



Assessing social innovation across offshore sectors in the Dutch North Sea

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ARTICLE INFO

Keywords:

Maritime spatial planning
Social innovation
Dutch North Sea
Offshore mussel production
Offshore seaweed production
Offshore wind production

ABSTRACT

Activities in the North Sea are intensifying. The European Union instructs maritime spatial planning across member states that motivates coordination of activities, stakeholders, policies, governance levels and nations. Social innovation is a concept addressing ways in which changing attitudes, behaviour or perceptions are leading to new and improved ways of acting jointly within a group and beyond. The main aim of this article is to explore social innovation in maritime spatial planning. Instances of social innovation are assessed across three sectors in the Dutch North Sea: the offshore wind energy, the offshore mussel cultivation and the offshore seaweed farming. The assessment shows that, while existing systems of social innovation are favourable to the offshore wind expansions, the barriers to grow for the offshore mussel sector include low willingness to change within the sector, and disadvantageous governmental support to change. The offshore seaweed farming is in a stage of re-organisation of not yet developed regulations, rules and norms for production offshore and enhanced co-operation, with unsure outcomes. Maritime spatial planning can play a more influential role for change if tackling main challenges, including inclusiveness, accountability, private user rights and realisation of organisation or reorganisation, and if making use of the potentials of knowledge brokers when sectors are advancing with new technologies.

1. Introduction

Economic activities are diversifying and intensifying in European seas. At the same time, longer-term challenges such as climate change, changing state of the marine ecosystems, overexploitation of natural resources and economic instability, need more attention (Ecorys, 2012).

In support of ‘the Europe 2020 Strategy’ (European Commission, 2010) and ‘the Blue growth’ (European Commission, 2017, 2012), the European Union (EU) facilitates “smart, sustainable and inclusive growth to deliver high levels of employment, productivity and social cohesion” (European Union, 2014 p 136). The Maritime Spatial Planning Directive (MSPD) provides a framework for decision making, aiming at “promoting the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources” (European Union, 2014 p 139, Article 1). The MSPD instructs that “each member state (MS) shall establish and implement Maritime Spatial Plans (MSP)” (European Union, 2014 p 140, Article 4), and recommends “coexistence of relevant activities and uses” (European Union, 2014 p 141, Article 5).

In addition, technological innovations are welcomed by the EU as contributions to increased employment and economic growth, while taking account of the environmental qualities (European Commission,

2014). Although new technologies, including Information and Communication Technologies (ICT), provide opportunities for effectiveness of economic activities and connectivity across the globe, they also provide different kinds of uncertainties (Mol, 2008; Soma et al., 2016a, 2016b; 2016c). Underestimating the importance of the societal dimension of the innovation processes can result in a simple technology-oriented approach. The institutional settings, such as formal and informal rules, regulations, norms and procedures instructing about what is a good thing to do (McGinnis and Ostrom, 2014; Ostrom, 2009), influence roles of responsibilities and ways of interacting and exchanging ideas (Armitage et al., 2011), as well as power relations between individuals and society, and between markets and the state (Adger et al., 2005). These dynamics have influential impacts through innovation processes, and experiences in natural resource management show that pure technological driven approaches will not sustain in the long run (McGinnis and Ostrom, 2014). Note that the EU promotes a marine governance strategy based on coordination, cooperation and integration across sectors, stakeholders, policy objectives, governance levels and nations, through the Marine Strategy Framework Directive (MSFD) (European Union, 2008). As such the MSFD does encourage the societal dimensions, although the actual performances still are poor in most European regions (Soma et al., 2015).

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In the literature the theoretical term social innovation is heavily explored, and explained in several ways (e.g. Baker and Mehmood, 2015; Biggs et al., 2010; Bock, 2015; Mulgan, 2006; Neumeier, 2016). Social innovation can be defined as “changes of attitudes, behaviour or perceptions of a group of people joined in a network of aligned interests that, in relation to the group's horizon of experiences, lead to new and improved ways of collaborative action within the group and beyond” (Neumeier, 2016 p 2). Still, it is unclear how the intensified activities at sea bring about social innovation.

In order to stimulate innovations, the Dutch government is extensively including multiple stakeholders in MSP, as instructed by the MSPD (European Union, 2014) and the North Sea 2050 Spatial Agenda (Ministry of Infrastructure and Environment and Ministry of Economic Affairs, 2014a).

Against this background, the main aim of this article is to explore social innovation in maritime spatial planning in the Netherlands. The objectives are to: 1) design an assessment framework, and 2) conduct case studies to explore by means of the assessment framework extents of social innovation.

Three sectors that currently represent new developments in the Dutch North Sea are selected for the analyses: 1) the offshore wind energy, 2) the offshore mussel cultivation and 3) the offshore seaweed farming. The information provided in the analyses is based on literature reviews and involvement of stakeholders in interviews, workshops and meetings in a series of research projects that have involved the industries and the public authorities (e.g. MERMAID, MARIBE, MIP Seaweed, WOT Sustainable Business Opportunities at Sea).

In section two, an assessment framework for social innovation is presented and the methodological approach of the analyses is explained. In section three, the three cases are introduced and assessments of social innovation by means of the theoretical framework are conducted. Following a general discussion in section four, some core concluding remarks are provided in section five.

2. Assessment framework of social innovation and the methodological approach

2.1. An assessment framework

Throughout innovative processes leading to change, some people will gain power and benefit from new opportunities, while others will lose the battles obtaining only stress and exclusion (Adger et al., 2005). While some will resist change, others are driven by market incentives or different personal values to explore new opportunities. An assessment framework consisting of two core perspectives is designed for the purpose of exploring social innovation.

In the first perspective, social innovation can be explained according to its characteristics across resonance, scale and scope (Soma et al., 2018a). The three dimensions provide a lens for assessing institutional impacts of social innovation in practice (Baker and Mehmood, 2015; Soma et al., 2018a):

1. Resonance – refers to visioning by exploring peoples imagination and believe in what is possible. Within a stakeholder group, imaginations about future may differ considerably across individuals (Soma et al., 2018a). For social innovation, people's imagination needs to be shared by means of exchanging ideas and values that potentially impact a larger share of people. Visioning can be addressed through participatory processes designed for developing future scenarios (Berkes, 2010; Chakraborty, 2011).
2. Scale - refers to the number of people affected directly and indirectly and their roles. For instance, whereas a market actor is expected to search for own profit as a main driver, market actors are increasingly taking societal needs into business plans aiming for also societal impacts (e.g. climate mitigation, inclusiveness or conservation measures) (e.g. Huemer, 2010).

3. Scope - refers to the level of change towards new formal and informal rules, regulations, norms, which in the following is referred to as new institutional setting (McGinnis and Ostrom, 2014; Ostrom, 2009). Responsibilities, interaction and exchange of ideas are all influenced by institutional setting (Armitage et al., 2011). As for marine governance, a sector approach is about to be replaced by an ecosystem-based approach that encourages institutional settings that facilitate cooperation, coordination and integration across activities, sectors, stakeholders and policies (Soma et al., 2015; van Tatenhove et al., 2015).

In the second perspective, social innovation can be assessed by means of the notion of the adaptive cycle, which captures the dynamics of change through different stages throughout developments. The adaptive cycle is a conceptualisation meant to capture the dynamics of a system – be it an ecological or institutional setting – and explains ways in which systems persist and innovate (Chaffin and Gunderson, 2016; Folke et al., 2004; Holling, 2001; Walker et al., 2004). It can as such explain how institutional settings persist or develop by means of social innovation. For Holling (2001) there are three core properties of the adaptive cycle to consider. One property is wealth, which refers to potentials to increase a broad range of capital, including ecological, economic, social and cultural capital (Holling and Gunderson, 2002 p 49). The second property refers to mechanisms which “reflect the strength of internal connections that mediate and regulate the influences between inside processes and the outside world – essentially the degree of internal control that a system exerts over external variability” (Holling and Gunderson, 2002 p 50). In the following, the mechanisms are specified as institutional capacities to cooperate and integrate through social innovation. The third property is the adaptive capacity, which refers to capacities to recover from problems and vulnerability. As such, adaptive capacity can be defined as a source or component of the resilience of a system. Notably, social innovation builds resiliency and fosters resilient solutions to adapt and survive. Together these properties constitute four stages in an adaptive cycle, referred to as growth (r), no change (K), release (Ω), and reorganisation (α), as shown in Fig. 1 (Holling, 2004).

By means of the adaptive cycle, it can be assessed whether social innovation can perform in a ‘front loop’ and a ‘back loop’. In the front loop, so-called production - here ‘production’ refers to changing institutional settings - moves from a stage with growth (r) to a stage with no change (K), with a gradual accumulation of wealth, for instance trust and resonance, which strengthens within the current system (Chaffin and Gunderson, 2016; de Kraker, 2017). In the K stage, the potentials of the production system - here ‘production system’ refers to the existing institutional setting - is reached at its maximum, with highly regulated connectedness, resource efficiency and levels of specialisation. With growth beyond this limit, it meets a crisis or collapse because the institutional setting is not suited to new emerging issues and problems (e.g. rules and regulations may be non-appropriate or non-existing for handling climate change or new technology development), which is

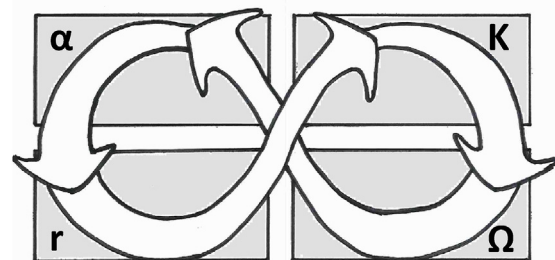


Fig. 1. The adaptive cycle with four core stages including; growth (r), no change (K), release (Ω), and reorganisation (α) (adapted from Holling, 2001; Slight et al., 2016).

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