BUSINESS PROCESS MANAGEMENT IN FUNCTIONAL ORGANIZATIONS: AN EMPIRICAL CASE STUDY FROM THE NORWEGIAN OFFSHORE SUPPLY INDUSTRY[1]

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ABSTRACT

The business process concept is considered powerful, and business processes are widely used in many areas that include not only IS, IT, enterprise architecture, and business process management but also quality and safety management and many industries such as production and service industries (e.g., telecom), supply chains, and logistics. At the same time, implementation and institutionalization of business process management (BPM) has not reached its expected success and is still not generally used by management as a perspective on business and organizations. The research literature argues that BPM should be integrated into the overall organizational management control system that incorporates all the tools, mechanisms, methods, infrastructure, and procedures for the alignment of operations with strategic objectives and development of organizational process orientation. However, much of the emphasis in the BPM literature and in industry is on BPM from an IS viewpoint and BPM as process supporting software. The aim of this study is to contribute to the understanding of how management systems handle a process perspective, particularly how a process view and BPM exist alongside hierarchical structures. For this aim, the study draws from an exploratory case study of two Norwegian shipping companies that provide supply services for offshore installations.

1. INTRODUCTION

Business process management (BPM) is a powerful tool with the potential to contribute to organizational performance improvement by increased understanding of management of operations, reduction of operational time cycles, improvement of service and product quality, increased customer focus and customer satisfaction, and alignment of strategic goals and operations (Palmberg, 2010, Paim et al., 2008, Al-Mashari et al., 2003). The concept is widely used for efficiency reasons in fields such as production industries, supply chain, and telecommunications services. However, implementation and institutionalization of BPM has not reached its expected success, and the concept is underrepresented in the academic literature. The fact that many companies face a number of challenges during implementation and performance of BPM initiatives and fall short of expectations is one of the reasons why BPM fails to succeed (Palmberg, 2010). Identification and analysis of business processes in practice is a challenging endeavor that requires time and resources (Kohlbacher and Gruenwald, 2011). Moreover, introduction of the process view in the organization requires a number of adjustments to organizations, which is time consuming and may result in employee resistance and lack of top-management support (Palmberg, 2010).

Contemporary academic literature tends to focus on the provision of guidelines and checklists regarding the implementation of BPM and lacks empirical evidence on how the companies implement BPM in their existing practices (Kohlbacher and Gruenwald, 2011). Although empirical evidence in the field of BPM initiatives implementation is growing, there is still a clear need for research. Existent empirical evidence mainly focuses on implementation practices but does not emphasize post-implementation phases of BPM initiatives.

[1] Please cite as Henk, A., Fallmyr, T.: Business process management in functional organizations: an empirical case study from the Norwegian offshore supply industry (2016). Paper presented at NOKOBIT 2016, Bergen, 28-30 Nov. *NOKOBIT*, vol. 24, no. 1, Bibsys Open Journal Systems, ISSN 1894-7719.

Particularly, the academic literature is calling for research on how functional organizations (i.e., hierarchically structured ones) can implement and execute the process perspective (Palmberg, 2010) that are addressed in this paper.

In particular, there is a lack of empirical evidence from the service industry (Kohlbacher and Gruenwald, 2011, Kohlbacher and Reijers, 2013). Therefore, this paper aims to contribute to this field by applying an explorative case study of two Norwegian shipping companies that provide delivery service for offshore installations, namely NordNorsk Rederi and SørNorsk Rederi2. The companies are the owners and charterers of the platform supply vessels (PSVs). As one of the riskiest operational environments in the Norwegian oil and gas industry, the activities of PSVs are strictly regulated by international and regional regulatory bodies, flag state regulations, and requirements of operators (oil and gas companies) (Dahl et al., 2014). On one hand, the activities of such companies are traditionally managed by a strict hierarchy due to the high levels of risk and uncertainty and thus a precise division of responsibility is necessary. On the other hand, the requirements of the state flag as well as those of oil and gas companies call for the implementation of a process view due to various safety and quality standards (e.g., ISO). Thus, in this paper we aim to determine how the Norwegian shipping companies apply the process view called for by ISO requirements, placing a special emphasis on the organizational structure of the companies. For this purpose, we formulated the following research question:

RQ: How do shipping companies providing offshore supply services implement BPM initiatives alongside hierarchical management structures?

The paper is structured in the following way: the next section introduces theoretical insights of the study. The third section explains the methodological choices of the authors, and the fourth section introduces empirical findings. The fifth and final section provides discussion and conclusions along with research limitations and directions for future research.

2. THEORETICAL INSIGHT

2.1 Business Process Management – critical success factors

The expected benefits of BPM initiatives are frequently overestimated, and endeavors to change organizational processes often fail. Explanations for this situation includes unexpectedly high training and consultancy costs, time losses, ignorance of organizational structure changes, and non-involvement of managers resulting in a team's resistance to change (Trkman, 2010, Bai and Sarkis, 2013). A number of studies have aimed at identifying so-called critical success factors (CSFs). The CSF concept refers to the key areas of managerial attention that contribute to or influence the performance outcomes of BPM initiatives (Ram and Corkindale, 2014).

Taking into consideration that success is a "moving target" (Larsen and Myers, 1999), in this paper we understand successful BPM initiatives as those that meet expectations in both the implementation and post-implementation stages (Trkman, 2010). Interestingly, the focus of the CSF literature in the field of BPM refers mainly to the implementation stage of BPM initiatives rather than their actual execution, thus leaving a broad field for research (Larsen and Myers, 1999, Ram and Corkindale, 2014, Ahmad and Pinedo Cuenca, 2013, Ram et al., 2013, Iden et al., 2015).

One of the reasons for the failure of BPM initiatives identified in the literature refers to the pure focus on the operational side of BPM implementation rather than the organizational side (Table 1). In other words, implementation of BPM may require dramatic changes both in organizational practices and organizational information technology. However, some of the research reveals that organizational factors are more important than operational factors (i.e., technological factors) (Ahmad and Pinedo Cuenca, 2013).

[2] At their request, the companies real names were anonymized.

Table 1. Operational and organizational CSFs

Operational factors	Strategic alignment	All the organizational BPs should be designed and maintained in accordance with the strategic plan and objectives (Trkman, 2010, Bai and Sarkis, 2013)
	Appropriate IT	*IT* should be built in order to support core organizational BPs and should be aligned with organizational strategy (Bai and Sarkis, 2013, Trkman, 2010)
	Customer focus	BPM initiatives should *focus on customer's* needs and involve them in BPM-related activities when appropriate (Bai and Sarkis, 2013)
	Performance management	An organizational *performance measurement* system should be designed to provide a timely feedback loop in order to keep process performance on appropriate levels and provide continuous improvement (Bai and Sarkis, 2013, Ahmad and Pinedo Cuenca, 2013, Hienerth et al., 2011, Trkman, 2010)
	Standardization	The level of standardization should be traced and over-standardization should be avoided (Trkman, 2010)
	Automatization	Automation should be employed to a certain degree in order not to lose important organizational competencies and resources (Trkman, 2010)
Organizational factors	Management involvement	Management involvement is important for the promotion of strategic decisions, control of the resources expended for BPM projects, establishment of intra-organizational communication, and motivation of employees (Ahmad and Pinedo Cuenca, 2013, Guimaraes, 1999, Bai and Sarkis, 2013, Iden et al., 2015)
	Adequate project management	Due to the involvement of professionals and resources from various organizational departments, an adequate project team is required to support implementation process at all phases of the project (Bai and Sarkis, 2013, Ram et al., 2013)
	Employee training and involvement	Employees should be trained to keep them updated on the needs of the company (Ahmad and Pinedo Cuenca, 2013, Trkman, 2010, Ram et al., 2013, Iden et al., 2015)
	Organizational culture	A BPM-oriented organizational culture is needed in order to create a favorable environment for the acceptance of BPM initiatives and avoid resistance from employees (Ahmad and Pinedo Cuenca, 2013, Ram et al., 2013)
	Organizational structure	Implementation of BPM requires a shift from functional to horizontal organizational structure (Bai and Sarkis, 2013, Trkman, 2010, Palmberg, 2010)

2.2 Functional vs. Horizontal Organizational Structure

In the field of BPM, organizational structure is represented mainly as a critical success factor for BPM implementation and post-implementation that addresses a need for a shift from traditional functional organizational structure to a horizontal structure (Trkman, 2010, Palmberg, 2010). For example, Kohlbacher and Reijers (2013), while conducting a quantitative study of process orientation dimensions, concluded that an organizational structure of the company that is in line with business processes (i.e., horizontal) positively influences organizational performance. Hernaus et al. (2016) also claimed that an adequate decision-making structure in process-oriented companies results in better business performance.

For the purpose of this paper, we understand organizational structure as the "*internal pattern of relationships, authority, and communication"* that can be measured by three main dimensions, namely centralization, formalization, and complexity (Fredrickson, 1986:282). Centralization refers to the degree of concentration of decision-making practices, formalization concerns the degree of deployment of rules and procedures, and complexity indicates the degree of interrelations between the elements of the structure.

While conducting a literature review for the study of the role of process owners in process-oriented organizations, Nesheim (2011) identified several alternatives for organizational structuring for implementation of BPM initiatives. Thus, BPM can be implemented in functional organizations without dramatic structural changes (Figure 1a). In such a case, functional managers are appointed as process owners. However, at the same time, Nesheim claimed that such an option is inadequate as "*process responsibility is not accorded the necessary organizational legitimacy"* (p.110). In turn, the appropriateness of the hierarchical structure for BPM initiatives is also criticized for the lack of capability for work coordination, inability to represent organizational realities, and lack of agility and responsiveness needed for adoption of the operations to demanding environments (Paim et al., 2008).

The second alternative is a "more radical" version of vertical structure (Figure 1b). Nesheim (2011) described it as one that implies identification and grouping of core processes according to their role in value creation for customers. Organizational units should be built around such groups with the minimum number of hierarchical levels, where unit managers have the function of process owners. Thus, such an option incorporates elements of both functional and horizontal organizations. Such an integration of both functional and horizontal structures is possible only when organizational strategy is aligned with the processes, and communication with top management is established (Markus and Jacobson, 2010, da Silva et al., 2012). Implementation of BPM initiatives in a functional structure has "two sides of one coin". On one hand, it improves business performance; on the other hand, it increases managerial complexity (McCormack et al., 2009, da Silva et al., 2012).

Finally, the third alternative implies a fully horizontal process-based organization that is based on the processes and supporting structures, such as centers of excellence (Figure 1c). However, transitioning from a functional to a horizontal structure is a challenging process due to a number of barriers such as a lack of organizational culture that supports such a transition, resistance of employees, lack of organizational learning development, and various context-related barriers (da Silva et al., 2012). Further, such a shift may result in the need for establishment of effective cross-functional communication in order to provide efficient information sharing and promotion of strategic vision (Bai and Sarkis, 2013, Guimaraes, 1999). In turn, Trkman (2010) identified a number of challenges of such organizations, such as *"duplication of functional expertise and increased operational complexity which can result in an escalation of costs, the emergence of horizontal silos, inconsistency in the execution of functional decisions between processes, and general erosion of the efficiency"* (p.129).

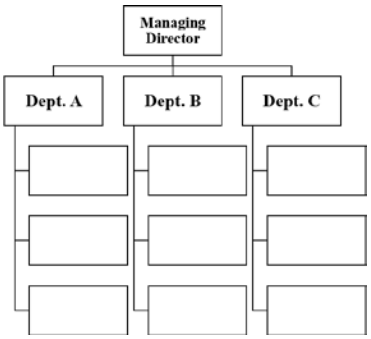

Fig.1a. Hierarchical structure

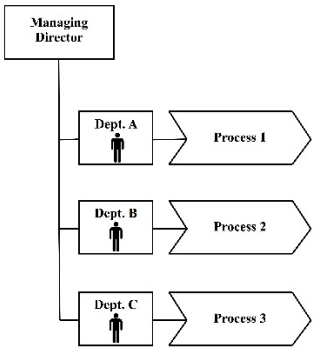

Fig.1b. Mixed structure

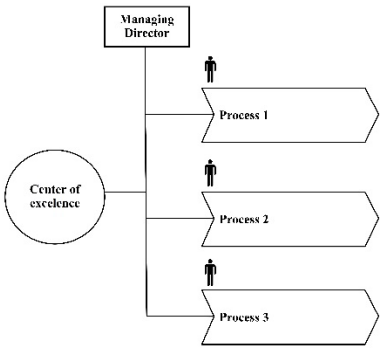

Fig.1c. Process organization

2.3 Quality Management

Companies implement BPM initiatives for various reasons. Sometimes such reasons are driven by the internal motivation of the company, based on the benefits offered by the approach. They can also be driven by customer requirements and industry regulations. For instance, the ISO 9000 series of quality management system standards are required for a number of industries, including the offshore supply industry.

Clause 4.1. of ISO 9001:2008 calls for establishment of initial BPM initiatives, including identification of core quality-related processes and their interrelation, development of a performance management system, assurance of an adequate amount of resources, and information sharing for effective use of resources (Cianfrani et al., 2008). The main success factors for successful quality management implementation include managerial improvement, an appropriate level of knowledge and experience of the implementation team, alignment of quality management initiatives with strategic plans, and integration of quality management into the organizational management control system (van der Wiele et al., 2001).

However, companies implement ISO certification not only due to external demands. van der Wiele et al. (2001) differentiated between internal and external reasons for implementation of ISO practices. Internal reasons include internal motivation that implies desire to improve an organization's quality and effectiveness by the contraction of non-value adding processes. Moreover, the decision to focus on quality and implement ISO

standards is often connected with the decision to implement a total quality management approach within the organization.

3. METHODOLOGY AND RESEARCH CONTEXT

This study is built on the exploratory case studies of two Norwegian shipping companies operating in the offshore supply industry. Case studies are an appropriate approach for research in a situation when the phenomenon being studied cannot be separated from its research context (Saunders et al., 2009). This industry is a strictly regulated area of operations due to high risks for people onboard and the surrounding environment. Increased maritime activities in regions with harsh climates and weather conditions result in an increased amount of challenges for shipping companies. Such challenges are a result of severe weather conditions and natural settings, and lack of infrastructure and area-specific knowledge and experience (Borch and Batalden, 2014, Buixadé Farré et al., 2014). Such a dangerous working environment requires adherence to and compliance with predefined rules and instructions. It is vital for shipping companies to create an appropriate safety environment and provide clear explanation of rules and instructions to all employees involved in operations. Ignorance or non-compliance with these rules may result in the loss of competitive advantage and/or the occurrence of accidents (Dahl et al., 2014). Thus, ISO standards for safety and quality management are initial requirements for shipping companies.

We used interviews as the main data collection method. Interviews offer a number of advantages, including the opportunity to clarify obtained information and to observe reactions and emotions of interviewees while they provide information (Frankfort-Nachmias and Nachmias, 1996). Particularly, we used a semi-structured interview technique that was based on predefined interview guides. The interview guides were divided into several parts that included introduction questions and questions related to how business processes are connected to quality and safety and how they are designed. In addition, we attempted to determine which practices and tools managers used for quality and safety and how they divided responsibilities and made decisions in various situations. Semi-structured interviews allow researchers to clarify details if needed by going beyond the predefined interview guides to provide a richer and clear picture. At the same time, they still protect the interview from wandering and frame the data for further analysis (Rugg and Petre, 2007). The interviews were conducted in English, Norwegian, and Russian according to the requests of the interviewees. The interviews conducted in Russian were later translated into English for the further coding.

We conducted interviews with the managerial staff of the onshore part of the organization and representatives of the crews of the PSVs of the shipping companies (Table 2). This provided an understanding on how the business processes of the companies are designed, performed, and controlled. Further, we gained a picture of the organizational structure, system of decision-making, and distribution of resources and gained understanding of the role of IT in the decision-making processes and management control. Moreover, we used interviews conducted earlier by the research team of the OpLog project[3]. In addition to interviews with the representatives of the companies, we used several interviews with the representatives of two oil companies (the customers) in order to understand how the requirements of the operators call for process orientation of the companies and further adjustment of existing processes.

Table 2. Interviews

Company	***Position***	***Time***	***Type of the interview***	***Length (if appropriate)***	***Comment***
NordNorsk Rederi	Managing Director	November 2015	Face-to-face	1 hour	
	Former Managing Director	November 2015	Face-to-face	2 hours	

[3] OpLog – Operational Logistics Management and Vessel Technology Demand – http://www.nord.no/no/om-oss/fakulteter-og-avdelinger/handelshogskolen/senter/nordomradesenteret/Sider/Current-projects.aspx#&acd=0f199592-8fb0-4a53-55aa-7c1d3617d33e

	QHSE Manager	November 2015	Face-to-face	50 mins	
	QHSE Advisor	November 2015	Face-to-face	50 mins	
	Former QHSE Manager	November 2015	Face-to-face	2 hours	
	Captain PSV	June 2016	Skype		
SørNorsk Rederi	Human Resource Manager	February 2015	Face-to-face	2 hours	Conducted by OpLog team
	Chartering Manager	February 2015	Face-to-face	1.5 hours	Conducted by OpLog team
	Controller	February 2015	Face-to-face	2 hours	Conducted by OpLog team
	Chief Engineer PSV	June 2016	Skype		
Additional interviews					
NorskOljeSelskap 1	QHSE Advisor	March 2015	Face-to-face	1 hour	Conducted by OpLog team
NorskOljeSelskap 2	Principal Consultant for Marine Operations	March 2015	Face-to-face	1 hour	Conducted by OpLog team

In addition, for the purpose of our paper we used secondary data that included vessel-to-shore communication and internal documentation, IT description, tender descriptions, companies' annual reports, laws, and regulations. The study of these documents gave us an opportunity to understand how the processes related to safety and quality are designed, performed, managed, and controlled within the hierarchical structures of the companies.

After the data was gathered during the interviews, it was transcribed and categorized according to the operational and organizational CSFs that were identified in the theoretical insight section, along with the secondary data. Thus, we defined the CSFs that are necessary for the execution of quality and safety management systems. Then, we identified the organizational structure of both companies and the roles of managers and process owners in these structures. Finally, we defined decision-making mechanisms and how they differ in various situations (e.g., situational decisions) and revealed the main managerial practices used for quality and safety management systems execution. The empirical findings of the study are presented in the following section.

4. EMPIRICAL FINDINGS

The two shipping companies included in the study are the owners of PSVs, which are key elements in the upstream logistics in the oil and gas industry and are aimed at the provision of delivery and pick-up services for offshore installations, namely NordNorsk Rederi (NNR) and SørNorsk Rederi (SNR). NNR is a relatively small company with more than 30 years of operations experience in both the Norwegian Continental Shelf and globally. The company is now a part of a worldwide group of shipping companies. It owns and manages several PSVs on contract basis and specializes mainly in the provision of offshore supply services. SNR has almost 50 years of operations experience and owns a fleet that consists of not only PSVs but also standby/rescue vessels, multipurpose support vessels, and cargo carriers. The company also has experience in various areas of operations, including the Arctic. In addition to supply services, it provides services such as towing, anchor-handling, and rescue.

The operations of the shipping companies are maintained by a number of business processes that can be divided into two main groups, namely support business processes and operational business processes. The support business processes include general management, accounting and financing, crewing, chartering, and technical support, which are performed onshore. In turn, the main operations (i.e., the provision of delivery services) are maintained by the crew of a vessel and mainly include loading, navigation, positioning, and maintenance of the vessel. Since the offshore supply industry is a demanding and dangerous working environment, both of the companies are certified to the latest standards regarding quality, health and safety, and environment management systems, namely ISO 2001, OHSAS 18001, and ISO 14001. None of these standards are obligatory by state flag regulations, but they are the initial mandatory requirements of the operators (i.e., the customers).

Critical Success Factor	*Managerial Practice*
Appropriate IT	Communication between the onshore management and crew Documentation control and exchange Reporting mechanism

Building quality and safety management systems is a time- and resource-consuming process that requires a proper IT support system, a specific safety- and quality-related organizational culture, an adequate performance measurement system that provides continuous feedback, ongoing training of personnel, and an appropriate organizational structure. An adequate IT support system is one of the main pillars of quality and management systems of both companies. Both companies use the same software, which was developed specifically for the needs of shipping companies and includes functions such as a communication tool, documentation control and exchange, and a reporting system. However, the system was not developed until 2013 and before this time, the companies uses several different systems to perform the aforementioned functions. The quality, health, safety, and environment (QHSE) manager of NordNorsk Rederi recalled:

> "*When it came to QHSE, document control, as a management system, it was something developed that was called "Electronic…" something. And it was not an ok system. It was not developed for the shipping industry, it was developed for a land industry. We did not have many problems, but it was kind of insufficient because it was a system, a database, that was developed onshore. Then you had to print everything and send it on paper to the ship. And then in 2013, they bought new software. And it was a much better software platform for ships. It was actually developed for sea, of course. So, we had a good communication system, we had a good exchange of information with the ship, a more or less instantaneous exchange... So, if you develop a procedure onshore, and you distribute it to the fleet, they will have it the same day, maybe within hours. And there is much more document control…*"

Critical Success Factor	*Managerial Practice*
Performance measurement	Communication between onshore management and the crew Documentation control and exchange Reporting system

Besides improved document control and communication between the vessel and shore, the software serves as a reporting system that is based on the organizational performance measurement system. Thus, it provides information regarding the ongoing activities on-board vessels and tracks key performance indicators. The companies use similar key performance indicators related to health and quality, including indicators such as lost time due to injuries, significant incidents, expired HSE reports, and customer satisfaction. Information regarding performance of the vessels allows benchmarking the vessels, applying preventive measures, and rewarding outstanding crews.

> *"If certain items were on the list for more than three months, that gave us an indication that we had maybe too little capacity to handle the technical issues. So if you had a lot of these items, that would indicate that maybe you need to have another ship intendant in your organization."*- recalled the former QHSE Manager of NordNorsk Rederi.

> *"Frankly speaking, the reward was only in encouragement. Management shared the information* [benchmarking of the vessels based on the KPIs] *with the company, stating something like "this vessel*

has the best performance indicators, we appreciate their great job" – that was the reward they used… And that was actually enough for us. We were proud of working for a good company…" - explained the Chief Engineer of the SørNorsk Rederi PSV.

Critical Success Factor	*Managerial Practice*
Employee training and involvement	Conferences and personnel meetings Training courses Educational programs

In order to ensure employees are up to date regarding organizational innovation, the companies conduct various conferences and training programs. For instance, NordNorsk Rederi, new crew members, regardless of their roles on the vessel, go through quality and safety training programs. The situation in SørNorsk Rederi differs. The company is actively involved in educational programs running in various maritime institutions. In this way, the company is "growing" its own specialists while they are receiving their main education. Such a situation can be explained by the fact that SørNorsk Rederi is a larger company and has more resources that are available for this type of training. On the other hand, NordNorsk Rederi is a smaller company that is owned by a worldwide shipping company group that tightly controls activities of the company and limits its costs. Both of the companies have mandatory annual conference for captains, first officers, and chief engineers. However, both companies are trying to arrange such conferences more often and to involve as many crewmembers as possible. Such conferences are dedicated to experience and knowledge sharing, short-term training, and building an organizational culture.

Operations in the offshore supply industry, where ignorance of predefined rules and procedures could result in large-scale accidents, require a strong safety and quality culture. The managing director of NordNorsk Rederi stated:

"You can have the best systems, you can have the best procedures, but if you have people who do not follow them, who do not understand what is behind this, it does not matter if you have the best system in the world."

Critical Success Factor	*Managerial Practice*
Organizational culture	Development of the code of conduct Informal meetings

It is difficult to build a safety- and quality-oriented organizational culture by the simple development of rules and codes of conduct. Both management and crew of both the companies underlined the importance of informal visits of management representatives to the vessels and building trust relationships between managers and the crew.

"The doors are physically open here, and it's a very short line. We have seamen that are coming in here and go to the managing director to explain what they think about the issue. And this is completely ok, and it relates to the organizational culture" - explained the HR Manager of SørNorsk Rederi

"If everything works well and everything is in place, nobody is coming just to check. However, we have our ship manager, called the superintendent. He has to come, to check on us, to give advice, just to talk. When you see each other's eyes, it's different… so-called body language is also an informative language" - Chief Engineer, SørNorsk Rederi.

Critical Success Factor	*Managerial Practice*
Organizational structure	Development of the flexible situation-based organizational culture

One of the most interesting findings of the study relates to the organizational structure of the companies. Both companies cannot be called purely functional or horizontal. On one hand, for day-to-day activities, onshore organization is structured as a hierarchy that supports the operations of vessels where the captain is the process owner. When it comes to strategic decisions and organizational strategy promotion, the organizations function as a hierarchy, where the decision of top management goes through the whole organization (Figure 2 represents the aggregated organizational structure of the shipping companies). In case of emergencies, the organizations shift to a horizontal structure, where shore management serves as a center of excellence and provides

competences and resources that are vital for the vessel to be able to handle the emergency situation (Figure 3). In turn, this center of excellence organizes support from other vessels in the area of the emergency and the insurance company and deals with media and other external contacts. At the same time, the captain holds responsibility for the vessel, and crew members are allowed to make their own decisions.

> *"In case of an emergency situation, every company has a specific procedure and they're almost the same in all the companies. They all refer to safety management systems. Such procedures prescribe an overriding authority of actions for the captain in emergency cases. So you're sending an email to the company describing the situation, and the company is creating an emergency group that consists of specialists with experience. Then, these specialists are getting together depending on the degree of emergency of the situation. If the situation is urgent, then they are just coming together if they are in different locations in the city in order to get together and manage the situation from one place by phone or by email and to give their advice",* described a Captain of NordNorsk Rederi.

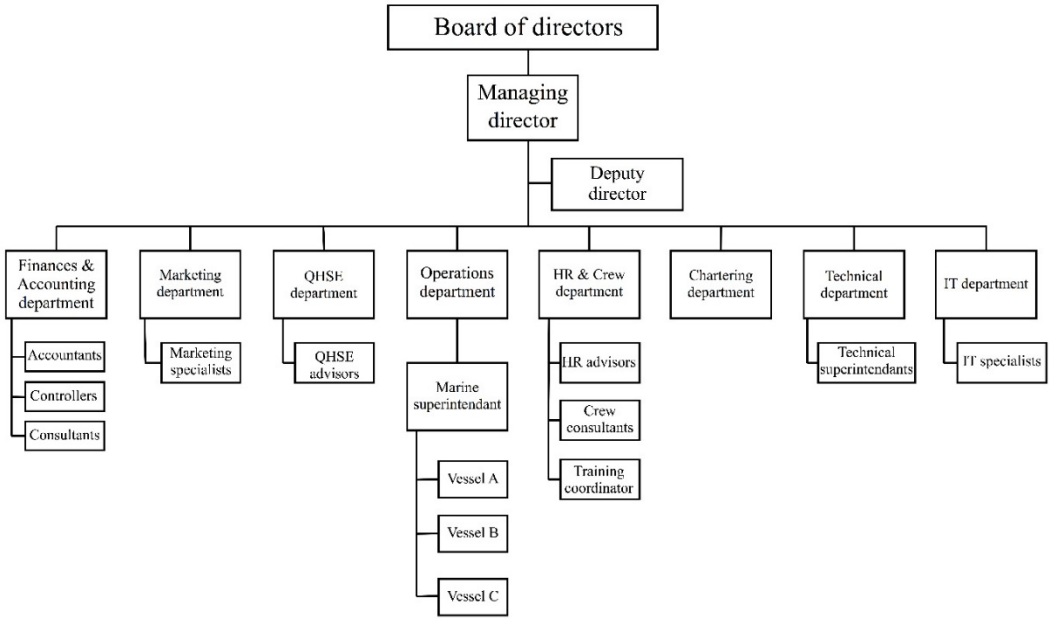

Figure 2. Aggregated organizational structure of the shipping companies

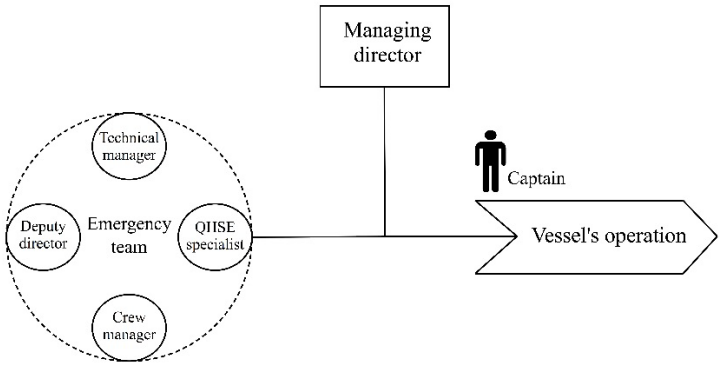

Figure 3. Organizational structure of the shipping companies in an emergency situation

Further, both companies face the same challenge of contemporary captains' lack of leadership skills. The managers explained that this issue is due to the outdated maritime educational system. Because the captains are not only process owners but are also in charge of crew and cargo safety, they must be able to take responsibility and make timely and sometimes tough decisions. In fact, companies have felt it necessary to develop additional training courses for the captains in order to ensure safe and high-quality operations of the vessels.

"And the captain is more than just sailing a ship. And we have in our company, on our vessels, captains that are primarily managers. They are in charge of a vessel that costs a lot of money. They are in charge of the people. They are not just DP operators, they are managers, they are leaders" - Managing Director of NordNorsk Rederi.

"We already had captains in a leadership course, where communication was an important aspect, including how to talk with people in order to involve them and to share experiences" - explained HR Manager of SørNorsk Rederi.

5. DISCUSSION AND CONCLUSIONS

In order to address the research question of the study, we looked at how shipping companies operating in the offshore supply industry deploy a process view, which is required by the implemented quality and safety management systems. Although ISO:9001 certification calls for process orientation in a certified company, it addresses only the quality management practices of companies (ISO:9001). Indeed, the studied companies did not implement the process view as an overall managerial approach; however, they partially implemented it for quality management systems. In addition, by understanding the benefits the certified quality system brings to the company, such as documentation of quality processes, provision of a clear picture of processes and procedures, and the ability to rapidly make adjustments in the procedures and disseminate these changes among employees, the companies are managing safety in the same way they manage quality. In fact, the implementation of process-based quality and safety management systems does not require dramatic changes in organizations as suggested by the BPM literature (Ahmad and Pinedo Cuenca, 2013). Organization of quality- and safety-related practices in accordance with ISO certification cannot be referred to as a "pure" BPM initiative, as the main organizational activities are still managed by the functional departments. Since quality and safety management systems are implemented at only a certain level in order to document and structure quality- and safety-related practices, more evidence and further research is needed on process-oriented companies.

For the purpose of the study, we attempted to identify the main critical factors that are important for successful safety and quality management system performance (A summary is presented in Figure 4). We found that interviewees mentioned factors such as strategic alignment, appropriate IT, an adequate performance measurement system, management involvement, employee training, organizational culture, and organizational structure as the main CSFs. This, in fact, is in line with previous research (e.g. Trkman (2010).

However, the data analyzed shows that the interviewees did not mention the importance of factors such as customer focus, standardization, automatization, and adequate project management, as suggested by the literature (e.g., Trkman (2010), Ram et al. (2013)). Apparently, the aforementioned factors lose their criticality once the quality and safety management initiative is implemented. The quality and safety management systems of the shipping companies operating in the offshore supply industry are focused on both internal and external customers. On one hand, they are designed in such a way that the operations do not put people onboard in danger. On the other hand, they ensure safety of the cargo and timely deliveries for the operators. Such a focus was established from the beginning once the companies developed quality and safety initiatives and they became a part of organizational strategy. Therefore, we redirected this factor to the strategic alignment CSFs.

Furthermore, the literature suggests that automatization and standardization are important for the design of supporting information technology in the implementation stage in order to maintain balance between human involvement and IT capabilities, as well as innovation capabilities and standardization (Trkman, 2010). An adequate project team is important once the BPM initiative is included in the implementation project. However, projects are temporary organizations;, therefore, once a BPM initiative is implemented and the project goal is reached, the need for the project team disappears (Ram et al., 2013). Unfortunately, the data from the case studies do not allow tracing whether the criticality of different success factors changed over time after the implementation stage. Therefore, it would be beneficial to conduct a longitudinal study that includes both stages of BPM initiative deployment.

The study provides an opportunity to operationalize the CSFs for the post-implementation stage of a BPM initiative in shipping companies operating in the offshore supply industry. Thus, strategic alignment refers to the building of quality and safety management system in compliance with the strategic goals of the companies, which are aimed at the provision of safe, timely, and high-quality offshore supply services. An appropriate IT system that supports the BPM initiative should perform a number of functions in a timely manner, such as communication, documentation control and exchange, and support for the reporting system. The performance measurement system includes both timely reporting based on predeveloped quality and safety KPIs and a mechanism of preventive actions. In turn, education of employees includes basic required maritime education and timely training aimed at keeping employees trained according to the needs of the companies. The organizational safety and quality culture is built on the understanding of and adherence to organizational processes, and trust relations between the crew and management.

Finally, the BPM literature supports the need for a shift of organizational structure from functional to horizontal (e.g., Trkman (2010), Palmberg (2010)). However, this study shows that the shipping companies in the offshore supply industry deploy a situation-dependent organizational structure. Thus, it appears that the organizational structure needed for the successful deployment of BPM initiatives may differ during day-to-day operations, emergencies, and strategic decision-making processes. In fact, the day-to-day organizational structure as well as the structure used during strategic decision-making and dissemination of decisions are hierarchical structures with elements of horizontal structures. However, emergency situations call for a shift from such matrix organizational structures towards horizontal structures. In this case, the captain is the process owner who is responsible for the vessels' processes, and onshore management becomes a center of excellence that provides support by arranging required services and resources. Such flexibility increases organizational responsiveness to unexpected situations by decreasing the time required for decision-making. At the same time, the companies implement a hierarchical approach in order to promote adherence to rules and procedures so that crewmembers will not doubt them. Moreover, in order to imply such a structure, organizations require appropriate leadership skills for the process owners (i.e., captains), which both ensures their ability to manage the team and take the responsibility as well as be managed by the onshore organization and promote organizational strategy.

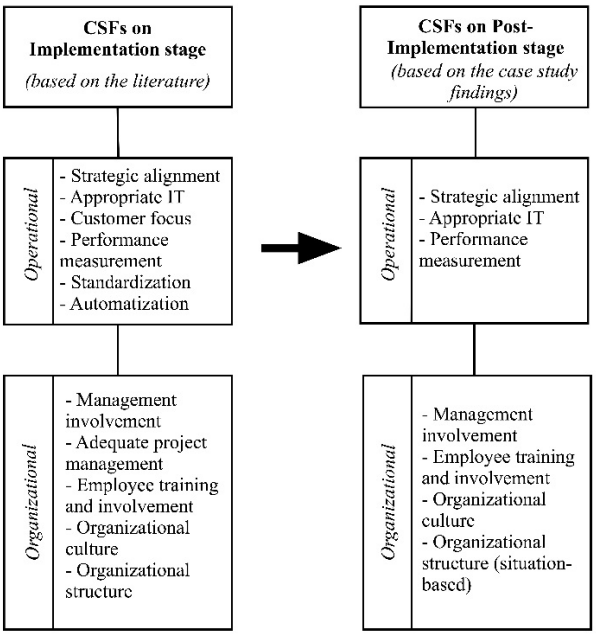

Figure 4. Summary of the findings

The aforementioned operationalization of critical success factors calls for a quantitative study on CSFs vital for the BPM post-implementation stage that will focus on the importance of managerial attention areas. Since the present study is built on case studies of only two companies, further empirical research is needed. Moreover,

returning to the fact that the offshore supply industry is a demanding and strictly regulated industry where process orientation is required rather than needed, empirical evidence from other service industries may shed light on the way functional organizations employ a process view that differs from the one presented in the study.

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