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Systems-thinking social marketing: conceptual extensions and empirical investigations

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ABSTRACT

Systems thinking dominated the 2015 World Social Marketing conference with the premise that a more holistic approach takes into account all the issues at play for effective change. Augmenting the broadening social marketing literature, we contend that systems-thinking social marketing enhances the field's conventional behavioural change with concepts of scale, causation, and iterative co-creating change processes for complex health and environmental problems. The results of our empirical Sea for Society study, a sustainable European marine ecosystem examination of *what* the barriers to change are and *how* they are interrelated, find systems-thinking social marketing offers the potential to strategically and critically reinforce, not replace, behavioural change campaigns. With systems-thinking social marketing, a coherent theory of change becomes a possibility. Orchestrating social change may become a reality.

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Social marketing; systems theory; behaviour change; scale; causation

Introduction

For the past 40 years, social marketing has typically focused on changing individual behaviours. Social marketing makes extensive use of the 4P's marketing mix, research on a target audience, segmentation, competitive analysis and preferably, but not always, includes a good serving of exchange theory (Collins, Tapp, & Pressley, 2010; Luca & Suggs, 2013; Rundle-Thiele, 2014). This perspective of social marketing is a micro-managerial interpretation of Anderson's benchmark criteria, influencing behaviour for social good, rooted in commercial marketing techniques (Andreasen, 2002). Targeting a social marketing intervention at an individual is a single domain or one level behavioural change – it deals with the visible symptoms of a health or environmental problem and responds by fixing immediate, and often, low leverage barrier points (Doppelt, 2012).

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With limited funds and short time frames, single level social marketing interventions can bring about behavioural change for a particular target audience.

However, the impact of single-domain social marketing is narrow, its reach limited and successes are insufficient to produce sustainable social change in the face of complex and wicked problems (French & Gordon, 2015; Kennedy, 2015; Langford & Panter-Brick, 2013; Stead, Gordon, Angus, & McDermott, 2007). Today, we live in a highly interconnected world. Power has shifted to individuals armed with smart phones and global access. Activist groups, lobbyists and non-governmental organisations (NGOs) are plentiful, with increased ability through the internet and social media to deliver social value. By comparison, governance units and regulators are experiencing decreasing budgets and limited staffing resources. Social marketers are adapting 'to make the differences they desire' (Brennan & Parker, 2014, p. 195) by taking a broader management and systems sciences stance to the complex issues they confront (Constantinides, 2006). The broadening social marketing literature acknowledges that ecological, environmental, structural and policy factors, together with individual psychological factors, need to be understood and tackled as markets and consumers, exhibit intricate, non-rational and dynamic behaviours (Beinhocker & Hanauer, 2014; Biroscak et al., 2014; Hastings, 2015). Recognising environmental influences, community social marketing has made considerable strides forward to understand group, organisational and environmental implications for behavioural change. For example, environmentalist McKenzie Mohr's community-based social marketing framework addresses the barriers and benefits to a behaviour (McKenzie-Mohr, Lee, Schultz, & Kotler, 2012). In Carol Bryant and colleagues' health work, collaborative and community-centred approaches ensure communities actively participate in addressing local issues to meet community needs and motivations (Bryant et al., 2014). It enhances the synergy between interventions and communities, where relationships and community infrastructures are strengthened and sustained (Fitzgerald, 2015). Expanding this, the discussions at the World Social Marketing (WSM) 2015 conference were based on the premise that a more holistic approach takes into account all the issues at play for effective change. Bringing about effective behaviour change locates most, if not all, social marketing interventions, embedded within a system, within the political, cultural, social policy environment that impacts upon infrastructure, organisational structures and individual choices (French & Gordon, 2015; Jacobson, McDuff, & Monroe, 2015; Layton & Domegan, 2015).

Thus, the objectives of this paper are threefold. The first aim is to supplement the WSM 2015 systems-orientated social marketing discussions. Second, we present a potential systems methodology for social marketing in answer to Lefebvre (2013), Dibb (2014) and French and Gordon's (2015) calls for transformative change and strategic social marketing. Finally, we seek to identify lingering social marketing system gaps, both theoretical and empirical. These three objectives are achieved utilising Warfield's (1974) Interactive Management (IM), in the context Sea for Society (SFS), a sustainable European marine ecosystem study.

The background to SFS

SFS, funded by the European Community's Seventh Framework Programme (FP7/2007–2013), was a 3-year Mobilisation and Mutual Learning Action Plan project under the

'Science in Society' programme, bringing together 28 partners and associated partner organisations across 12 European counties to ensure a sustainable management of marine ecosystem services by European citizens into the future. It aimed at laying the foundation for a 'Blue Society' – a society where people live in sustainable harmony with the Sea. SFS recognises that human survival is inextricably intertwined with the health of the Sea. Half of the oxygen we breathe is produced by marine plants and phytoplankton. The Sea moderates the planet's weather and provides the main protein source for over a billion people – mostly in underdeveloped countries. Yet society ignores or is ignorant of the fact that our consumption behaviours threaten our seas, leading to its deterioration by pollution, ocean acidification, waste dumping and overfishing.

One aspect of SFS's work was the manifestation of a 'Blue Society' from a social marketing strategic and macro perspective. SFS engaged in mutual learning, open dialogues and joint actions with researchers, marine and terrestrial actors, civil society organisations and individual citizens. Our seas were considered in relation to health, food supply, energy, transport, leisure, tourism and where we live to extract cross-cutting issues. Public engagement in research as it relates to European maritime policy was at the core of SFS (www.seaforsociety.eu).

This paper contributes to the theoretical and practical advancement of social marketing. By using SFS as an exemplar, the paper seeks to progress our understanding of systems-led social marketing, as well as examine how behavioural change can and cannot manifest social action and transformation. On a theoretical level, it explores how the concepts of scale (micro, meso or macro and multiple levels) and causation (down, mid and upstream social marketing) can be conceived within systems-thinking change cartography. From a research perspective, the empirical results from SFS talk to mapping and measuring *what* the barriers to and benefits of change are, together with *how* they are interrelated at a systems/macro level. From a management stance, we set out how systems thinking needs to play a stronger role in social marketing, advocating change as a process of co-creating solutions.

Defining marketing systems and the broadening social marketing literature

Contemporary social marketing thought acknowledges the progression beyond individualised behavioural design to a concern with the system determinants of change and societal context (Brennan, Binney, Parker, Aleti, & Nguyen, 2014; Brennan & Parker, 2014; French & Gordon, 2015; Hastings & Domegan, 2014; Kennedy, 2015; Kubacki & Rundle-Thiele, 2013). This resonates strongly with Venturini (2015) and Bauman (2015). Specifically, Venturini (2015) points to the central role of a systems focus and Bauman (2015) advocates critical thinking to surpass individualism for real and valuable social value. In essence, 'systems thinking and social marketing are synergistic' (French & Gordon, 2015, p. 187). Briefly, we conceive a system as a set of loosely bound components interacting together to operate as a whole. A system is made up of structures, actors, behaviours, motivations, values, activities and actions that have social, cultural, political and psychological characteristics. Reflecting this, the Obesity Foresight report is an example of a system reported at WSM 2015 (https://www.gov.uk/government/publications/reducing-obesity-obesity-system-map). Importantly, different

systems produce their own patterns of behaviour over time (Meadows, 2008). Expanding on this, a marketing system is defined as 'complex social networks of individuals and groups linked through shared participation in the creation and delivery of economic value through exchange' (Layton, 2014, p. 2). The potential added value for social marketing comes when systems thinking is used to leverage coordinated systemic change across groups of interacting individuals in relation to a complex problem. In our case, the large-scale problem is the critical issue of a sustainable marine ecosystem in Europe.

What scale? What level?

Innovative thinking about behavioural change at a micro, meso and/or macro level is strongly evident in the broadening social marketing literature. The micro, meso and macro debates highlight that going beyond a single target audience, traditionally the individual at the micro level, more recently the policy maker at the macro level, is important and necessary for social transformation and systemic change. Community-based social marketing initiatives, meso-level interventions, are increasingly reported as more successful (Beall, Wayman, D'Agostino, Liang, & Perellis, 2012; Bryant et al., 2014). Gordon (2012) and Hoek and Jones (2011) favour drawing upon different levels to design and deliver an intervention; for example, meso and macro stakeholders being involved when targeting a micro-level audience – as do Lee and Kotler (2015), Carins and Rundle-Thiele (2014) and Lefebvre (2013).

McDermott et al. (2005), alongside Brennan et al. (2014), find justification for social marketing interventions incorporating all three levels, policy makers, community groups or individuals akin to systems-thinking interventions that seek to activate and manage multiple level interventions. While Kennedy and Parsons (2014, p. 206) argue that macro-social marketing is about influencing multiple levels and systemic behaviours and is 'the normal activity of any government', particularly for wicked problems, it is Kennedy (2015, p. 4), in conceptualising macro-social marketing, who succinctly summarises the argument for systems thinking in social marketing when she notes 'there are so many interconnected levels of society involved that what to change and in what order becomes overwhelming'.

The overarching issue of the micro, meso or macro and multiple levels in social marketing is concerned with what scale, or aggregation to work at, in framing the full extent of the problem. Systems-thinking social marketing culminates in the whole-systems-in-the-room phenomena and getting *all* eyes on the problem (Hastings & Domegan, 2014). The scale or level construct cross-fertilises the expert scientific knowledge with the lived experiences and tacit knowledge of individual to co-create behavioural change, that is it combines micro with meso and macro actors (McHugh & Domegan, 2013; Nonaka, Toyama, & Konno, 2000). Ackoff (1999, p. 33) explains the importance of a systems scale as 'the whole can be understood only by viewing it from all the perspectives simultaneously. Individuals are taken to represent different parts of reality; they are actually different aspects'. In agreement with Venturini (2015), Bauman (2015), Green, Crawford, and DeWan (2015) and other systems thinkers in social marketing, French and Gordon (2015), Jacobson et al. (2015) and Biroscak et al. (2014), we argue for a systems perspective emphasising

dynamic top-down, bottom-up connections and relational components among *all* participants within the defined micro, meso and macro system. A full-scale or systems paradigm predisposes social marketers to multiple-level interventions for greater impact, reach and ultimately change.

We also find the micro, meso macro debate is often interchanged with social marketing's downstream, midstream and upstream thinking (Wallack, Dorfman, Jernigan, & Themba, 1993) which results in confusion; the former is about levels of interventions while the latter is concerned with causation. While scale and causation overlap, systems-thinking social marketing sees scale or aggregation about what level to locate a behavioural change intervention and who to involve, include and work with. The concept of causation in system-thinking social marketing is about the interactions among the parts of the system, the connections, the pathways and what to work on.

Grappling with causation

Wallack's (1993) river analogy with its downstream, midstream and upstream moral compels us to acknowledge that individual behaviours are innately related to the system we live in. While Wallack et al. (1993) highlight that the general thrust of causation for change lies in the fabric of society, the focus was still on single individuals and single pieces of behaviour at single levels. Recognising the interconnecting processes involved, Kennedy (2015) argues that macro-social marketing seeks down, mid and upstream social marketing to work in a holistic way to effect systemic change, as opposed to individual level change. Layton's (2007, 2009, 2011, 2014) seminal marketing systems papers concur and advocate mapping the micro, meso and macro relationships as everything then begins to interact with everything over time and space. Layton (2014) highlights interactive relationships because relational insights are as important as rational variables and determine structures which are as important as strategy for change management. A relationship-based explanation of a system refers specifically to social mechanisms, the causes and consequences of individual behaviour linked to the actions of others. Examples of social mechanisms include communication, co-operation, trust and commitment. It is use of social mechanisms that link the micro choices to macro structures and brings up mid and downstream causation firmly into view. If a marketing system is failing in some aspect, for example, polluting seas and depleting fish stocks, Layton (2014) recommends that the first step is to examine what social mechanisms have broken down or are absent. Structure refers to the coordination of interactions across and between micro, meso and macro levels. We agree with Brennan and Parker (2014, p. 194) who argue that 'before initiating change, it is important to create infrastructure to enable change'. System structures are reflected in networks, their linkages, ties, knowledge flows and governance (French & Gordon, 2015; Layton, 2014; McHugh & Domegan, 2013). Relational social mechanisms and system structures, together and separately, influence behavioural change success or failure. We support Layton's position and see relational mechanisms and infrastructures as critical success factors for systems-thinking social marketing.

Orchestrating change

The conjunction of these two system facets – scale (micro, meso and/or macro) and causation pathways (down, mid and/or upstream relational and structural considerations) – are important *conduits* for the third and final systems-thinking conceptualisation of change, how to orchestrate change. One key learning from Healthy Victoria Together and the Pride Campaigns illustrates that change is a process, not an event, and change is best co-created (Green et al., 2015; Venturini, 2015). The change process revolves around its component parts, its sequence and configuration and how it is packaged, designed, tested and modified in localised contexts, 'whereby the consumer not only jointly creates value with the organisation, but also co-constructs the experience to suit their context and situation' (French & Gordon, 2015, p. 171). Reiterating this theoretical point, research by Zainuddin, Russell-Bennett, and Previte (2013) demonstrated that factors for a co-created change process include interpersonal skills, critical staff capacity, relationship management and high standards of operation and delivery.

Conceptual and empirical propositions from the broadening social marketing literature around the question of scale, the issue of causation and how change happens, strongly argue that systems thinking and systems methodologies need to play a more significant role in social marketing (Brennan et al., 2014; Bryant et al., 2014; Domegan, McHugh, Hogan, & Broome, 2014; French & Gordon, 2015; Green et al., 2015; Hastings, 2015; Hastings & Domegan, 2014; Kennedy, 2015; Venturini, 2015). In support of this view, we used John Warfield's (1974) systems-based IM in the context of SFS, a European sustainable marine ecosystem study previously outlined above.

Research methodology

IM is a systems software-facilitated thought and action mapping technique to help groups to develop outcomes integrating contributions from individuals with diverse views, backgrounds and perspectives. IM has been applied in a variety of circumstances, both discrete projects and long-term situations, to accomplish many different goals, including, promoting world peace (Christakis, 1987), improving the tribal governance process in Native American communities (Broome, 1995) and reducing the threat of antibiotic resistance as a quality of life problem (Duane, Domegan, McHugh, Devaney, & Callan, 2015). IM was chosen as a systems methodology suitable to social marketing as the theoretical constructs that inform IM draw from both behavioural and cognitive sciences, with a strong basis in general systems thinking suitable for complex social, ecological and managerial contexts. The methodology, using the barrier/benefit approach of community social marketing, can be modified to the type of knowledge and experiences of different participants.

The final and substantial justification for use of IM over other systems methodologies such as dynamic systems modelling (Bryant et al., 2014) lies in its supporting software. The software uses a matrix structuring process that facilitates groups in developing structural hypotheses that map systems of interdependencies, based on the consensus-based logic of the group. This process can be used to understand how problems operating at multiple levels – individual, community, societal – influence one another in a specific problematic situation. Understanding this system of influences helps groups to design coordinated

interventions that facilitate changing causally significant aspects of the problematic situations. While the computer science behind IM has an advanced mathematical dimension using interpretative structural modelling, the software is easy to use for non-system experts, requires modest training, is amenable to different languages, is open source and records every issue and idea discussed. A study by Chang (2010) compared the results of IM's interpretative structural modelling with structural equation modelling and found a high degree of consistency between models generated by participants in an IM session and quantitative relationships confirmed in structural equation modelling.

In this pan-European SFS study, 32 IM sessions took place across 8 European countries (France, Greece, Ireland, Italy, Poland, Portugal, Poland, Spain and Sweden). Countries were allocated two themes each, our Seas in relation to health, food supply, energy, transport, leisure, tourism and where we live to extract cross-cutting issues. Each of the countries held two stakeholder group sessions and two citizen/youth sessions. Across all sessions, there were 537 participants. The objective of these pan-European IM sessions was to identify the barriers to, options for and benefits of a sustainable marine ecosystem; how the barriers, options and benefits connect to each other and where one could intervene to change behaviours that would bring about a sustainable European marine ecosystem.

The stakeholder IM process

Drawing upon the broadening scale or aggregation discourse, participants for this study were defined as whole-system-in-the-room, rather than sectoral or expert, stakeholders. Whole-system-in-the-room stakeholders were classified as primary (p), secondary (s) or influencers (i) (Freeman, 1984) to reflect micro, meso and macro actors. Primary stakeholders were those groups whose economic and societal welfare was dependent on the oceans, for example fishermen, aquariums, naval service and city officials. Secondary stakeholders were actors whose economic and societal welfare was dependent on the economy of the primary stakeholders, for example hotels, beach artists and environmental agencies. Influencers were those who framed ocean activities but were not dependent on the sea for their economic and societal welfare, for example researchers, the media and the government ($N = 249$; 83 p; 83 s and 83 i). Sixteen groups of stakeholders ($N = 249$), knowledgeable about barriers to a sustainable marine ecosystem, engaged in a 2-day face-to-face 4-step process as seen in Figure 1. The 4-step process for stakeholders included the following:

(1) Generate and clarify ideas using a trigger question: 'What are the barriers to a sustainable marine ecosystem?'
(2) Categorise ideas for structuring through group discussions and multi-voting procedures.
(3) Structure barriers and generate a structural barrier map based on a series of relational questions; 'Does Barrier A significantly aggravate Barrier B?' Once all relational questions had been answered, a structural barrier map was generated and presented to the group for further discussion, verification and legitimisation.
(4) Generate options and solutions to overcome barriers. The IM session then closes and the group leaves with a roadmap of barriers, their interconnections and a portfolio of options to resolve the problem under investigation.

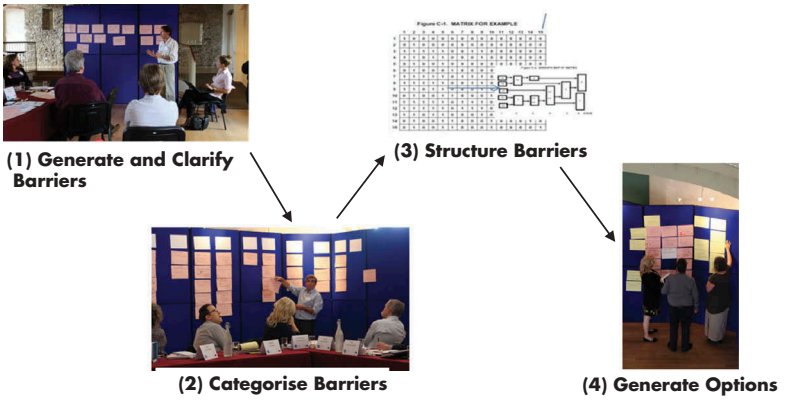

Figure 1. Steps in interactive management sea for society sessions. Photo credit N. Doran, Aquatt, Dublin, Ireland. Reproduced with permission of Aquatt, Dublin, Ireland.

Data collection began with the session facilitator clarifying the structure for the day and each participant was asked to introduce themselves and their background. Participants were then introduced to the trigger question and supported by the session facilitator in generating barriers with starting statements, such as 'lack of', 'absence of' or 'failure to'. Participants had the opportunity to think of as many barriers as possible silently. Each participant was then asked to share and clarify each of their barriers before it was placed on a board for discussion. Idea generation continued until no new barriers were identified by the participants. Every single generated barrier was recorded in the IM software by a second facilitator. Participants then voted for the top barriers. Once the voting process was completed, paired comparison took place, where all the remaining barriers were compared with the top-voted barriers. This process continued until categories were formed, usually consisting of five+ barriers, which the participants then named the category with similar barriers being grouped together. At this point, the top-voted barriers were presented by IM's interpretative structural modelling computer software, where a series of relational questions, 'Does Barrier A significantly aggravate Barrier B?', were asked of the participants. A yes/no vote was taken and entered in the software. Structuring continued until all relational barriers were voted upon and a structural barrier map was generated (Figure 2). To conclude data collection, participants worked on the barrier categories with the facilitation question 'What are the options for overcoming the barriers in the [category title]?' Proposed options were to be feasible, impactful and timely in each category and were explained and discussed with the entire group. Supplementing the IM software data collection, a third facilitator took field notes to record the tone, mood, time and comments made by participants and for reference if clarification was sought.

Data analysis consisted of an examination of the top-voted barriers, the structural barrier maps and the pathways of aggravation. The structural barrier maps and the solutions generated within the consultations were reviewed. A team of six interdisciplinary researchers used investigator triangulation for credibility and validity in the analysis (Patton, 1990).

The citizen/youth IM sessions

SFS's application of IM also incorporated citizen and youth participants. Citizens/Youths were defined as 18–28-year olds who are not involved in marine issues with $N = 288$. Citizens/Youths were brought through two adapted IM steps from Figure 1, idea generation and generating options and contributions, during a 1-day IM session. Only two steps were relevant to the citizen/youth groups, as the sampled citizen/youth was not technically knowledgeable about barriers to a sustainable marine ecosystem. Instead, their tacit knowledge, attitudes and perceptions about the Sea were investigated through the benefits they experienced. Their trigger question was 'What contributions do the sea and its resources make to your daily life?' Once all benefits had been generated and discussed, the second part of the day focused on how the Sea could contribute to enhancing these benefits in the future.

A similar but modified citizen/youth data collection was used. The session facilitator oversaw the IM session from introduction to the day-long session, trigger question, generation of benefits and further contributions as well as voting procedures. Another facilitator operated the software to record the benefits and contributions while a final facilitator took field notes to ensure that the interactions between participants were observed.

Thematic data analysis was utilised for the citizen/youth data. It concentrated on reading through textual data, theme identification and coding, interpreting the structure and content of the themes and relating these themes to the barrier and solution data (Guest, MacQueen, & Namey, 2012). Six interdisciplinary researchers undertook this thematic analysis and made extensive use of investigator triangulation for credibility and validity (Patton, 1990).

Limitations

One of IM's limitations pertains to the absence of time paths and how to examine the system over time. To overcome this restriction whilst accounting for 8 European countries and 28 partners with various cultures, structures and predispositions towards a Blue Society, all SFS partners were trained in using IM and its free supporting software to build critical capacity across Europe for continued future use. Despite training and extensive data collection protocols, another limitation occurred in one citizen/youth session where the data could not be verified. The data were subsequently excluded from the analysis phase.

Results

The stakeholder results

A total of 774 barriers to a sustainable marine ecosystem were identified and 16 country-based structural barrier maps were generated with 653 options to overcome these barriers. Figure 2 illustrates 1 of 16 IM structural barrier maps. The structural map in Figure 2 is read from left to right, with paths in the model interpreted as 'significantly aggravates'. This means that Barrier A significantly aggravates Barrier B and if Barrier A is addressed, it will make it easier to address Barrier B.

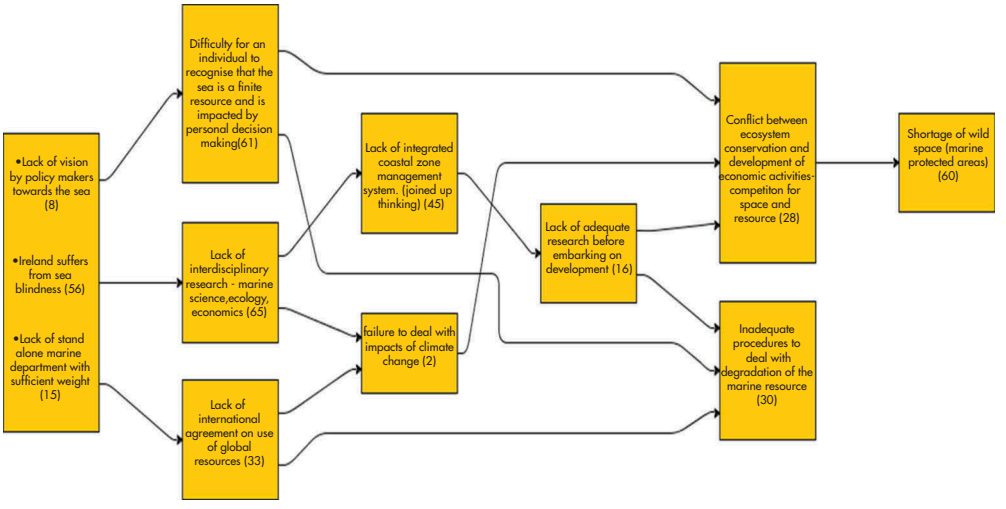

Figure 2. Irish sea for society structural barrier map for a place to live. Source: Domegan, Devaney, et al. (2014, p. 9).

In this particular structural map, a 'lack of vision by policy makers towards the sea' significantly aggravates 'lack of interdisciplinary research – marine, science, ecology, economics'. Barriers grouped together in the same box, such as 'lack of vision by policy makers towards the sea', the country 'suffers from sea blindness' and 'lack of standalone marine department with sufficient weight', are reciprocally inter-related and they significantly aggravate one another. Six different barrier aggravation pathways are evident in Figure 2, with directional arrows indicating aggravating relations.

Building upon the 774 barriers generated and the corresponding categorisation work, 38 common barrier categories emerged. Drawing upon the barrier voting data, the top-voted barrier categories were knowledge deficit (177 votes), conflict (172 votes) and legislation (164 votes) as seen in Table 1.

Knowledge deficit

The knowledge deficit category contains barriers relating to ignorance, information, general knowledge and technical knowledge. The ignorance barriers suggest that stakeholders perceive society as ignorant, unaware and uninformed about certain marine issues. The information barriers are concerned with information difficulties. The general knowledge barriers refer to the general public's poor knowledge of a variety of marine issues while the technical knowledge barriers refer to inadequate scientific knowledge for sustainable marine ecosystems.

Conflict

The conflict category focused on conflict of interests, conflicts between different sectors, conflict between states and conflict resolution barriers. The barriers in the conflict of interest subcategory suggest that conflicts of interest occur when different

Table 1. Top-voted stakeholder 38 barrier categories.

Knowledge deficit (177 votes)	Education (64 votes)
Conflict (172 votes)	Participation (61 votes)
Legislation (164 votes)	Tourism and seasonality (60 votes)
Research and innovation (129 votes)	Financial investment (46 votes)
Marine governance (116 votes)	Holistic vision (44 votes)
Planning (114 votes)	Culture and heritage (44 votes)
Communication and dissemination (113 votes)	Infrastructure (41 votes)
Global issues (107 votes)	Awareness (39 votes)
Attitudes and beliefs (102 votes)	The cost of things (39 votes)
Collaboration (99 votes)	Responsibility and accountability (33 votes)
Sustainability (94 votes)	Credibility and transparency (33 votes)
Strategy and policy (93 votes)	Accounting for climate change (32 votes)
Economic imperative (91 votes)	Use of space (26 votes)
Coastal impacts (89 votes)	Environmental and conservation issues (25 votes)
Politics (88 votes)	Energy issues (25 votes)
Food (77 votes)	Skills, training and competencies (23 votes)
Short-term view (72 votes)	Entrepreneurship (17 votes)
Resistance to change (70 votes)	Marine safety and security (3 votes)
Pollution and protection (64 votes)	Access (2 votes)

marine users have competing interests. Barriers in the conflicts between different sectors' subcategory suggest that sectors using the same marine resource are often hostile towards each other because there is tension over the use of the resource. The conflict between states barriers describes how conflict occurs between states over marine resource usage. The conflict resolution barriers refer to the lack of conflict resolution support.

Legislation

The legislation category contains barriers relating to inadequate legislation, enforcement of legislation and European legislation. The inadequate legislation barriers suggest that existing rules and regulations for ocean governance at local and national levels are inadequate, unsuitable and/or restrictive. The enforcement of legislation barriers suggests that marine legislation is not adequately enforced by relevant authorities. The European legislation barriers refer to the difficulties and failures in implementing European legislation.

The least voted stakeholder barrier categories were entrepreneurship (17 votes), marine safety and security (3 votes) and access (2 votes). The entrepreneurship category contains barriers concerned with business threats and opportunities associated with the ocean. The marine safety and security category contains barriers that highlight the inadequate security at sea. The barriers within the access category relate to the accessibility of the ocean.

Stakeholder options and solutions

Turning to solutions and behavioural change options, the top three knowledge deficit options are (1) elaboration of a training plan for new professionals in order to upgrade the profession of fisherman, (2) create a local network to raise awareness among all stakeholders in order to elaborate a fishing plan and (3) media campaigns to promote

the Baltic Sea. The top-voted options to overcome the barriers within the conflict category are (1) promote a holistic and balanced approach to using the resource; (2) develop the concept of environmental accounting, so that both individuals and the community can understand that investing in marine energy will generate savings and will improve life quality and (3) create local identification brands. The options that received the highest number of votes in the legislation category were (1) elaboration of an outline law to preserve and safeguard fish resources that could represent regional specific resources, (2) create a minister (cabinet) and department for the marine and (3) media campaigns to promote the Baltic Sea.

Citizen/youth results

The citizen/youth results identified a total of 778 benefits and 776 further contributions. Across Europe, the most common benefits were provision of food, transport of goods and living by the sea as displayed in Table 2. The most common further contributions included non-renewable energy for transport, diversifying the fish that we eat and research and funding.

Discussion

Reinforcing the fact that the whole is more than the sum of its parts (Langlois, 1983) coupled with different systems producing their own patterns of behaviour over time (Meadows, 2008); the SFS results capture systems-thinking change cartography for a pan-European sustainable marine ecosystem. The results identify barriers and how they are interrelated and connected at different micro, meso and macro levels. The results also highlight intervention options suitable to target stakeholders and citizens in different domains. Together, the barrier, benefits and options findings provide one example of mapping change and interrelationships at a systems/macro level. In doing so, the results present insights into the question of scale, causation pathways and how change could be an iterative process, orchestrated from a systems-thinking social marketing perspective.

Table 2. Citizen/Youth benefits and further contributions.

Most common benefits	Most common contributions
Provision of food (14 out of 15 consultations)	Non-renewable energy for transport (10 out of 14 consultations)
Transport of goods (12 out of 15 consultations)	Diversifying the fish we eat (7 out of 12 consultations)
Living by the sea (10 out of 15 consultations)	Research and funding (7 out of 12 consultations)
Pharmaceutical/Medical (10 out of 15 consultations)	Awareness (7 out of 12 consultations)
Well-being and quality of life (10 out of 15 consultations)	Relaxation retreats/spas (7 out of 13 consultations)
Passenger transport (9 out of 15 consultations)	Eco-tourism (sustainable tourism) (6 out of 14 consultations)
Therapy (9 out of 15 consultations)	Infrastructure (6 out of 14 consultations)
Healthy food (9 out of 15 consultations)	Cleaner beaches (6 out of 14 consultations)
Fitness/Sport (9 out of 15 consultations)	
Renewable energy (9 out of 15 consultations)	
The sea provides energy (9 out of 15 consultations)	
Sustainability (8 out of 15 consultations)	
Sport and leisure (8 out of 15 consultations)	
Coastal/Urban development (8 out of 15 consultations)	

Transcending the question of scale

Innovation comes from shaking our long-held social marketing assumptions about who to engage with at what level or scale. Our findings concur with Kennedy's (2015) call to go beyond individual behavioural change, whether that is changing a citizen or a policy maker, to a more holistic, systems-wide view for complex problems. Our findings validate Kennedy's (2015) macro-social marketing position to change the institutional norms surrounding the problem as a way to transcend the issue of scale. It means that social marketers adopting systems thinking are best advised to work with sectoral and expert stakeholders in conjunction with individual citizens to consider 'how best to optimise deliberation and co-design by experts, citizens, and politicians' (Hogan et al., 2015, p. 857) as a more meaningful way to achieve collective action and systemic change. When working with government, NGOs, regulators, experts and citizens in diverse, non-rational and dynamic circumstances, we believe social marketing progresses when it facilitates joint actions with actors across and between micro, meso and macro levels. For example, a change in institutional norms in relation to marine conflict could alter conflicts of interest barriers when different marine users have competing interests – representing micro- and meso-level norms. Conflicts between different sectors, that is sectors using the same marine resource, are often hostile towards each other (there is tension over the use of the resource) equates to meso-level norms while conflict between states is clearly a macro level norm. We, like Kennedy (2015), are wary of single-domain interventions *only*, such as decreasing conflict between surfers and equestrian riders using the same beach for recreational purposes. Why so? This reductionist or individual-level social marketing has a tendency to create *isolated* impact.

Operating on the holistic premise, we find in favour of Layton's (2014) social mechanisms – the webs of actors and their activities, whose interactions lead to shared understandings and cooperation, or not – and support his intervening for change simultaneously at the micro–macro interfaces. In SFS, each of the top three voted barrier categories, knowledge deficit, conflict and legislation, highlight different social mechanism weaknesses – ignorance and the lack of general knowledge refers to individuals at the micro level while the lack of technical knowledge signals gaps in scientific understanding at meso and macro levels. Inadequate legislation is a macro issue while lack of enforcement subsumes macro, meso and micro dimensions.

We add our consensus to the broadening social marketing literature – it is multilevel, macro or systems-thinking social marketing interventions that offer collective impact working across institutional norms, social mechanisms and strategic action fields (Bayliss-Brown, McHugh, Buckley, & Domegan, 2015; Kennedy, 2015; Layton, 2014, 2015).

As noted above, utilising the group strengths of IM, systems-thinking social marketing taps into richer understandings derived from the synergies of intelligence, expertise and lived experiences from each session. Deeper exchange insights come from all eyes on the problem, addressing *what* the barriers to, options for and benefits of change are *at each micro, meso and macro level*. For example, take the barrier 'Lack of vision by policy makers towards the sea' in Figure 2. It could provide the basis for new institutional norms or social mechanisms and a broader complex exchange process (A ↔ B ↔ C ↔ D) in that all of the other barriers within the structural map are directly or indirectly

aggravated by it, such as 'the lack of interdisciplinary research, marine science, sociology and economics' and 'shortage of wild spaces (marine protected areas'.

Other 'scaling' perspectives can be achieved through geographical, thematic and meta-analysis opportunities. IM facilitates the merge of data across multiple groups and regions to analyse differences and similarities. For example, geographically, the barrier data and structural maps from Italy, Greece and Spain generated a Mediterranean barrier structural map, as did the data from Atlantic (Ireland, Portugal and France) and Baltic (Sweden, Norway and Poland) stakeholders. From a thematic stance, for example, A Place to Live, citizens/youths perceive the possibility of living by the sea as a very important benefit; the seaside is perceived as the most sought after place to be, prestigious and providing positive influences to their lifestyle. Stakeholders are also pleased by the added values which arise from living near the sea. Overall, these findings suggest that coordinated scaled institutional norms or social mechanism interventions for A Place to Live maybe more successful if focused on benefits and dangers of the human impact on the coasts.

Causation pathways

We concur with Bauman's (2015) and Layton's (2014) view that causation pathways are more complex in marketing systems and systems-thinking social marketing Layton's (2014) concepts of social mechanisms, structure and Kennedy's (2015) institutions norms enable us to articulate a stronger version of the causation pathways, cross-fertilising down, mid and upstream with micro, meso and macro explanations. For example, in Figure 2, one relational social mechanism, *'lack of vision by policy makers towards the sea'* aggravates a structural variable 'lack of standalone marine department with sufficient weight'. Both of these jointly aggravate the social mechanism 'difficulty for an individual to recognise that the sea is a finite resource and is impacted by the person's decision making'. We are witnessing, at a particular point in time, the absence of a casual social mechanism pathway and the ensuing breakdown of macro–micro transitions. In this example, the absence of a macro-level state affects an individual; at the micro-level, the individual finds it difficult to change their behaviour and this in turn blocks or hinders a number of individuals, through their actions, relationships, interactions and associated structures, to manifest macro-level outcomes. Social mechanisms and their associated down, mid and upstream structures with institutional norms are the causation pathways that manifest or hinder macro–micro–macro transitions.

Four corollaries arise, returning to Figure 2. First, the larger the number of causal pathways uncovered in diagnosing a problem, the more social mechanisms will have to be contained and/or counteracted in designing change interventions. Second, the larger the number of causal pathways, the greater the number of macro–micro–macro transitions for successful systemic change. Third, causation pathways are context dependent and as a consequence, systemic change is best contextualised to the specific cultural, social and marketing systems and associated social mechanisms and structures (Kennedy, 2015; Kennedy & Parsons, 2014; Layton, 2014) For example, Figure 2 presents six pathways of aggravation while Figure 3 presents a less elaborated network of aggravation composed of only two pathways.

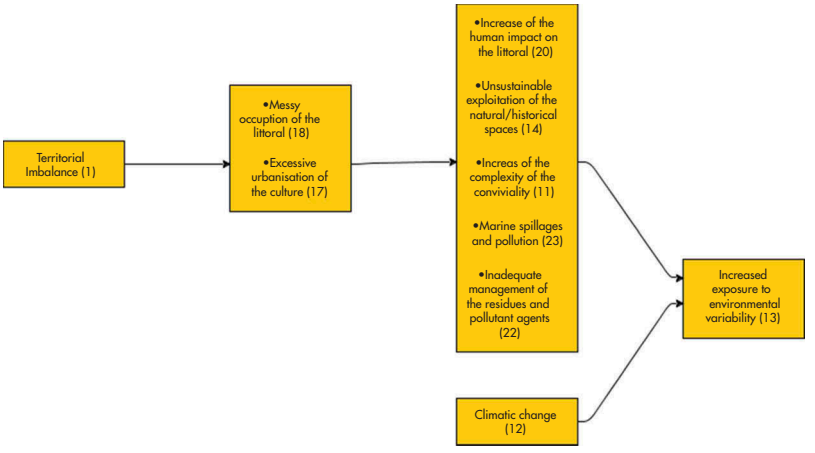

Figure 3. Spanish sea for society structural barrier map for a place to live. Source: Domegan, Devaney, et al. (2014, p. 42).

Lastly, similar to Healthy Together Victoria, casual pathways acknowledge a 'non-linear relationship between the desired impact and the intervention mix' (Venturini, 2015, p. 148) as social mechanisms, structures and institutional norms can work with each other or against themselves.

Chance is an iterative co-creating process

Transcending levels and casual pathways demonstrate that orchestrating change is about co-creating actions through direct and deliberate participation by all in social marketing interventions. Orchestrating change is a co-creation and series of co-evolutionary processes from co-discovery to co-design and co-delivery (Hastings & Domegan, 2014). We believe that research *with* rather than *on* participants into the description and design of problems, solutions and policies is fundamental. Reflecting French and Gordon's (2015, p. 151) stance, structured dialogue, listening and learning empowers diverse participants to understand their thoughts, beliefs and mental models compared to others and moves participants 'towards the creation of citizen value, stakeholder value and societal value'. This orchestrated co-creation of change resonates with the empirical evidence for alliance building, adaptive learning and the creation of a knowledge bank in Healthy Victoria Together and the Pride campaigns (Green et al., 2015; Venturini, 2015) as presented in WSM 2015.

Importantly, change becomes an iterative process, not an event. Change co-creation offers a reciprocity element to participants, similar to community social marketing, with social mechanisms for new shared language, norms and values to emerge. Co-creating change reflects Kennedy's (2015) call for people, participation and partnerships as part of the social marketing toolkit. It's a top-down and bottom-up deliberative collective intelligence mode of operation, as shown in the all of the top-voted SFS options above, regardless of whether they were for knowledge deficit, conflict or legislation categories. Iterative co-created change delineates content and process roles, assigning to participants responsibility for contributing barriers, options and benefits to diagnose

all facades of the problem and design solutions and to the facilitator, responsibility for choosing and implementing selected methodologies for generating, clarifying, structuring, interpreting and amending ideas/issues. Co-creating change using a systems methodology offers the capacity to manage diverse settings and creates the discussion space amongst participants from diverse perspectives to listen and hear each other sharing their expertise. The time and space afforded to the participants allows them to slow their cognitive processes and clarify their thinking. Looking at the problem and solutions from different perspectives contributes to a modelled understanding the complexity, patterns and interlocking elements of the problem.

We have shown through this empirical investigation that systems modelling can facilitate the social marketer to make cognitive links between micro choices and macro structures by focusing on social processes rather than variables. We believe it offers the potential to harmonise behavioural change across causation levels that combine to manifest social action. However, there is an inherent temporal challenge to systems-thinking social marketing which SFS's IM did not meet. Co-creating change processes, driving relational and structural elements, could not materialise without longer time frames, we argue 5–7 years plus and hence the intervention trap of treating change as an event or activity.

Conclusion and future research

Challenges confronting social marketing are indeed complex, but the widespread momentum around social marketing's broadening and deepening systems change agendas is exciting. Accelerating social issues and complex problems calls social marketers to extend social marketing theory as well as progress how they perform research and design evidence-based interventions. Systems-thinking social marketing emphasises scale, causation and how change can be orchestrated to advance the discipline's intellectual development and management strategies. Overall, the findings from our SFS European IM consultations emphasis the need for more systems theory and systems methods to be applied to social marketing environmental and health issues. The aim is to implement a broader range of interventions, both for the society as a whole and for different segments within the society, who highlight contrasting behaviour, values, needs and wants.

On the basis of the results of this study, we propose three prioritised areas for future systems-thinking social marketing research. The first area concerns the concept of scale and related tasks of systems mapping, boundary analysis and stakeholder recruitment. Layton's (2014) classification of system actors is in our opinion a better option or alternative to Freeman's (1984) traditional, *stakeholder theory* (primary, secondary and influencer). Layton (2014) suggests system actors be mapped according to whether they are incumbents, challengers and governance units. Incumbents benefit from and dominate the current social mechanisms and structure. They seek to preserve business and markets as usual. Challengers want to alter the status quo while 'governance units such as regulatory agencies, ratings agencies, commercial associations, and voluntary groups, tend to form in response to pressures by incumbents or challengers' (Layton, 2014, p. 10). Layton's marketing systems classification schema inherently draws upon system actors, structures and their predisposition to change, making it eminently

suitable to social marketing and the research question of how to define and analyse a focal social marketing system. In a similar manner, French and Gordon (2015) recommend actor-network theory and assemblage's theory to analyse social interactions with a critical eye.

The second research opportunity is to further examine co-creation processes as they pertain to social marketing and systems thinking. We suggest one direction is to deepen French and Gordon's (2015) concept of value-in-behaviour for co-creation with citizens, stakeholders and society (Domegan, Collins, Stead, McHugh, & Hughes, 2013). Another fruitful direction is to investigate value-action co-creation gaps using Bauman (2015), Hastings (2015) and French and Gordon's (2015) critical thinking and counter-marketing approaches.

We sympathise with Venturini (2015, p. 148) when he says it is 'difficult to map each strategy against a single objective or desired outcome', but contend there is well founded theoretical support for systems monitoring and co-creation analysis as a third research area for advancement. Systems indicators are 'mechanisms that forge the integration of systems parts and sustain them over time as a coherent whole' (Roberts, 2011, p. 677). Examples of system indicators include knowledge transfer, exchange and generation, network involvement and connections together with social mechanisms trust, commitment, learning and reciprocity (Green et al., 2015; McHugh & Domegan, 2013; Venturini, 2015). A fundamental aspect of theory and practice expansion for social marketing may be this ability to collectively measure and visualise the structure of a system and its shared societal problem, and use this knowledge to design scaled strategies for collective action. A coherent theory of change for social marketing, connecting behaviour change to far reaching social transformation, becomes a possibility. Orchestrating social change may become the reality for the social marketer.

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