



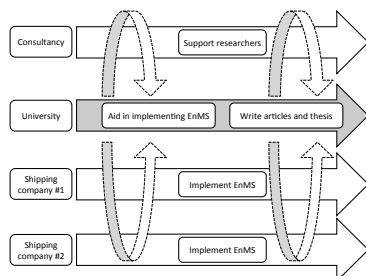
UNDERSTANDING HOW ENERGY EFFICIENCY IS ACHIEVED IN SHIPPING COMPANIES

An action research approach

INTRODUCTION

What does an energy efficient shipping company do, that its competitors don't? While a large potential is available, many companies have been shown to still struggle with their work with energy efficiency. A collaborative project was created in 2010 between a university, a consultancy and two shipping companies, with the aim to implement an energy management system in these two shipping companies. In this way, we could understand how companies need to change in order to better harness the potential for energy efficiency (Johnson, 2013).

A PhD student—the presenter of this poster—was to work as an action researcher in the shipping companies and aid them in the implementation process. The consultancy, with years of experience in the field, would function as a mentor to the student and give access to best practice. The figure below, from Johnson et al. (2014), outlines this idea.



This poster draws upon some published and unpublished findings in this project.

A PERFORMATIVE PERSPECTIVE ON "BARRIERS" TO ENERGY EFFICIENCY

For decades, researchers, policy-makers and others have wondered why seemingly cost-efficient measures to increase energy efficiency are not being implemented. A large taxonomy of "barriers" (and "drivers") to energy efficiency now exists in literature (e.g. Sorrell et al., 2004). The approach has been criticized for its reductionism (Palm and Thollander, 2010), or in other words:

the notion that there is a small class of phenomena, objects or events that drive everything else – a suggestion often linked to the belief by the analyst that he or she has understood these root phenomena. (Law 1994, p. 12).

The action research approach taken in this project has enabled a practice perspective on these barriers, making use of Latour's (1986) distinction between performative and ostensive definitions. Thus, rather than formulating principles (e.g. barriers) we have focused more on capturing and describing practices. To paraphrase Latour (2005, p. 97): the barriers have never explained anything; the barriers have to be explained instead. The following excerpt from a discussion on what is theory in social science summarizes well the epistemological positioning of this research project:

the aim of theory remains the offering of some kind of understanding of the world, its possibilities for development, and the directions along which it can move. The main concerns of such a theory should not be highbrow abstractions, reified into entities, but the on-going construction of the world or certain parts or aspects of it. (Czarniawska, 2013, p. 106).

IMPLEMENTING AN ENERGY MANAGEMENT SYSTEM

"Best practices" are readily available for companies who want to become better at energy efficiency (e.g. ISO 50001). Since 2013, ships also have to carry a Ship Energy Efficiency Management Plan. In Johnson et al. (2014) we report on work in one of the shipping companies in the project, including the process of an external energy review. Aspects such as project management capabilities, lack of measurement and analysis systems, poor ship-shore communication, lack of competence and lack of responsible persons for energy are then highlighted as "barriers" to energy efficiency. In line with previous literature, it is unclear from the study to what extent standardized best practices can contribute.



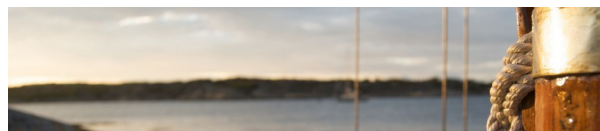
"The barriers have never explained anything; the barriers have to be explained instead."

EXPLORING AND PROBLEMATIZING "COST-EFFECTIVENESS"

Decreased time in port is highlighted in many assessments of cost-effective potential as a measure that could increase energy efficiency at very little cost – companies can use the time gained to speed down when at sea. In Johnson and Styhre (2014), we explore and problematize this potential in a study of a short sea shipping company operating in the Baltic and North Seas. We combine quantitative and qualitative data to analyse the potential in terms of possible reductions in energy use, as well as to understand how this potential arises. While a significant potential could be shown to exist, we also find that a number of stakeholders in different organizations need to be involved in order to reach it. Tools for analysing and following-up on performance as well as good communication with crew and technical management where of significance. However, the shipping company could also use the extra time to carry more cargo over time, not slow down.

FROM PRACTICE TO RESEARCH TO EDUCATION

The network and good-will established in the Swedish shipping community during these years has opened up opportunities for education. A new M.Sc. course in Maritime Energy Management (7.5 ECTS credits) will give all students small projects to perform in Swedish shipping companies, starting November 2014. Course literature was not available and created in collaboration with DNV-GL.



CONCLUSIONS

An action research strategy implies three sources of anxiety for a researcher: learning the subject matter (in this case, energy efficiency in shipping), learning research methods, and learning organizational intervention.

On the other hand, the method may be a successful way to negotiate access to data, and contribute to positive change more directly than through giving policy recommendations. A focus on practice has also translated well into educational initiatives.

The "knowledge-action gap" in the context of energy efficiency in shipping companies can be understood in terms of the business models employed by companies – it is still possible to make money through practices that counter the logic of energy efficiency (Taudal Poulsen and Johnson, 2014). However, transdisciplinary research strategies, as e.g. outlined in this poster, can contribute to changes on local levels.

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