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## Normative Innovation for Sustainable Business Models in Value Networks

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Henning Breuer\*

University of Applied Sciences for Media, Communication and Management & UXBerlin – Innovation Consulting  
Ackerstrasse 76, 13355 Berlin, Germany  
E-mail: h.breuer@hmkw.de

Florian Lüdeke-Freund

University of Hamburg, Faculty of Economics and Social Sciences,  
Von-Melle-Park 9, 20146 Hamburg, Germany / Research Fellow at  
Centre for Sustainability Management (CSM), Leuphana University  
E-mail: florian.luedeke-freund@wiso.uni-hamburg.de

\* Corresponding author

**Abstract:** While business model innovation has been widely accepted as an innovation category on its own, its problem-solving potential is still unexplored. We argue that business model innovation can be applied beyond single firms, i.e. on the value network level, to find systemic solutions to “wicked” problems. A framework and method for sustainable business model innovation for value networks are proposed: the former building on the concept of normative management, the latter on a “mainstream” business modelling tool. This method was applied and evaluated in a workshop series on regional energy networks in Germany. We review the literature on sustainable business models, provide the theoretical background of normative innovation management, describe the workshops, and reflect on the lessons learned from theory and practice. We conclude that the best starting point for systemic sustainability innovations lies beyond single firms within networks built on shared goals and normative values.

**Keywords:** Business Model Innovation; Sustainable Business Model; Value Network; Energy Business; Business Modeling Starter Kit; Futures Workshop.

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### 1 Introduction

In the last decade, the innovation management literature shifted its attention from products, processes, and single business components to the strategic level of *business model innovation* (BMI). Exploring uncontested market space and new business opportunities, BMI affects the components of an existing business model and their interaction and can also create completely new business rationales (Schneider and Spieth, 2013). While innovation in entire business models and their single components moved to the centre of strategy and innovation scholars’ attention (e.g. Breuer, 2013; Chesbrough, 2010; Teece, 2010), two crucial issues have been widely neglected.

The first is the interaction between business models of actors engaging in *value networks*. Cross-sector phenomena like value chain deconstruction and increased innovation speed challenge traditional value chains (Schweizer, 2005). Value networks and inter-organisational management become increasingly important contexts for BMI. The second issue is the role of *normative management*. The normative level of corporate visions, missions, and the “ask” (what a business asks its customers to do or become; Schrage, 2012) is often considered as a detached issue of cultural superstructure, only loosely coupled with the core business of a company. However, some scholars point to the importance of normative foundations for BMI for value networks (Bleicher, 2010).

In this paper, we argue that we need to elaborate upon this *triad* of BMI, value network, and normative management to better understand and design systemic innovations with the potential to moderate the “wicked problems” (Rittel and Webber, 1973) of our time. Achieving a sustainable development of the natural environment, human society, and economy is such a seemingly insoluble problem that is poorly formulated, confusing, and involves many different actors with conflicting values (Waddock, 2013). The search for sustainable energy systems is an example of how such problems call for a shift from authoritative and centralised solutions to collaborative and decentralised approaches (e.g. Müller et al., 2011; Rae and Bradley, 2012).

A better understanding of this triad also allows for discovering new potentials for innovation and collaboration across companies based on shared goals and normative values, such as transparency, privacy, or sustainability (e.g. being committed to mitigating climate change, providing clean and cost-efficient energy, or enabling a just distribution of limited resources). These are important ingredients both for value networks and collaborative solutions to wicked sustainability problems. However, due to different public, private, and business ethics the collaborators’ normative orientations will most probably vary and conflict, and need to be harmonised. We concentrate on normative orientations in cross-industry innovation processes that acknowledge environmental, social, and economic aspects and might thus be termed “sustainable” or “sustainability-oriented” (Hansen et al., 2009). Through a case study on the struggle for dominating technologies, organisational forms, and business models in the energy industry – here, on a regional level – we illustrate the importance of normatively grounded inter-organisational BMI. We show that collaboration tools are needed to develop and maintain a shared normative orientation as a common ground for cross-industry groups that engage in joint BMI and value network formation.

The goal of this paper is to provide theoretical and methodical foundations for sustainable BMI for value networks, combining normative future ideation with business modelling techniques. The research question is: *How to drive business model innovation in (and how to develop) networks where value emerges from the distributed activities of different actors, instead of being centred on a focal actor and value proposition?*

We briefly discuss the literature on sustainable business models and tools for their elaboration (section 2). We differentiate between normative, strategic, and instrumental innovation management and propose a normatively driven approach to enable sustainable BMI reaching beyond single firms (section 3). Future ideation and business modelling techniques are combined in a case study to identify new opportunities for value creation in regional energy systems (section 4). Reflecting upon the lessons learned from the literature and case study, we discuss conceptual and methodical implications and draw conclusions for sustainable BMI for value networks (sections 5 and 6).

## 2 Theoretical Background

Research on sustainable business models tries to identify value creation approaches that contribute to a sustainable development of the natural environment, human society, and economy (Boons et al., 2013). Many scholars see business models as a means to overcome the dominating technology focus of sustainability innovations (Lüdeke-Freund, 2013) and to innovate on the level of use-systems and product-service combinations (Hansen et al., 2009; Wells, 2013a). We add a new perspective to this discourse and emphasise the inter-organisational level where BMI supports value networks and systemic innovations. We briefly review this new field of research, point to important gaps in the literature, and identify work related to our framework and method.

### *Research on sustainable business models*

A business model describes how a company creates, delivers, and captures value for its customers and itself (Teece, 2010). Different interpretations can be identified: on the one extreme, it is seen as a “real thing” and rationale of how a company earns money (cf. Baden-Fuller and Mangematin, 2013); on the other, it is defined as “a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm” (Osterwalder et al., 2005, p. 17). Research on sustainable business models – in the sense of “business models for sustainability” (Lüdeke-Freund, 2009; Wells, 2013b) – tries to identify business rationales and tools that contribute positively to the development of the natural environment, human society, and economy (Boons et al., 2013; Schaltegger et al., 2012). We use the terms “sustainable” and “sustainability-oriented” (Hansen et al., 2009) to indicate an according normative orientation.

Based on Ehrenfeld’s definition of “sustainability as flourishing” (Ehrenfeld and Hoffman, 2013) and the “non-declining capital rule” defined in ecological economics (Dresner, 2008), *a sustainable business model can be defined as a business model that creates, delivers, and captures value for all its stakeholders without depleting the natural, economic, and social capital it relies on* (cf. Dyllick and Hockerts, 2002; Upward, 2013). Current research aims to understand what kinds of models and tools could be in line with this view.

Only few studies provide taxonomies of potentially sustainable business models. A report by SustainAbility defines 20 approaches to sustainable BMI which change e.g. industrial processes (e.g. closed-loop systems), financial models (e.g. crowd sourcing), and resource-sharing between social groups (e.g. cooperative ownership) (Clinton and Whisnant, 2014; see also Beltramello et al., 2013, Bisgaard et al., 2012). Bocken et al. (2014) propose nine archetypes based on organisational, technological, and social innovation (cf. Boons and Lüdeke-Freund, 2013). For example, the archetype “substitute with renewables and natural processes” includes energy networks which explicitly consider the limited availability of natural resources. Another archetype, “repurpose the business for society and environment”, refers to non-traditional collaborations, e.g. between businesses and NGOs, aiming for the development of meaningful enterprises (Bocken et al., 2014). Both archetypes are important for our case study discussed below.

### *Business model innovation beyond the individual firm*

Most business model concepts take a single-actor perspective, an approach we call “egocentric” (with the “Business Model Canvas” as most prominent example;

Osterwalder and Pigneur, 2010). Some scholars point to the importance of multi-actor concepts and more comprehensive value definitions. Stubbs and Cocklin (2008), who developed a generic “Sustainability Business Model”, state that a “sustainable organization expresses its purpose, vision and/or mission in terms of social, environmental, and economic outcomes ... [and] ... adopt[s] a stakeholder view of the firm, rather than a shareholder view” (ibid., pp. 121-122). They argue for models that involve a broad range of stakeholders and create more than just economic value.

While business models are expected to extend innovation activities beyond processes, products, or organisational aspects (Baden-Fuller and Haefliger, 2013), an unexplored area lies on the systems level where multiple actors interact. Beyond technological innovations (products, processes), organisational innovations (structures, management), and business innovations (strategies, markets), so called postindustrial system innovations that involve networks of cooperating partners are of growing importance for innovation management (Hauschildt and Salomo, 2011).

This leads to BMI within value networks (Calia et al., 2007). Value networks have been defined as the corporate context of competition and solving customers’ problems, consisting of relations to customers, complementors, and competitors (Christensen and Rosenbloom, 1995). Even though these authors do not discuss the normative orientations within networks, the question arises of how networks of diverse stakeholders, value definitions, and business models can be developed to support system innovations and result in sustainable business models.

The “Collaborative Business Modelling” method developed by Rohrbeck et al. (2013) aims to overcome barriers to systemic innovations. Still, the approach does not help with the design of business models for different, maybe even opposing, actors like fossil and renewable energy producers, grid operators, or storage providers. However, collaborative business modelling is a first step towards sustainable BMI in value networks.

### *Challenges of business model innovation in value networks*

A literature review of 490 articles on energy utility business models shows that most innovations optimize existing businesses; only 26 percent involve radical change and new topics like virtual power plants or intelligent storage (Engelke and Graebig, 2013). Even the more radical approaches tend to focus on traditional energy issues, whereas the authors suggest pursuing unexplored possibilities of cross-industry innovation based on different actors’ strengths like regional presence, customer access, and infrastructure competencies. Managing innovation projects from a value network perspective is one approach to foster such cross-industry partnerships, even between rivals (Calia et al., 2007).

Given the diversity of actors who can be involved, a joint reflection on the “normative foundations of entrepreneurial activity” (Ulrich, 2013a) is needed to identify a common ground for collaborative business modelling. Within entrepreneurial teams – even more so in cross-industry alliances – shared goals and visions are needed to define “what kind of value add” (Ulrich, 2013b) to achieve. Concepts like value mapping and normative scenarios can be used to elaborate upon this orientation toward value-added purposes. Normative scenarios provide a clear and shared team vision and a number of activities and milestones to reach them (Kosow and Gaßner, 2008), while utopian imagination can drive the formation of normative scenarios and enable the development of ambitious visions that exceed incremental innovation (Breuer et al., 2012).

With regard to tools beyond “egocentrism” and value in an economic sense, the “Value Mapping Tool” proposed by Bocken et al. (2013) provides a method to develop shared value propositions for stakeholders as diverse as customers, suppliers, and governments. It helps to distinguish between what the authors call value captured, destroyed, missed, and new value opportunities. Although this tool supports multi-dimensional and sustainability-oriented value mapping, it does not support BMI in value networks.

### **3 Framework and Method for Sustainable Business Model Innovation for Value Networks**

To foster collaborative innovation within networks requires going beyond individual actors by considering their wider ecosystems and going beyond strategy and operations by considering their normative foundations.

#### *Normative innovation management as framing*

Entrepreneurial activities always follow normative orientations beyond the pursuit of profit – “the business of business is not only business” (Ulrich, 2013a, p. 14). They are inevitably based on normative assumptions, e.g. about the responsibilities of individuals and the “right” business philosophy (Pless et al., 2012). It follows that business-based solutions to wicked problems like the unsustainability of our human society must take into account the ideals and values of those involved (Waddock, 2013).

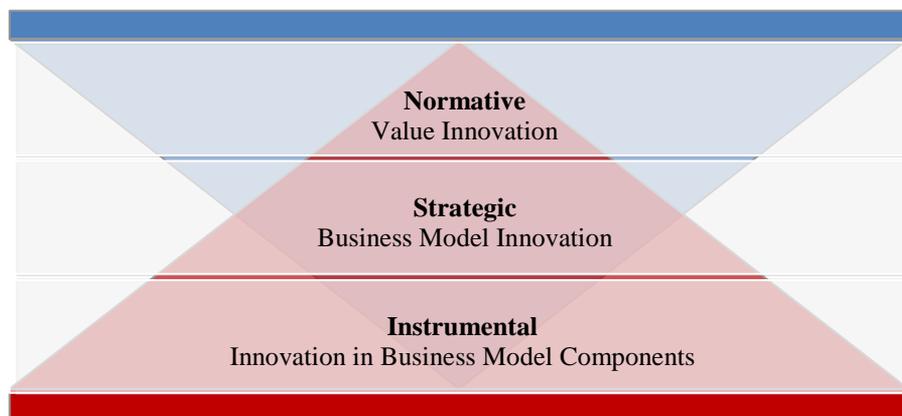
Following Joyner and Payne (2002), values are defined “... as the core set of beliefs and principles deemed to be desirable by (groups of) individuals ... Values are derived from one’s membership in a culture. With attitudes, beliefs, and behaviors, values combine to form a continuous spiral of community culture ...” (ibid., p. 299) To change unsustainable behaviours ways must be found to disrupt the “continuous spiral” of innovation and business culture (cf. Chesbrough, 2010). Therefore, our framework emphasises the role of what we call *normative innovation management*.

Building on Bleicher’s (1994, 2011) “Integrated Management Concept”, we differentiate between three levels of innovation: *normative, strategic, and operational* or, (with respect to management instruments) *instrumental* (figure 1).

- “Normative management deals with the general aims of the company, with principles, norms, and strategies which are aimed at corporate survival and development capabilities.” (Bleicher, 1994, p. 141). It has “to ensure the surviving capabilities of a company through the preservation of its *identity*” (ibid., italics added). Large companies invest substantially in the exploration and explication of their values, visions, missions, and strategic goals to communicate and stabilise their identity. This allows for critical discussions and self-reflection, but also for reinforcing compliance with a company’s values and goals. Corporate policy, governance, and culture are central issues on this level. In our understanding the normative level reaches beyond the “egocentric” self-reproduction into societal spheres. We consider this level of innovation management to be crucial for the development of shared goals and values for networks and refer to this function as “grounding”.

- “Strategic management aims to identify, achieve, and exploit a position of *strategic advantage* ... While normative management functions as a foundation for activities, it is the task of strategic management to direct these activities” (Bleicher, 1994, pp. 141, 143, italics added). This level describes how value is created and captured through the achievement of goals like particular growth rates or market shares. Organisational structures, strategic programmes, problem solving and learning capabilities are developed on this level. The literature provides rich insights into the relationships of strategies and business models and how they interact (e.g. Casadesus-Masanell and Ricart, 2010). We consider this level to be crucial for decisions about BMI within the framing of normative innovation management.
- “Normative and strategic management objectives are translated at the operational level into the economic *processes* of performance, finances, and information.” (Bleicher, 1994, p. 143, italics added) This level is associated with organisational processes, performance management, and other operational activities. We consider this level to be relevant for innovations in single business model components, which may involve all forms of product and service design innovation, but also changes in marketing instruments like distribution channels or pricing schemes.

This framework describes how a company’s normative foundations, constituted in corporate governance, policy, and culture, frame strategies and operations, and thus business model-related decisions. Figures 1 and 2 summarise our interpretation of these three innovation management levels.

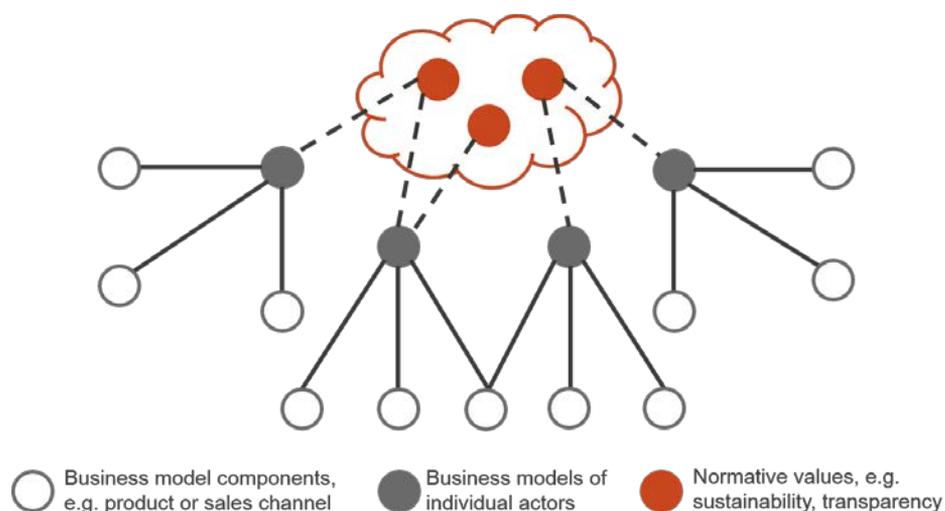


**Figure 1** Three levels of innovation management, internally (red) and externally (blue) driven

Each level and its associated innovation activities can be driven internally (e.g. to improve organisational processes), which is likely to occur bottom up, i.e. via the operational level. But innovations can also be driven externally (e.g. by changing societal expectations), which is likely to enter top down, i.e. via the normative level. Changes in public valuations, e.g. with respect to climate change, can force companies not only to revise their normative foundations, but also to develop new products, markets, and alliances. Many traditional energy companies cooperate with green start-ups to enhance their portfolios (e.g. Pinkse and van den Buuse, 2012) and this is mostly seen as being driven by market and/or political strategies (e.g. Kolk and Pinkse, 2004).

Still, this interpretation blinds out that these strategies are normatively driven, i.e. motivated by personal, public, and business ethics. Against this background, we propose that the formation of successful value networks with viable and sustainable business models requires a synthesis and careful definition of the (normative) values of all network actors, the (multiple) value propositions offered to network stakeholders, and the (economic) value created by and for the involved companies. The question then is: *How to drive business model innovation in (and how to develop) networks where value emerges from the distributed activities of different actors, instead of being centred on a focal actor and value proposition?*

To explore possible answers, a combined future ideation and business modelling method was tested with a group of practitioners in search for sustainable and network-based energy business models (section 4).



**Figure 2:** A value network consisting of associated ideals and values (within the cloud), distributed business models, and business model components

### *A tool for sustainable business model innovation for value networks*

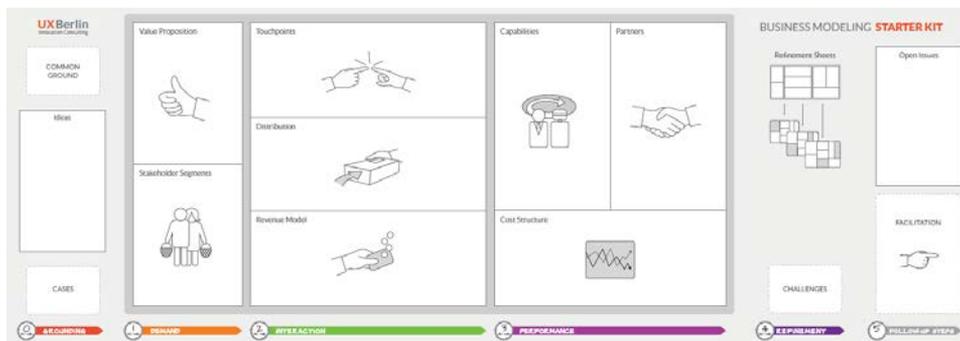
Exploration and exploitation of new business opportunities can be based on a “lean venturing” approach to foster organizational learning (Breuer, 2013). Lean venturing proceeds through iterative phases of exploration, elaboration, evaluation, experimentation, and evolution of assumptions about different business model designs (ibid.). Business modelling tools like the “Business Modeling Starter Kit” (ibid.), which was used in the case study discussed below, provide an instrumental basis for creative business model ideation and implementation (figure 3). It guides workshop teams through five pre-defined steps: (1) definition of a common ground (shared vision, “grounding”); (2) exemplification (through cases and business model patterns); (3) ideation (for single business model components); (4) modelling relations across components and models; (5) and challenging implicit assumptions with scenarios.

The initial layout of this tool was focused on economic rather than social or ecological value creation. It was modified in order to foster the modelling of sustainable

business models in network settings and to appropriately account for the participants' varying and potentially conflicting normative orientations:

First, the normative orientation of business reaching beyond economic goals is highlighted in an exercise called “grounding”. Starting into the process, participants create a common ground for their endeavour by explicating their goals and values and understanding of sustainability. The concept of value was enhanced to integrate different participants' value perceptions and to develop a shared understanding of a multi-faceted sustainable value. Second, business model patterns are used to stimulate thinking in terms of particular models and model elements; e.g. the two patterns “substitute with renewables and natural processes” and “repurpose the business for society and environment” proposed by Bocken et al. (2014). Exemplary cases include such patterns to inform participants about a range of possible designs. Third, stakeholder segments – replacing customer segments in the original tool – are included as a new component to consider a range of interest groups beyond immediate beneficiaries. Finally, future scenarios, written on “challenger cards”, serve as an initial check of new business model assumptions.

Besides these modifications, the tool's original workshop method was combined with a value-oriented futures workshops (Breuer et al., 2012), especially to support the “grounding” function for cross-industry groups. The extended method mix was expected to provide a more inclusive basis for all subsequent business modelling steps.



**Figure 3** The renewed playground of the Business Modeling Starter Kit

#### **4 Workshop Series on Regional Energy Systems**

A series of two workshops was conducted in late 2013, comprising a futures workshop (Jungk and Müllert, 1996) to specify normative visions and options for realisation, and a business modelling workshop based on the value propositions resulting from the preceding future ideation exercise. Participants were recruited by the research project “Renewable Energy in the North German Region (EnERgioN)” at Leuphana University of Lüneburg. About 30 experts from public utilities, wind turbine manufacturing, grid operation, consulting, finance, and academia participated and explored their potential stakes in the regional energy network to be developed.

Both workshops contributed to the EnERgioN project which addresses fundamental challenges of establishing autonomous energy regions based on renewable energies and virtual power plants (VPP) (cf. Müller et al., 2011; Rae and Bradley, 2012). The VPP is a

metaphor for a computerised cluster of distributed installations for energy generation and distribution. It describes the potential of information and communication technologies to organise action amongst heterogeneous actors in the energy market. Different energy technologies, such as wind turbines, solar panels, combined heat and power, and different distribution methods can be combined to ensure efficiency, flexibility, and balance fluctuations in energy supply and demand (see Saboori et al., 2011 for an overview of VPPs).

### *Workshop design*

Following an initial discussion with the project owners we defined guiding questions: How to design future energy markets? How may renewable energy contribute to regional self-sufficiency? And which prerequisites must be fulfilled, which problems and challenges need to be mastered? These questions were consolidated for the two workshops: Which potentials emerge for entrepreneurial action? How may these potentials be realised? A futures workshop approach was chosen to answer the first and a collaborative business modelling approach to address the second question. To overcome the “egocentric” viewpoints of individual firms, a network perspective was applied to identify the most relevant actors and relationships in the respective energy business “ecosystem” (figure 4).

Four main actors were identified: energy producers, network operators, energy storage providers, and “prosumers” (i.e. energy producing consumers). The VPP metaphor was introduced as a fifth actor representing the new business opportunities resulting from the transformations within the value network.

After an introduction to the topic, recent energy market developments, the workshop approach and agenda, three groups were formed: prosumers, energy producers, and network operators. Following their personal interests and professional background, participants selected one group for the future ideation workshop.

### *A value-driven futures workshop*

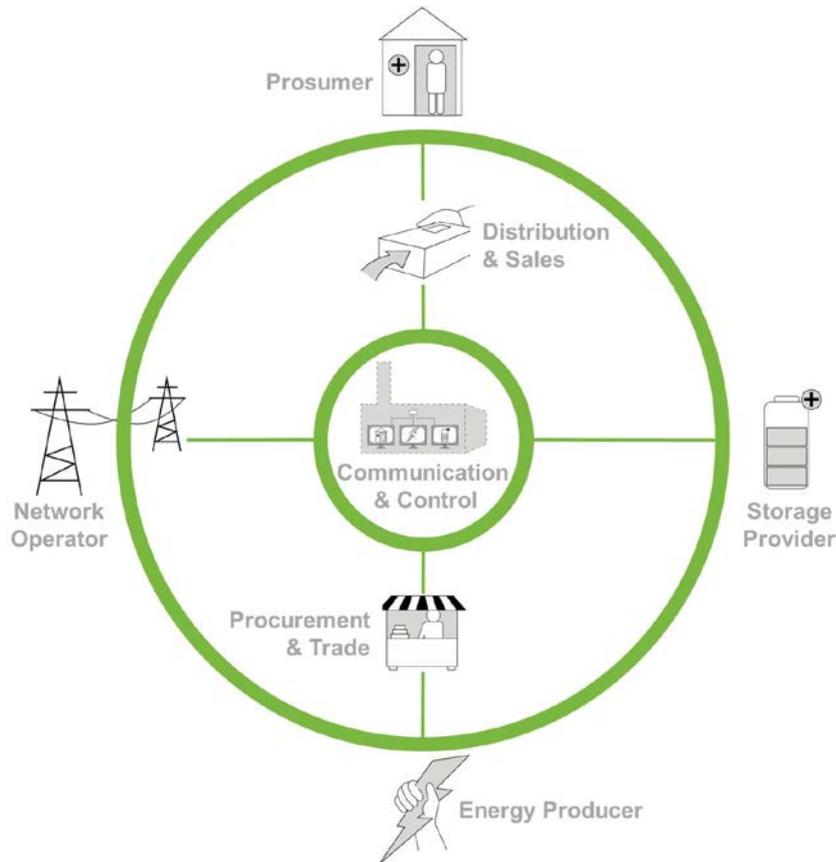
The first day was dedicated to identifying new business opportunities for conventional and sustainable energy entrepreneurs based on their shared normative orientations. To create stakeholder-specific normative visions and identify new business potentials, the original futures workshop format consisting of critique, vision, and implementation phases (Jungk and Müllert, 1996) was redesigned with a consistent focus on values, i.e. values missed or destroyed (critique phase), ideal values (utopian vision), and new value propositions (implementation phase). “Value Clouds” offering core values like efficiency, flexibility, reliability, and transparency were visualised to trigger discussion.

For instance, in the *critique phase* prosumers discussed missed opportunities to create and preserve social and economic values and complained about a lack of transparency with regard to energy sources, pricing, and energy losses because of difficulties in feeding energy into the grid.

In the *vision phase* the groups described ideal energy worlds and the values they could contribute in the best of all imaginable worlds. Energy producers, for instance, imagined harvesting energy (e.g. from surplus heat) wherever needed with increased flexibility through ancillary services that avoid inefficient and costly energy transmission.

Network operators envisioned moving up the value chain to enable exchange between different regions and VPPs through their unique capabilities and know-how.

In the *realisation phase* the groups discussed how each actor could be supported in realising these visions and values and which requirements need to be met in order to create promising new value propositions. Each group came up with different business opportunities and selected one for follow-up modelling.



**Figure 4** The regional energy business “ecosystem”

#### *Modelling new energy business*

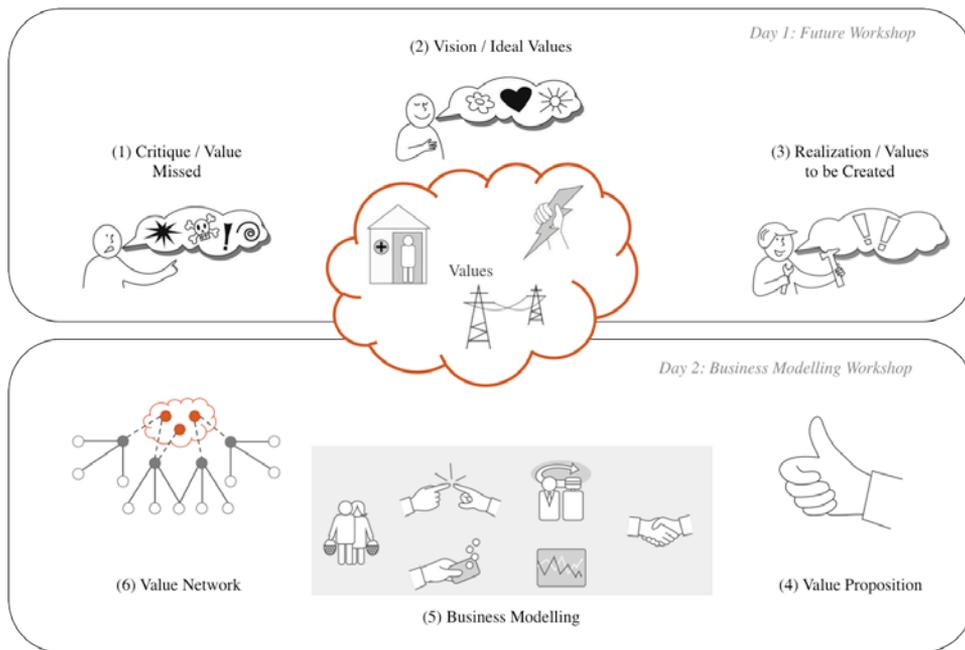
On day two, participants had the opportunity to change groups to work with the ideas developed during the preceding futures exercise. The task for the collaborative business modelling workshop was to create different kinds of VPP business models for the value network:

- Based on ideas from the prosumer group a *local energy community* was modelled, providing a market place for direct trading of green energy with municipal utilities managing transmission and load-frequency control.
- Based on ideas from the energy producer group a *financial equity participation* model was proposed. The mission was set to enable customers who strongly identify

with their region and wish to utilise local energy sources without constructing or operating own facilities (like photovoltaic installations). Customers participate instead through fixed-interest bearing securities offering modest returns.

- Based on ideas from the network operator group a *VPP agency* was described, connecting VPPs across regions and providing consulting for various energy actors. Through bundling of resources, capacities, and competencies a real alternative to centralized energy provision and large corporations should be built.

Figure 5 summarises the focused topics and methods for the two workshop days.



**Figure 5** The workshop topics and procedure (images by uxberlin)

### *Parallel shifts in the value network*

In the EnERgioN case the normative orientation within the value network was first introduced through the initial framing and shared vision of a sustainable energy region based on green and local sources. Following modifications and specifications of the “value cloud”, key values such as independence, transparency, efficiency, and proximity provided an anchor for discussions and an evolving reference point throughout the workshop exercises. Unpacking the “wicked” problem of unsustainability, these values also served as clues for possible solutions. Finally, participants discussed potential synergies and conflicts between the emerging business ideas.

While some of the new models threatened some actors’ core business, the shared vision and parallel creation of new business models for each group promoted mutual tolerance for (temporary) negative impacts on some aspects of an actor’s business.

- For instance, prosumers extending their production capacities within a *local energy community* may endanger the current core business of energy producers. The

producer group proposed to harvest energy wherever it is needed, rendering transmission dispensable and thus part of the network operators' business.

- The *financial equity participation* model envisioned by the energy producer group intends to motivate prosumers to invest in contracting services to small producers and consumers, i.e. regionally financed infrastructure contracting, value-driven by demand for green and local energy. Such multilateral contracts may serve as a pilot for new system services ensuring stable infrastructure operations through the balancing of fluctuations in supply and demand.
- Still, moving up the value chain and looking at the whole energy business ecosystem, the network operator group identified market potential for a *VPP agency* in the moderated exchange of resources and know-how across regions.

Due to the exploratory character of this workshop, further specifications of these business models and their co-evolution towards a sustainable and autonomous energy region was left to follow-up initiatives by the participants. Table 1 summarises the observed shifts per value network actor on the three levels of innovation.

**Table 1** Overview of innovation levels and actors in the value network

	<i>Network Actors</i>		
	<i>Prosumers</i>	<i>Energy Producers</i>	<i>Network Operators</i>
<i>Values</i>	Regional sustainability, education and independence	Regional sustainability, innovation and independence	(Cross-)Regional sustainability and education to drive innovation
<i>Business Model</i>	Local energy community	Financial equity participation	Agency for virtual power plants
<i>Components</i>	Advanced storage technology and trade platform	Partnering in marketing, finance & operation	Repurposing consulting capabilities

## 5 Workshop Results, Review and Implications

The combination of future ideation and business modelling with the extended Business Modeling Starter Kit to explore normative orientations and to create shared goals and value propositions allowed for an efficient and satisfactory collaboration. Participants were “impressed by the quality and depth of results”. Especially the switch between single business models and the regional value network led to valuable insights, plans for action, and “a great basis for future collaboration with our partners” (comment by the responsible EnERgioN project manager).

Working from *different stakeholder perspectives* towards a reconfigured value network yielded promising new options for actor-specific and overarching network business models. For example, the groups of energy producers and prosumers developed the utopian ideal that renewable energy is generated just where and when it is consumed

to avoid energy transmission losses. From this, network operators learned not only about the threat to their operating model, but also gained ideas how to prepare for increased local energy generation and consumption (e.g. through small-scale power grids). They also discovered opportunities to balance energy shortages between regions and offer knowledge, IT services, and consulting through a new VPP agency of which market potential might overcompensate potential losses caused by a dedicated regional focus.

The futures workshop with its focus on normative aspects enabled participants to create *ambitious visions beyond single firms and incremental improvements* of their core businesses. The identified business opportunities and models imply substantial shifts in the value network and, if implemented, would result in a new ecosystem with new roles for all actors. Being connected through fundamental values as common denominator should serve as a guide during implementation.

On the theoretical side, our framework and method extend the state of the art of sustainability-oriented business model research. While the current focus is on how single firms can contribute to a sustainable development through BMI, we show that *barriers to sustainability innovation can be addressed from a network perspective*. This theoretical contribution is also relevant for the development of new future ideation tools. With the ability to synthesise and balance actor-specific goals, normative orientations, and business models, the proposed framework and method should help researchers and practitioners alike to identify and resolve barriers to sustainability innovation which cannot be sufficiently understood and tackled from an “egocentric” single-actor perspective.

## 6 Conclusions

We identified two important gaps in the literature on sustainable business models: an “egocentric” focus on single firms and a lack of reflection of the normative dimensions within value networks.

To cover the normative aspects underlying entrepreneurial and innovation activities a futures workshop format was combined with an enhanced business modelling tool. An extended business modelling process based on the Business Modeling Starter Kit was used to support the establishment of a common ground with respect to the goals and normative orientations of workshop participants. The customer-centric perspective of the original tool was broadened to include all relevant stakeholders and their understanding of created, missed, and destroyed values as well as new value propositions. Critical sustainability issues were included in the future scenario exercise that challenges new business model assumptions.

The resulting framework and method were applied and evaluated in two workshops with 30 participants dealing with regional energy value networks in Northern Germany. Representatives of municipal utilities, energy technology manufacturers, academia, and consulting took three perspectives: prosumers (i.e. energy producing consumers), energy producers, and network operators. For each of these groups future visions and value propositions were defined as a basis for actor-specific business models. These were integrated on the value network level to form a new kind of virtual power plant that serves as an enabler and complementary service provider for the reconfigured regional energy business ecosystem, creating new business opportunities for sustainable energy solutions.

The best starting point for systemic sustainability innovations lies beyond single firms on the level of value networks built on shared goals and values. Focusing workshop discussions on the normative level of innovation management creates a common ground to derive new and possibly co-evolving business models. Elaborating upon a shared vision and new value propositions for each network actor is a promising way to overcome barriers to the implementation of sustainability innovations. The proposed framework and method allow addressing wicked problems such as the sustainable turnaround in the energy industry by modelling new business opportunities for actors and stakeholders in the respective system.

If and how our results are transferable to other industries like international finance, health, or education that miss structured and scalable stakeholder dialogue formats is an issue for follow-up research.

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