow oriented methodologies emphasize the exchange of data objects whereas control flow oriented methodologies tend more accentuate the order of underlying functions (Keller et al., 1992, 1).
For the underlying purpose control flow oriented methodologies seem to be most appropriate as the main focus is on the processes and their logical flow, which seems to be more useful

than focusing on the data flow, objects or documents. Due to this, several control flow oriented methodologies are described in the following[3].

Petri nets are a common tool for process modelling originating from Carl Adam Petri. In this modelling approach he combined graphical representation with an equivalent mathematical formalization. The Petri net itself is a static model, but can be used to model dynamic systems from what is captured by the so-called token play (Weske, 2007, p. 149). Often Petri nets are considered to be too complex for inexperienced users and difficult to understand so that they are not recommended for use in business process modelling and discussions with process owners (Gadatsch, 2010, p. 84).

Based on Petri nets, event-driven process chains were developed in the early 90s at the University of Saarbrücken by Gerhard Keller, Markus Nüttgens and August-Wilhelm Scheer. They became part of a holistic modelling approach, the so-called ARIS framework (ARIS stands for Architecture of Integrated Information Systems) and are used by SAP R/3 (Gadatsch, 2000, p. 129). The focus of event-driven process chains is on the depiction of the control flow (Keller et al., 1992, p. 1). The use of event-driven process chains as part of the ARIS framework is very common. The ARIS framework offers the use of different perspectives on processes of organization, data, control, function and performance – together the so-called ARIS house (Scheer, 2001, p. 21; Seidlmeier, 2010, p. 12 ff.). Given that event-driven process chains are intended for use in intra-corporate modelling, they are less useful for modelling the interplay of several companies (Kocian, 2011, p. 26).

The Business Process Model and Notation (BPMN) methodology was developed by Stephen White, an IBM employee, and published in 2004 by the Business Process Management Initiative, later the Object Management Group dealing with development of standards independent from a specific manufacturer (White, n.d., p. 1). The primary goal of BPMN is to be understood and accepted by different stakeholders. Thereby swimlane elements constitute the core of the methodology (Kocian, 2011, p. 6-7). They '*organize activities into separate visual categories in order to illustrate different functional capabilities or responsibilities*' (White, n.d., p. 4).

Authors modelling processes in a maritime transport chain context use a self-developed modelling notation adapted to the focus of their research (e.g. Swinarski 2005) or refer their choice to the concrete subject of investigation (e.g. Will, 2011, p. 94; Schwarz, 2006, p. 66ff.).

The latter approach will be followed here. For the SMC it is proposed to make use of the BPMN methodology. Basically the elements of the BPMN are flow objects (events, activities, gateways), connecting objects (sequence and message flow or association), swimlanes[4] to group other elements, and artifacts that do not affect the flow but provide additional information (data objects, group, and annotation) (Chinosi & Trombetta, 2012, p. 126). Due to the fact that different actors can be grouped by swimlanes the focus of this study on different stakeholders can be emphasized in visualisation. In addition the whole SMC is based on a strong interaction with stakeholders and by means of BPMN process models discussions with different stakeholders are facilitated.

Detached from the chosen modelling methodology, the following guidance is important for this step in the SMC. Scoping processes is crucial for the ensuing analysis as it builds the ba-

[3] A comprehensive presentation of all methodologies can be found for instance in Gadatsch, 2000, Weske, 2007, or Gadatsch, 2010 respectively in the original sources of literature.

[4] According to Gadatsch swimlane diagrams firstly were developed by Harmut F. Binner during the 1990ties (Gadatsch, 2010, p. 85).

sis for a profound information exchange with stakeholders. The process model is intended to serve as a basis for discussions by which at first functional and institutional aspects of the maritime transport chains will be revealed. For this reason the process model should be developed during expert interviews with relevant stakeholders. So it is important that the interviewees can easily understand the process charts and identify their area of intervention. Second, the discussion along the processes is aimed at creating a common understanding of the issue under consideration. Framed by a common understanding, the ensuing aspects of the analysis such as issues, attitudes and power factors can be discussed more easily and in a more focused manner.

Profiling stakeholders

For creating profiles for each stakeholder their power and influence on as well as their attitude and interest towards the project must be investigated.

Developing attitude profiles

Several authors suggest evaluating stakeholders according to issues aiming to create transparency as to the stakeholders' concerns and benefits (Freeman, 1984, Liebl, 1996, Schwartz & Eichhorn, 1997, Karlsen, 2002, Wadenpohl, 2011). Freeman (1984) suggests developing first a list of key concerns or issues. In a second step all stakeholders are evaluated in terms of how important each issue is regarded by the stakeholder, such as critically, somewhat and not very important or if the stakeholder is not concerned with the issue at all. Issues and evaluation are converged into a stakeholder-issue matrix (Freeman, 1984, p. 113 ff.). Zimmermann and Maennling (2006) generate stakeholder profiles to identify differences and commonalities among them and to cluster various stakeholders. This step requires first a list of items or criteria that are relevant for the project and an evaluation of how each stakeholder corresponds to those criteria (Zimmermann & Maennling, 2006, p. 16). Görgen and Klien (2009) develop a matrix that summarizes the stakeholders' attitude towards a change objective (Görgen & Klien, 2009, p. 90). Johnson et al. (2008) record stakeholders' interests (Johnson et al., 2008, p. 156).
Aiming to catch stakeholders' attitude and interest towards project relevant issues, the approach proposed for the SMC will follow the authors referred to above. First a list of project relevant issues will be created. In a second step all stakeholders will be evaluated according to that issue. As a result the list of issues can be ranked in terms of their importance and for each stakeholder an attitude profile can be developed.
A specific reference to an application on maritime transport chains is not provided here as this step of the SMC is determined by the change objective pursued by a concrete project, i.e. concrete issues will be derived during project implementation.
For creating the list of issues several authors suggest interviewing individual stakeholders or stakeholder experts (Freeman, 1984, p. 114) and stress the usefulness of informal unstructured interviews for this purpose (Grimble, 1998, p. 6).
The SMC is likewise based on a strong interaction with stakeholders. It seeks to combine the development of the process model with the identification of issues, attitudes and power factors in the context of personal interviews with stakeholders.

Logically the steps creating a list of issues and evaluating the stakeholders according to that list have to be separated as only in that way can all stakeholders cast their vote on all issues. The evaluation can then be realized by a questionnaire or another interview. In order to gather information on the stakeholders' attitude with regard to selected issues the issues must have a direction, i.e. potential future development aimed at by the project has to be expressed (an issue like e.g. 'data exchange' is difficult to refer to in terms of attitude whereas 'enhancing information exchange' enables one to question an attitude).

Developing power profiles

Several authors in the stakeholder management literature when expanding on stakeholders' power name different sources of power. Power sources of organizational stakeholders are e.g. hierarchy, control of resources, possession of knowledge or skills, control of the human environment, involvement in strategy implementation and internal links (informal influence) (Johnson et al., 2008, p. 161). The following power sources are named in the context of projects in development cooperation: hierarchy, control of strategic resources, possession of specialist knowledge, negotiation position, status (social, economic and political), informal influence, degree of dependence on other stakeholders, control of the flow of information, practical relevance, creativity and social relations, (ODA, 1995a, p. 6, Zimmermann & Maennling, 2006, p. 24).

Power in terms of transport chains in general is described as the range of logistical control exhibited as steering influence on relevant transport parameters by institutions offering transport services and the market situation and corresponding market power of institutions demanding these transport services (Wolf, 1997, p. 1091; Swinarski, 2005, p. 49).

Beyond these general sources of power in transportation, other sources of power can be derived by applying insights from stakeholder-related literature to the underlying purpose. The aspects hierarchy, negotiation position and degree of dependence on other stakeholders are also related to different forms and degrees of cooperation (Hildebrand, 2008, pp. 78-81). Control of resources can be referred to the control of assets, financial resources, human resources and what is further linked to specialist knowledge (see above, or Hildebrand, 2008, pp. 166-168). Management of information is a crucial factor for maritime transport chains (Grig, 2012, p. 50-54) and consequently the control of the informational flow can also be considered a source of power. Practical relevance could be transferred to a kind of operational influence, i.e. the influence exerted by terminal, depot or transport operators etc. in operational procedures.

This proposal only names possible power sources and should be seen as impulse for a more focused discussion. It has to be revised and amended during application of the SMC to a concrete subject. Here the second step of the SMC already sensitized for the role, connectivity and resources of the stakeholders considered. Insights gained must be further refined during the stakeholder interviews. Interview results as well as the process model structuring functions and responsibilities are a valuable input for this step in the SMC.

Power sources have to be specified in a first step. Second, each stakeholder has to be evaluated according to these sources of power in terms of the shaping of strength in each source.

Deriving involvement strategies

The final step of the SMC is to derive involvement strategies for each stakeholder. So several authors first cluster the stakeholders analyzed by means of a matrix, classifying them by two attributes. Depending on the shaping (mostly high and low), stakeholders are classified in four groups (equalling four quadrants) leading to four different involvement strategies. The same approach will be applied for the SMC. Attitude and power profiles developed in the preceding steps are converged into one matrix as a basis for deriving involvement strategies.
In the following, the approaches considered are outlined in brief. Karlsen (2002) develops an approach that divides stakeholders into four groups depending on the stakeholder's *potential to affect and to collaborate* with the project. Resulting involvement strategies are: involve, collaborate, monitor or defend (Karlsen, 2002, p. 23 ff. adapted from Savage et al., 1991, p. 65 ff.). Johnson et al. (2008) follow the same principle but use different terms. They firstly cluster stakeholders according to the *power* they hold and the extent to which they are likely to show *interest* in a particular strategy. They distinguish 'minimal effort' stakeholders (low interest and low power), 'kept informed' stakeholders (low power and high interest), 'keep satisfied' (high power and low interest) stakeholders and 'key players' (high power and high interest) (Johnson et al., 2008, p. 156 ff.). Based on Grundy (1998), Hayes (2010) evaluates all stakeholders who can affect or might be affected by the outcome of a change according to their *attitude* and *power* as displayed in the so-called stakeholder grid (Hayes, 2010, p. 149 ff.). Zimmermann and Maennling (2006) assess the *influence* on and *attitude* towards the change objective of each stakeholder as well by means of a four-quadrant matrix. Stakeholders in Quadrant A (rejection and strong influence) are challenging for the success of implementation. For adequate involvement, their reasons and arguments for reluctance have to be investigated and possibilities to dissolve their concerns should be figured out. Stakeholders in Quadrant B (approval and strong influence) are crucial but not challenging for the implementation process, they have to be involved actively and should be part of the all planning and decision-making processes. Stakeholders in Quadrant C (approval and little influence) should be monitored and informed regularly on the progress of the project. As for stakeholders in Quadrant D (rejection and little influence), they should be informed regularly about the progress and adequately involved in decision-making processes to ensure that the reasoning for their critical stance can be integrated (Zimmermann & Maennling, 2006, p. 28 ff.).
A comprehensive discussion on stakeholder involvement can be found in literature dealing with policy development. Oxley Green and Hunton-Clarke (2003) present different strategies for stakeholder participation. *Informative participation* includes one-way communication from the company while stakeholders stay passive. At the level of *consultative participation* stakeholders are asked for their attitude on issues and their opinions are fed back to decision-makers. Decisional participation includes stakeholders directly participating in the decision making process (Oxley Green & Hunton-Clarke, 2003, p. 295 ff.). Hage and Leroy (2008) distinguish between interactive approaches including *co-decide*, *co-produce* and *take advice/consult*, and non-interactive approaches including *listen*, *study*, *inform* and *no participation* (Hage & Leroy, 2008, p. 15). Based on Hage et al. (2008, 2010), Hoffmann et al. (2012) summarize the following levels of participation: *co-decision*, *co-production*, *consultation* and *communication*. The latter summarizes the non-interactive approaches but excludes *no participation* as according to the authors this is not a participation level (Hoffmann, Rotter, & Hirschfeld, 2012).

For the SMC the approach includes the classification of stakeholders into four groups by a power attitude matrix. For each group an adequate involvement strategy is proposed.
Based on the stakeholder profiles introduced in the preceding step of the SMC a matrix reflecting power and attitude will be developed inspired mainly by the approaches of Grundy (1998), Zimmermann and Maennling (2006), Johnson et al. (2008) and Hayes (2010). Thus all stakeholders have to be ranked according to their power and attitude. The resulting matrix is presented in Figure 2. Stakeholders in Quadrant A are named 'powerful blockers,' in Quadrant B there are the 'powerful advocates,' Quadrant C outlines 'supporters,' and 'opponents' can be found in Quadrant D. Their characteristics are as described above by to Zimmermann and Maennling (2006).

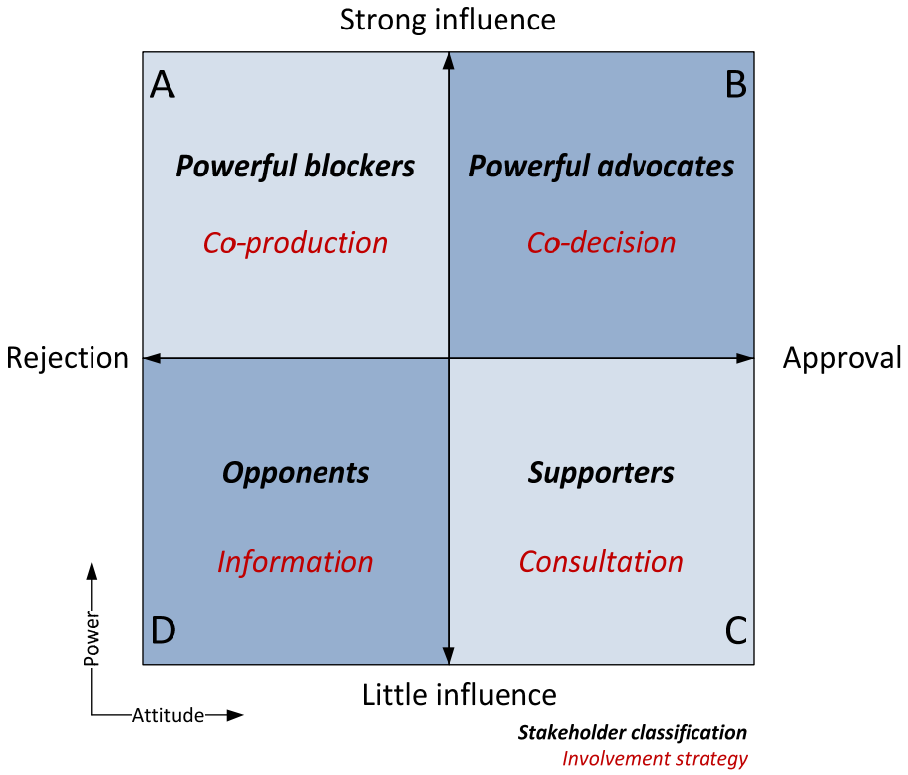

Figure 2: Power-attitude matrix and strategies for stakeholder involvement (author's design)

As for involvement strategies the following types of stakeholder involvement are derived mainly from Hoffmann et al. (2012), with the strategy *communication* renamed *information* in order to emphasize the one-way direction of information exchange.

- Co-decision: Common design of and decision on change processes.
- Co-production: Involvement in creating knowledge bases in preparation of decision-making.
- Consultation: Selective involvement in change processes by the decision maker.
- Information: Regular reports on the development of change processes by the decision maker.

If the stakeholder has no interest in taking part in the change process or the decision maker decides to exclude a stakeholder from participation, non-participation has to be mentioned as well.
In general careful consideration should be given for every stakeholder to what the best involvement strategy might be and the willingness of the different stakeholders should be requested not to demand an involvement that is not desired. Here the stakeholder interviews will provide an insight into the stakeholders' interest in being involved.

The allocation of involvement strategies to the classification by means of the power-attitude matrix are proposed as follows. Stakeholders in Quadrant A – the powerful blockers – should be involved by means of co-production if this way of collaboration seems to be helpful and reluctance of stakeholders regarding the change does not lead to reluctance to collaborate at all. If such a way of collaboration succeeds their reasons for reluctance can be considered and maybe mitigating measures can be undertaken. Stakeholders in Quadrant B – the powerful advocates – should be involved by co-decision to generate a strong base of stakeholders who are supporting the change. This co-decision naturally also includes co-production. Stakeholders in Quadrant C – the supporters – should be involved by consultation if this is desired and a helpful contribution can be produced. Stakeholders in Quadrant D – opponents – should at least be informed. If their reasons for reluctance seem to be of special importance, consultation may also be considered.
Depending on the object of change, the involvement of several stakeholders by co-production can always be considered or may even be required. In general, sharp allocation can look as depicted in Figure 2. However, stakeholder involvement should always be reflected in context and not follow methodological advice aimed at being simple and understandable.
A specific reference to an application along maritime transport chains is not proposed for the last step in the SMC. Concretization will be achieved by application to a concrete subject.

CONCLUSION AND OUTLOOK

Conflating stakeholder and process-oriented thinking creates a new perspective on change processes along the maritime transport chain.
By integrating stakeholder management and process analysis, a comprehensive tool is developed to support the implementation of changes. The methodology developed ensures that stakeholders' needs and influence and their adequate involvement in project implementation are dealt with conscientiously. In addition stakeholder's influence on processes as well as interactions and interfaces between involved stakeholders is made transparent.
It has been shown for each step in the stakeholder management framework how it should be performed for an application along maritime transport and logistics chains.
In a next step the framework developed should be applied in practice in order to gain insights into its feasibility and consistency.
Introducing the comprehensive stakeholder management framework in maritime transport chains creates benefit for current research in maritime transportation that deals with problems arising from a complex stakeholder environment. In addition, combining stakeholder management and the process analysis approach implies an innovative, reciprocal supplementation of methodologies that are subject to current research and are applied in various contexts.

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