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The Business Model Ecosystem Approach

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Abstract

There is much knowledge about business models (BMs) (Zott and Amit 2009; Zott et al. 2010, 2011; Fielt 2011; Teece 2010; Lindgren and Rasmussen 2013) but very little knowledge and research about business model ecosystems (BMESs) – those “ecosystems” where the BMs really operate and work as value-adding mechanisms, objects or “species”. How are these BMESs actually constructed? How do they function? What are their characteristics? And how can we really define a BMES?

There is until now not an accepted language developed for the BMES nor is the term “BMES” generally accepted in the BM literature. This chapter intends to commence the journey of building up such language based on case studies within the windmill, health, agriculture and fair business model ecosystems – the upperpart of the vertical butterfly (Rasmussen, Saghaug and Lindgren 2014; Lindgren 2016b). A preliminary study of “as-is” and “to-be” BMs related to these BMESs present our first findings and preliminary understanding of the BMES. The chapter attempts to define a BMES and its dimensions and components. Every business model is part of or offered to one or more business model ecosystems (BMESs) (Lindgren 2016b). The BMES is where the business BMs operate and “exchange” their value proposition but it is also where the “to-be” BM can be presented in an early stage version – a Beta version or a prototype. The BMES is therefore a different term than a market, an industry, a cluster or a sector, as we will verify in this chapter. In this context we build upon a comprehensive review of academic business and BM literature together with an analogy study to ecological ecosystems and ecosystem frameworks. We commence exploring the origin of the terms “business”, “BM” and “ecosystems” and then relate this to a proposed BMES framework (Lindgren 2016b) and the concept of the multi BM framework (Lindgren and Rasmussen 2013).

6.1 The History of the Business Model Ecosystem (BMES)

The first discussion of the business model ecosystem (BMES) can be traced back to an academic article in 1934 (Bloggs 1934, cited in Fielt 2011). However, the concept never really gained wide acceptance until Fielt in the mid-1990s again raised the question – “How can a BMES be defined?” (Fielt 2011). Fielt commented that:

The term “Business Ecosystem” was originally used and introduced by Moore (Moore 1993) in his Harvard Business Review article, titled “Predators and Prey: A New Ecology of Competition”. Moore defined “business ecosystem” as:

“An economic community supported by a foundation of interacting organizations and individuals – the organisms of the business world. The economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organisms also include suppliers, lead producers, competitors, and other stakeholders. Over time, they coevolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies. Those companies holding leadership roles may change over time, but the function of ecosystem leader is valued by the community because it enables members to move toward shared visions to align their investments, and to find mutually supportive roles.”

Moore used several ecological metaphors, suggesting that the business could be regarded as embedded in a (business) environment, that it needs to coevolve with other businesses, and that “the particular niche a business occupies is challenged by newly arriving ‘entrants’” (Porter 1985) or potential exit businesses. Moore (1993) further argued for defining the ecosystem as related to the business level and not to the business model level (Skarzynski and Gibson 2008; Osterwalder and Pigneur 2010; Osterwalder 2011; Lindgren and Rasmussen 2013), meaning that business ecosystems should be defined as they related to the highest level of a business and as an ecosystem of businesses or for businesses.

DeLong (2000) defined business ecology as “a more productive set of processes for developing and commercializing new technologies” that is characterized by “rapid prototyping, short product-development cycles, early test marketing, options-based compensation, venture funding, early corporate independence”.

Many have tried to define a group of businesses as, for example, a cluster (Porter 1998):

a geographical location where enough resources and competences amass reach a critical threshold, giving it a key position in a given economic branch of activity, and with a decisive sustainable competitive advantage over other places, or even a world supremacy in that field (e.g. Silicon Valley, Hollywood, Italian clusters) (Dóglgio 2011), Danish Wind Valley (Monday Morning 2010; Genoff 2010).

or a sector – Langager (2010) comments on the difference between industry and sector:

The terms industry and sector are often used interchangeably to describe a group of companies that operate in the same segment of the economy or share a similar business type. Although the terms are commonly used interchangeably, they do, in fact, have slightly different meanings. This difference pertains to their scope; a sector refers to a large segment of the economy, while the term industry describes a much more specific group of companies or businesses.

A sector is one of a few general segments in the economy within which a large group of businesses can be categorized. An economy can be broken down into about a dozen sectors, which can describe nearly all of the business activity in that economy. For example, the basic materials sector is the segment of the economy in which business deal in the business of exploration, processing and selling the basic materials such as gold, silver or aluminum which are used by other sectors of the economy.

Each of the dozen or so sectors will have a varying number of industries. . . . For example, the financial sector can be broken down into industries such as asset management, life insurance or as e.g., northwest regional banks. The Northwest regional bank industry, which is part of the financial sector, will only contain businesses that operate banks in the Northwestern states – a geographical approach.

An industry, according to (Langager 2010), on the other hand, describes a much more specific grouping of businesses with highly similar business activities. Essentially, industries are created by further breaking down sectors into more defined groupings.

Porter (1985) defined and agreed upon the term industry as referred:

to the environment and the forces close to a business that affect its ability to offer its value propositions to customers and make a profit.

6.1.1 The “Barriers” or “Borders” of BMES Markets, Industries, Sectors and Clusters

Porter argued that a change in any of five forces – buyers, suppliers, new entrants, substitutes and exit and entry barriers – normally would require that a business had to re-assess “the marketplace” given the overall change in industry formation. The overall industry, according to Porter, does not imply that every business in the industry has the same value formula (Lindgren and Rasmussen 2013) as businesses apply their business models differently.

The industry could in this sense be regarded as equivalent to a BMES – however, it must still be taken into account that Porter’s argument concerns business operating in an industry and not businesses operating with one or more business models (Markides and Charitou 2004, Markides 2008, 2013; Casadesus-Masanell and Ricart 2010; Lindgren and Rasmussen 2013). Therefore – according to our findings – Porter may be lacking more or less some fundamental dimensions of a BMES – the value chain functions, the competence, the value formula and not least the relations of the BMES. Further, most cluster, sector and industry frameworks come out of a geographical and physical notation – “thought world” (Dougherty 1992). Porter argued that clusters and industries help productivity, boost innovation and encourage new businesses to evolve. Porter also claimed that businesses’ geographical proximity, their close competition with each other and the growth of specialized suppliers and production networks around them made a winning combination.

However many clusters and industries globally seem to be ailing these days – like many ecosystems in biology today – for example, because they are victims of low-cost competition, or in biological ecosystems they are “squeezed” out of their ecosystems by “smarter” species that have adapted to change in the fundamental conditions of the ecosystem with different wants, needs and demands. They “play” a “different model” for survival and growth.

In Como, Italy, for example, an old cluster of silk businesses had for a long time been ailing, as was an old wool cluster around Biella together with the Castellanza cluster. Globalization – a typical changer and influencer of the BMES’s basic conditions – had simply made clustering and the formation of industries in this area far less certain – perhaps no longer meaningful.

Business today seems not to be able to protect itself and hide behind borders any longer – the barriers and borders of clusters, sectors or industries as Porter proposed previously (Porter 1985). More open trade, improved transport links and the internet among other explanations mean that bunching together in a cluster, sector or an industry no longer offers strong defence against, for example, cheaper foreign rivals – or business with different BMs. Italy’s medium-sized industrial businesses, for example, must adapt to the

threat from China and the benefit they previously got from being bunched together in a cluster seems to be weakening (Helg 1999).

Fragmentation of production, value chains and outsourcing abroad are clear signs that businesses have become less competitive, are weakening the networks on which their clusters were built and may even face destroying their previous competitive advantage by clustering or acting as if clustering, sectors and industries still exist.

Successful BMESs in the future may have to be established and look different from those we know of in the past. The approach to the term “BMES” and our view of BMES may have to be seen differently from previous terms like industry, sector and cluster, surrounded by and related to physical and geographical borders. Context borders and approaches might be giving us different and even better strategic advantages than previous terms and “thought worlds”.

A deeper and new understanding of the BMES could therefore maybe give us some different and new answers as to why some BMESs are successful and others not – and why a BMES terminology that is more context based could be valuable to future BMI and business model innovation leadership (BMIL) (Lindgren 2012).

6.1.2 The “Barriers” or “Borders” of BMES

Porter introduced the terminology of “barriers” related to industries. In a BMES context we propose to increase this terminology as not just defined as related to physical and geographical barriers surrounding the BMES – but also as related to the digital, virtual and, maybe even more important, the perceptual barriers of the BMES. We propose that barriers in a BMES are context based and really dependent on “who is seeing and sensing” the barriers – or “borders” of the BMES. A BMES formation – we propose – can be much wider than Porter’s industry and cluster term – and even cross or mix previous traditionally defined cluster and industry barriers. We claim that this can be an important explanation of why clusters, sectors and industries are suffering today – and some even vanishing – because they try to protect themselves behind barriers that really no longer exist, other business do not see – except in their or others’ (governments’, societies’ or even academics’) perceptual picture, viewpoint and mental mindset.

The threat of substitute BMs, the threat of established rivals, and the threat of new entrants – **the three forces of horizontal competition** – and the bargaining power of suppliers and the bargaining power of customers – **the two forces from ‘vertical’ competition** – have previously (Porter 1985)

been regarded as deciding the “BM organization in the industry” – in our term the “BMES culture” – according to Porter, the degree of rivalry between businesses’ BMs.

However, as we have seen, previous cluster, sector and industry terminologies were very much defined as related to **the business** and **a single business** – whereas the BMES terminology is related to the BM and the manifold of BMs that a business really has and potentially can create. As we argue, businesses have more than one business model (Lindgren and Rasmussen 2013) and business are seldom represented with all their BMs in one BMES, but with “parts of the business” – one or more BMs – in one BMES and other BMs in different BMESs. Therefore, we can say:

A business model ecosystem represents more business models from more businesses.

A business is seldom represented in just one business model ecosystem but is more often represented by different BMs in more business model ecosystems.

Figure 6.1 shows a conceptual model of one BMES, with a business offering some of its BMs to the BMES – the unbroken-line triangle – and the dotted lined triangles representing potential BMESs that the business is not yet part of.

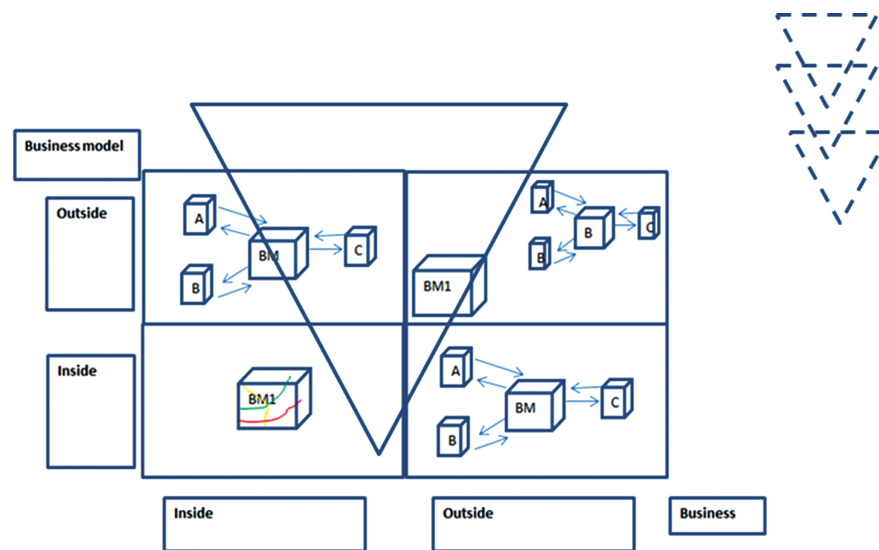


Figure 6.1 Business models and business model ecosystems.

Source: Lindgren and Rasmussen 2012.

6.1.3 Energy in a BMES

The flow of energy through any ecosystem is classically considered as its primary driver according to Lindemann (1940). The flow of energy in an industry, sector and cluster has not yet been fully verified – however some claim that profit is the main driver of any business and, thereby, industry (Max 1867). Lately we have seen that many business ecosystems' real drivers seem to be related to value other than profit (Amidon 2008). In our BMES research we found that the flow of value is one driver of BMES (Amidon 2008, Allee and Schwabe 2011, Lindgren and Rasmussen 2013). However, we found that there may be more drivers to BMES but that profit and also other values seemingly play fundamental roles in any BMES's, business's and BM's "energy" and their "triggers" to make value, create, capture, deliver, receive and consume.

A "system approach" has earlier allowed detailed studies of ecosystems energy and material flow (Odum 1953). A value stream analysis of a BM (Allee and Schwabe 2011) also allows a preliminary study of some of the BMES's value flows (OMG 2015). We claim that values are exchanged through BMESs' internal tangible and intangible relations – and also between BMESs' external tangible and intangible relations. The last we note here as a hypothesis as we have not yet been able in large scale to verify empirically value stream flow between different BMESs. Research (Amidon 2008; Russell 2011), however, claims this is the case.

6.1.4 Business Model Innovation in a BMES

The different BMs participate together in BMES to create, capture, deliver, receive and consume (Lindgren and Rasmussen 2013) value, which also sets the competence and capabilities of any BMES but at the same time also – we claim – the limits of business model innovation (BMI) and potential of BMI in a BMES. This is why some businesses take out their BMs from some BMESs and offer them to other BMESs (Chesbrough 2007) – as they consider some BMESs more sustainable and valuable than other BMESs in the future. For example, some fossil energy businesses in early 2000 slowly began to move from the fossil BMES and enter renewable energy BMES (EON, Shell, Statoil, Dong). IBM also showed this trend by leaving the personal computer BMES and focusing on the service BMES.

The amount of competence inside each BMES's BMs and the amount of value flow from BMs in and out of a BMES – we claim – sets the limits of the BMES's BMI competence, capability, growth and even survival potential. It is vital to any BMES to know about its competences and it is essential to any

BMES to receive value, be able to capture value – preferably new value – and also to be able to consume the value offered. However – and this has not yet been focused upon much in research – any BMES also over time has to be able to relate and deliver value to other BMESs. Very few BMESs over time can stay as a lonely island – an isolated BMES. BMESs need to relate and interact with other BMESs otherwise they will be challenged.

6.1.5 The Business Model Ecosystem Relation Axiom

The flow of value in and out a BMES can be mapped in any BMES and its BMI processes (Lindgren and Rasmussen 2013). Therefore it is important to view any BMES from different “perspectives”, which Figure 6.2 illustrates.

Figure 6.2 shows a model of value flow from the different viewpoints of a BMES:

Quadrant 1 – Internal to the individual BMES – A part of a BM’s value flow inside a BMES – an example is the different business BM value flow in windmill BMES.

Quadrant 2 – BMESs vertically related – BMESs related as suppliers and customers to each other in an “upstream” and “downstream” value flow – an example is the BMES value chain in Energy BMESs – the coal BMES to the electricity BMES to the household BMES.

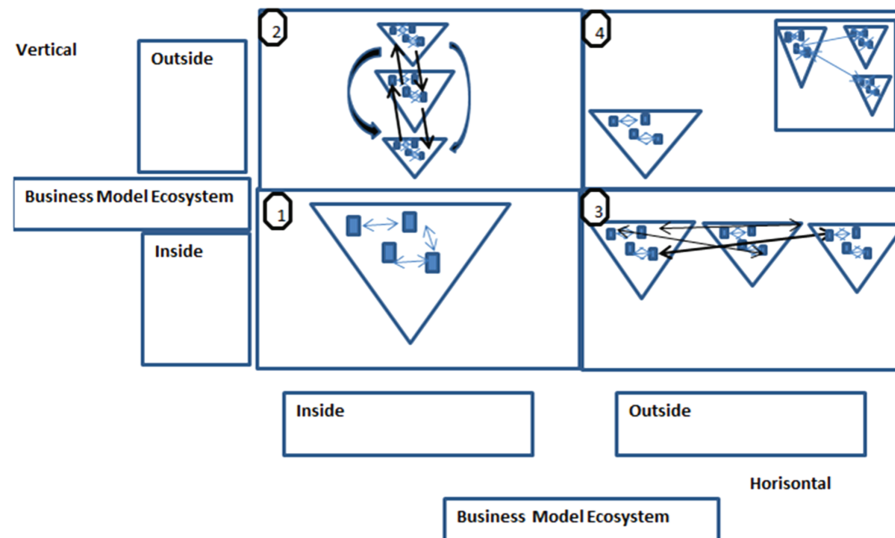


Figure 6.2 BMES relationship axiom inspired by Lindgren and Rasmussen 2013.

Quadrant 3 – BMESs horizontally related – BMESs related as “colleges” in related BMESs – an example is oil, gas and solar electricity in energy production.

Quadrant 4 – BMESs not related – BMESs that are not related to others and make no value exchange. Examples are the windmill BMES and the circus BMES.

Any BMESs are highly dependent, influenced and related to both negative and positive values and value streams from other BMESs. However, value cannot flow between BMESs without one or more relations being created between the different BMESs. This also means that potential value of a BMES cannot be transferred and used in another BMES without relations being established. The study of value flow and relations inside and outside BMESs thereby becomes important to focus on – to verify there are relations and value transfer through the relations – and which BMESs these occur between. A BMES’s relations and its BMs’ relations to other BMs in different BMESs are fundamental to map carefully to understand the status of a BMES and its potential to BMI. Otherwise it will be nearly impossible to understand the construction and context of a BMES and its growth, survival and potential development.

6.2 Design/Methodology/Approach

The methodology applied in this chapter is structured around deductive reasoning. First, a theoretical background of BMES theory on each dimension of a BMES is presented to provide a foundation. To verify the existence of the dimensions of the BMES and the usability of the BMES, four BMES cases are presented – Danish Energy, Danish Renewable Energy, Suppliers to Danish Energy and HI Fair. To “stress test” the generic use of the BMES framework, the cases represent four very different BMESs with different contexts of BMES dimensions and components. All cases were chosen to exemplify the concept of the BMES in different stages of a BMES life cycle right from construction of a “to-be” BMES to operating as an “as-is” BMES and then a BMES that has lain down to die, prepared to vanish from the scene.

The information and data from the cases were gathered through active participative research (Wadsworth 1998) carried out over seven years in the EU FP 7 IOT project Neffics (Neffics 2012) (2008–2013) and EU Wind in Competence project (2011–2014). Based on these cases supplemented with other empirical cases and tests, a final approach to a definition of the BMES concept is formulated. This is discussed and illustrated in the following paragraphs.

6.3 Characteristics and Dimensions of a Business Model Ecosystem (BMES)

An ecosystem is traditionally regarded as “a community of living organisms” (plants, animals and microbes) in conjunction with the non-living components of their environment (things like air, water and mineral soil), interacting as a system. A BMES is proposed analogically as a “community of living BMs” where different businesses offer their “as-is BM” and develop their “to-be BM” in conjunction with the BMES environment (things like technologies, human resources, organizational structure and culture). In this context and in our approach, BMs that are under construction are also “living” BMs in the BMES as these use energy and competences of the BMES in innovating these “to-be” BMs.

We distinguish here from other frameworks (e.g. Porter) by focusing on the BMs and not the business as forming the BMES. We argue that businesses offer their BMs to the BMES – but very seldom their total number of BMs and thereby their total business. In our research (on the windmill BMES, valve BMES, fair BMES, building BMES, furniture BMES, food BMES food tech BMES and energy BMES) we found that businesses seldom offer all their BMs in just one BMES. Businesses most often spread their BMs to more BMESs – to gain more business, spread risk strategically or because of other reasons. Our research showed that business who offer all or nearly all their BMs to one BMES often face a large strategy risk and are easier to put under value and cost pressure by customers, suppliers and competitors. The strategic best practice saying “stick to your core business” (Abell 1980) is therefore maybe not fully true in all business contexts because the business can be strategically trapped in one BMES by doing so. The saying “focus on your core competence” (Prahalad and Hamel 1990) can be true, when a business offers the same value proposition to more BMESs than one – but can be strategically risky if BMES context bases change.

We distinguish most industry, sector and cluster research and approaches from the BMES approach, as they do not consider and include the “to-be” BM as part of the BMES but what they call a market (Kotler 1983), industry (Porter 1985) or cluster (Porter 1985). We argue that “to-be” BMs are an equally important part of and valuable to any BMES or to many BMESs as there are, for example, customers, suppliers and value propositions that are “flowing” into and out of the BMES and thereby strongly influence the BMES, although these BMs are not fully developed. As an example, we found that “to-be” app and new gaming software development in the Silicon Valley incubation environment are influencing the “as-is” BMs in the app and software BMESs

and some of these “to-be” BMs are even “traded” before final launch – even at idea and concept phase.

We acknowledge that many businesses and societies put their primary focus on – and borders around – the BMES’s “as-is” BMs – but we point out that this is not giving the full picture and understanding of all BMs, dimensions and characteristics of a BMES. The “to-be” BMs and the proposed “to-be” BMs indeed influence and “value” the rest of the BMES’s BMs. Businesses use tremendous resources and energy from the BMES and even other BMESs to carry out their BMI. The BMESs also use energy to protect their “as-is” BMs from “to-be” BMs. “To-be” BMs can be serious and important drivers in the change of “as-is” BMs in the BMES and can also be the source – and give energy – to changing the organizational system and whole culture in a BMES, even in vertically and horizontally related BMESs. Amazon, iTunes and Netflix are just some examples of businesses whose BMs have influenced BMESs that are full of vitality in retail, music and film. “To-be” BMs can disrupt BMESs and sometimes be the drivers to revitalize existing BMESs and related BMESs. “To-be” BMs can naturally be the driver to the establishment of new BMESs, of which Second Life, World of Warcraft and the Tinder Box Festival in Denmark (Tinderbox.dk) are examples.

6.3.1 How Can the “Borders” to BMES be Defined?

Physical borders like land, countries and continents have for many years been regarded as the borders to markets, industries, sectors, clusters and even businesses. Digital and virtual borders in cyberspace such as Google Search, Apple iTunes, Blizzard (World of Warcraft, Zynga) Farmvillage, Viasat TV platform and TDC mobile network are just some examples of BMESs which do not follow these borders, but different ones, often independent of the physical world. Some digital and virtual BMES are free to the user to access (Google Search, Wikipedia) – others are not (Disney World Paris, Legoland Billund). In the latter, you have to be a customer to gain access. Digital and virtual BMESs do most often not stick to the physical borders of yesterday; they push us to change our previous understanding of markets, industry, sectors and clusters.

Kotler (1983) described a market as consisting of values offered to customers to fulfil their wants, needs and demands. Markets consist of customers and suppliers who exchange their values (products and services) for money. Market leaders and market followers compete with each other and prevent new entrants entering the market. Kotler also described markets with special demands for value as “niche markets” and those with indifferent demands as

“mass markets”. These are small BMESs – ecosystems or communities with special or indifferent value demands. The customers’ value demands and the supplier’s value offers act as borders for “the ecosystem” and the money is the final determinant of whether a market exists or not.

Porter (1985) described it somehow differently. He defined entry and exit barriers – “borders” – to industry: “exit barriers” prevent businesses slipping out of the industry and “entry barriers” prevent substitutes and new entrants slipping into the industry. These are obstacles that make it difficult to both exit and enter an given industry, hindrances – such as capital investment, government regulations, taxes and patents, or a large, established business taking advantage of economies of scale – that a business faces in trying to exit an enter an industry with its BMs. They can also be the lack of competences a business faces in trying to gain entrance to a profession – such as technology requirements, education or licensing requirements, organizational requirements or cultural practice. Because entry barriers protect incumbent businesses and restrict competition in an industry, they can contribute to distortionary value formulae. The existence of monopolies or industry power often aids barriers to entry – and thereby “the borders” of an industry.

Both Kotler and Porter describe “ecosystems”, such as special habits, rules and practice (“culture” (Kotler 1983)), B2C markets, B2B markets (Porter 1985), rivalry, cost leaders, niche and focus strategies. However, the business environment seems in many cases only to be true if these borders really exist. We claim that they might not exist any more or are quickly vanishing.

It seems that they have begun to change or have even vanished since the early 1980s especially with the internet pushing and disrupting borders of markets, industries, sectors and clusters. The internet also provides the opportunity to act in physical, digital and virtual BMESs simultaneously or in an integrated way.

So to answer the question “What are the borders to a BMES?” it might be valuable to rethink the term barriers and borders – and instead think of them as context based. In this case we commence our inspiration and draw an analogy with the science of ecology.

The biotic and abiotic components of an ecosystem have been regarded as linked together through nutrient cycles and energy flows. A **nutrient cycle** is the movement and exchange of organic and inorganic matter back into the production of living matter. The process is regulated by **food** pathways that decompose matter into mineral nutrients. Nutrient cycles occur within ecosystems. Ecosystems are interconnected systems where matter and energy flows and is exchanged as organisms feed,

digest, and migrate about. Minerals and nutrients accumulate in varied densities and uneven configurations across the planet. Ecosystems recycle locally, converting mineral nutrients into the production of biomass, and on a larger scale they participate in a global system of inputs and outputs where matter is exchanged and transported through a larger system of biogeochemical cycles. (Chapin et al. 2002)

Ecosystems have been defined by the network of interactions among organisms, and between organisms and their environment: the ecosystems are said to be of any size but usually encompass specific, limited spaces (Chapin et al. 2002; Schulze et al. 2005). However, some scientists even say that the entire planet is an ecosystem (Willis 1997; Schulze et al. 2005; Krebs 2009) – indicating that the borders of ecosystems depend on the context and the viewpoint of the viewer(s).

The tangible and intangible dimensions and components of a BMES are proposed as linked together through relations (Amidon 2008; Allee and Schwabe 2011; Russell 2012). Relations “bind” BMs “context wise” in BMES and they are the “channels” – equal to “pathways” in ecology research – in which values are carried from one BM dimension to another. Relations set the borders for how far the value proposition of a BMES’s BMs can reach out and potentially exchange values with other BMs – either inside or outside the BMES. Relations are the vital dimension in a BM and a BMES that can carry value – thereby enabling value exchange and fulfilling a value cycle or a value flow.

When BMs in a BMES are related they can potentially exchange value – but there is no guarantee for value flow and value exchange. Value flow and value exchange are dependent on the value cycle taking place, which means that value will be created, captured, delivered, received and consumed. Obviously much can go wrong or not happen in the value flow process. It depends on many things that are equivalent to the nutrient cycle and “energy flow” in a biological ecosystem, the electricity flow in an electrical system or the heating flow in a heating system. In BMES BMI motivation, trust, ownership, technology, people, organizational systems and culture as examples influence whether value flow and value exchange will and can take place. Relation mapping (Amidon 2008; Russell 2012) can help us to understand better and show which BMs and BMESs carry out which value flow. It can also show how values are exchanged (Allee and Schwabe 2011) between BMs – both tangible and intangible values.

Relations between BMs and BMESs can be both tangible and intangible – and therefore it can be rather complex to study and map BM and BMES value flow, connections of tangible and intangible relations – analogous to nutrient

cycles and energy flow study. Mapping of relations in and between BMESs can be even more complex when culture and spiritual dimensions are also taken into consideration (Saghaug and Lindgren 2010).

The motivation and incitements in BMESs and between BMESs to relate have until now not been particularly addressed in research (Lindgren et al. 2014) – but they can be studied through the value flows, value transaction and value network mapping in BMI. Our hypothesis is that there can be more sources than motivation.

To motivate, or trigger, a BMI flow – and a valuable BMI flow – it is necessary and vital to any BMES to exchange value through relations and thereby enable the foundation of all BMI – the learning process (Caffyn and Grantham 2003) – in the BMES. It is important – and vital – to BMESs and BMs that knowledge flow and learning loops happen in BMESs and between BMESs. Any BMESs can benefit from “value adding” knowledge and, conversely, can suffer from its lack.

Learning and motivation to learn is therefore fundamental to any BMI (Lindgren et al. 2014). Motivation to learn is therefore an important trigger or driver to commence a value flow and value exchange.

Energy, water, nitrogen and soil minerals are essential abiotic components of any ecosystem. Analogically, competences (technology, human resources, organizational systems and culture) (Lindgren, Taran et al. 2010) embedded in BMES BMs are essential components of any BMES. Competences can be developed and grow – but can also be diminished, shrink and even vanish in a BMES. Competence can simply disappear or leave the BMES as value flows out – as production leaves a BMES (the Como silk cluster), but also as value flows into the BMES (the Silicon Valley Case).

Value that flows into the BMES can, however, also destroy built up competences inside the BMES and its BMS. We found in our research that both value that flows out and value that flows in can be one of the important reasons as to why some BMESs shrink, collapse and even disappear (windmill, textile and furniture BMESs).

The reasons as to why competence leaves BMs and BMES can be multiple. One could be that competence is forced to leave – Western production in textile, furniture, windmill production and many other industries have left for Asia due to a motivation and perception in the businesses involved of lower production cost, access to new markets and maybe a perception of the possibility of creating a better value formula. Thereby the Western production in these BMESs slowly vanishes as they transfer their competences – technology, HR, organizational system and culture – to, for example, Asia. A “single loop” or a “one way” value flow transfers from one BMES to another BMES.

However, these cases do not obviously increase learning and BMI in the BMES, giving away and sharing value with other BMESs – in this case valuable competences. “Double loop” value flow can conversely – if the receivers of the value are able to capture, receive, consume and create new knowledge and deliver value back to the BMES – enable competence development in the first BMES. A BMES can thereby work as a competence-adding mechanism but also its opposite – either by just giving away value and competences or by developing new value and new competences and sharing these with other BMESs. BMES survival is strongly tied to the capability to continually develop and improve competences – by learning and attracting new value.

Competence of a BMES – the sum of all the BMES BM’s competences – therefore makes BMES more or less attractive and thereby vulnerable. Competence is therefore without question a vital dimension (Prahalad 1990) in any BMES – however, paradoxically, it is often still a neglected dimension. Many European and Asian BMESs want, for example, to learn from “the Silicon Valley BMES” competences – learn how to innovate new BMs and business, as, for example, Google, Facebook, Apple and Twitter do, and how to become a sustainable BMES. We believe that continuously learning and knowledge sharing together with motivation to learn from other BMESs are important secrets and essentials to the success of “The Silicon Valley BMES”. Silicon Valley has understood the importance of relating to and attracting other BMESs or knowledge zones (Amidon 2008).

6.3.2 “Energy” of Business Model Ecosystems

Living ecosystems – and BMESs – require energy to stay alive. BMESs require available energy to stay alive, grow and even be born. Energy can be stored in the competences of the BMES BMs – or in other BMES BMs – they “only” have to be released (Lindgren and Rasmussen 2013).

BMESs require knowledge of how to release the energy stored in the competences of BMES BMs. The oil industry has the competence (technology, HR, organizational systems and culture) to release oil from “deep under” – but it also has the knowledge inside the BMES to know how to release the oil. The knowledge – how to – is embedded in its BMES competences. If the knowledge – how to – was nonexistent in the BMES, the oil could not be “brought up” or would have to be “brought up” by other BMESs from outside.

The earth receives energy from the geothermal energy contained within it and is sensitive to changes in the amount of energy received. Energy is valuable to the earth – but also to any BMES. A BMES receives value from

other BMESs – visible or invisible – and develops the basis of this energy – sometimes in interaction with other BMES’s BMs. The BMES, however, also develops energy via the interaction between BMs inside the BMES. We propose that the biological ecosystem and the BMES function in much the same way regarding energy development.

Energy is also stored in the competences of other BMES BMs. Living ecosystems like, for example, the Earth, receive energy from the sun – some would say the sun was an ecosystem outside the Earth’s ecosystem; others would increase the Earth’s ecosystem to also include the sun. We propose this discussion to be context based related to BMESs as they can receive energy from other BMESs – but a judgement on this is made based on who “sees” and from which viewpoint.

There are, however, different forms of energy. Common energy forms, according to Chapin et al. (2002), include the **kinetic energy** of a moving object, the **radiant energy** carried by light and other electromagnetic radiation, the **potential energy** stored by virtue of the position of an object in a force field such as a gravitational, electric or magnetic field, and the **thermal energy** which comprises the microscopic **kinetic** and **potential energies** of the disordered motions of the particles making up matter. Some specific forms of potential energy include **elastic energy** due to the stretching or deformation of solid objects and **chemical energy** such as is released when a fuel burns. Any object that has mass when stationary, such as a piece of ordinary matter, is said to have rest mass, or an equivalent amount of energy whose form is called **rest energy**, though this isn’t immediately apparent in everyday phenomena described by classical physics.

We propose that BMESs also have or develop different forms of energy – however this we have not researched yet and define it terminologically.

Our sun transforms nuclear potential energy to other forms of energy; its total mass does not decrease due to that itself (since it still contains the same total energy even if in different forms), but its mass does decrease when the energy escapes out to its surroundings, largely as radiant energy. Therefore eventually, someday, the sun will stop shining and transforming value and energy into its surroundings. BMESs and BMs also transform potential energy – value and competences – to other forms of energy – value and competences. The total “mass” of a BMES or a BM as a result of the value transformation flow does not reduce either, but as in an ecosystem or in the case of the sun the BMES’s and BM’s mass does decrease when value or competences escape out to other BMESs or BMs – “single loop” value and competence flow – except when the BMES and its BMs receive value and energy from BMESs outside.

Although any energy in any single form can be transformed into another form, the law of conservation of energy states that the total energy of a system can only change if energy is transferred into or out of the system. This means that it is impossible to create or destroy energy. Any competence in any single form – technological, human, organizational system and culture – can be transformed into another form – inside the BMs, into other internal BMs in the BMES or outside to other BMs in other BMESs. This also means that in BMESs it is impossible to destroy value and competences – but value and competences can vanish to other BMs and BMESs – or as we have seen in several of our cases in our researches (Newgibm case research 2006; Blue Ocean case research 2008; WIB 2012, ICI case research 2013; Neffics 2012; SET cases 2014; EV Metalværk 2014), it can rest as hidden values and competences (Lindgren and Saghaug 2012) inside a BM or a BMES.

6.4 Introduction to the Business Model Ecosystem (BMES)

The focus is not on the BM but on the BMES and the dimensions and construction of BMES which any BMs are a part of. Although this is not sufficient to cover the whole BMES theory framework approach as it is just one focus of probably many viewpoints of BMES; it is an attempt to describe a fragmented part of the whole business model environment, research and discussion.

We try to find the dimensions and components of BMES that everybody seems to acknowledge and add those we believe are missing. We try to merge those dimensions which are overlapping and we try to take out those dimensions that are not vital for BMES. From this point of entry, we test our BMES dimensions in four BMES case studies to verify empirically our hypothesis of the existence of seven dimensions of any BMES.

6.5 Dimensions, Concepts and Language of a Business Model Ecosystem (BMES)

From acknowledged academic works and our research work with the dimensions of a business model and business, we found some generic dimensions that support the idea that any BMES could also with preference be defined by seven generic dimensions.

6.5.1 Value Proposition Dimension of a BMES

All businesses we investigated offer values to either BMs inside the BMES and/or to BMs outside the BMES. The BMES value proposition seems to be

a “mirror” of the BM’s value propositions individually and together inside the BMES. We define these as the BMES value proposition offered to other BMs either as one BM to another or more BMs together as a shared value proposition of the BMES. Value propositions from a BMES can be offered in the form of products, services and/or processes of services and products.

6.5.2 Customers and/or User Dimension of a BMES

A BMES serves customers and/or users (Appendix 1).

A successful *BMES* is one that has found a way to create, capture, deliver, receive and consume value for its users and customers – that has found “*a way*” to help customers *and users of a BMES* to get an important job done – “*solve pains*” and “*create gains*” for its “*users*” and “*customers*”. “It’s not possible to invent or reinvent a BMES without first identifying a clear customer and/or user base”.

Here, we draw a distinction between customers and users of a BMES. Customers of the BMES pay with money – “there is no BMES marked – Business of a BMES – if the customers of a BMES do not pay” (adapted from Kotler 1984), whereas users of a BMES pay with other values (von Hippel 2005) than money. Business model theory (Appendix 1) has mainly considered the business model related to customers. However, as we have verified in our research (Lindgren and Rasmussen 2013) users can be highly valuable to a BMES by “paying” with other values (Facebook, Google). Industry, sector and clusters mostly focus on money but do also consider other values as payment to a BMES.

6.5.3 Value Chain Functions (Internal Part) Dimension

Any operating BMES has functions that it has to carry out and which enables the BMES to “offer” the value propositions to its customers and users. A value chain function list including primary and secondary functions of a BMES can be created. Primary functions can be inbound logistics, operation, outbound logistics, marketing and sales, service; and secondary functions – support functions – can be procurement, human resource management, administration and finance infrastructure, business model ecosystem innovation. These do not have to all be present and carried out to have the BMES operating.

Any operating BMES needs to have someone to carry out these functions to enable it to create, capture, deliver, receive and consume a value proposition to and from its users, customers and network. These can either be carried out by its own users, customers, competence and network or by other BMESs.

6.5.4 Competences Dimension

In BMs we have earlier (Lindgren and Rasmussen 2013), inspired by Prahalad and Hamel (1990) divided competences in to four groups – technology, human resources, organizational system and culture. In a BMES we also consider the competence dimension to be technology, human resource, organizational system and culture with the different BMs “pooling” their competences. The pool of these competences forms the “shared competences” available in the BMES.

6.5.5 Network Dimension

We acknowledge that some BMESs sometimes regard themselves as isolated from other BMESs or do not relate to others. We argue that any BMES, whether they want it or not, are in a network of BMESs – and that these networks of BMESs can be physical, digital and/or virtual (Goldman et al. 1995; Whinston et al. 1997; Child and Faulkner 1998; Child et al. 2005; Vervest et al. 2005; Lindgren 2011). We found that the most “successful” BMES is the one that has found a way to create value for its network of BMESs, to help the network of BMESs and/or to get an important job done for the network of BMESs.

Some BMESs mention or communicate openly the BMES network in which they exist and collaborate – others do not. Many BMESs do not understand and often do not acknowledge value which they receive from other BMESs before it is too late and they are in risk of vanishing, or being punished or restricted.

6.5.6 Relation Dimension

Business models are related through tangible and intangible relations (Provan 1983; Provan et al. 2007; Provan and Kenis 2008; Allee and Schwabe 2011) to other business models (Håkansson and Snehota 1990; Amidon 2008; Russell 2012; Lindgren and Rasmussen 2013). Businesses are related through strong and weak ties (Granovetter 1973). As BMESs are a construction of BMs it seems also obvious that these are to be related through tangible and intangible relations – and also with strong and weak ties. BMESs send value propositions to other BMESs through relations and receive value propositions from other BMESs through relations. Relations can be one to one or one to many. Relations can be visible and invisible to humans or machines (Lindgren 2012). Tangible and intangible relations are used in the BMES to deliver and receive values (Allee and Schwabe 2011). BMESs relate their BMs’ value proposition, users/customers, value chain functions, competences and network through relations. Relations are used for creating, capturing, delivering, receiving and consuming values.

6.5.7 Value Formula Dimension

Any BMES uses some kind of formula to calculate the value it offers to its own BMES or other BMESs. The value formula shows how the value proposition delivered is calculated by the BMES. The result of this calculation is a value formula either expressed in money and/or other values.

It has been documented that the BMES operates and is influenced by its BMES environment – external environmental factors. In this chapter, we leave out these external environmental factors (political, economic, social, technical, environmental, legal (PESTEL)), conditions and competitive contexts and environment dimensions, acknowledging that the BMES’s external environment is important and critical to its survival and growth. However, we believe that these environmental factors are outputs from other BMESs.

The seven dimensions mentioned in this section of the chapter are equivalent to the overall model we propose to show how any business and business model is constructed (Lindgren and Rasmussen 2013). The seven dimensions we propose should also be considered by any BMES. However, there is a difference between the way businesses want to run their operations in a BMES – seven visionary dimensions of a business – and how a business really runs its operations in a BMES. By mapping empirical data from our BMES case studies to the seven dimensions, we found that business run their BMs differently in a BMES and most businesses have more than one BM in a BMES. In other words, the businesses they described via the seven dimensions are different to how they actually run their business models in the BMES. Some of these business models were close to their original description of the seven dimensions but others were different. This often challenges the survival and growth of a BMES – but it also drives the development, organizational system, culture and vitality of a BMES. If more businesses begin to run their BMs out of “sync” with the BMES’s overall vision, mission and the goals of the seven dimensions then the BMES can be challenged and eventually be disrupted, torn apart and vanish.

This places our attention on the “download”, “see” and “sense” approach to the BMES using the perspective that BMESs have more BMs that are different as seen in Figure 6.3. We address the importance of continuously investigating BMESs and their BMs and innovation of BMESs to “picture” the distinction between the “visionary model” of the BMES and the BMs of business that are actually carried out (“as-is” BM) and are intended to be carried out (“to-be” BM) in the BMES. Herein, we believe, lays the “seed” to BMESs’ survival.

This observation, together with inspiration from Abell’s and Hamel’s original definitions and framework of “the core business” (Abell 1980) and “the

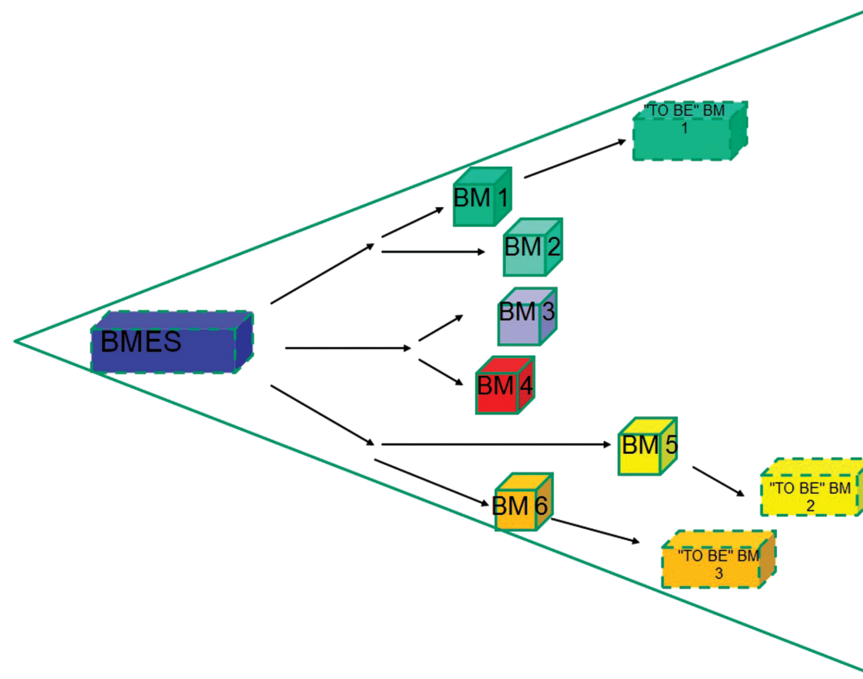


Figure 6.3 The multi business model approach related to a BMES.

core competence” (Hamel and Prahalad 1994), made us draw an analogy with the definition of “the BMES” as the BMES context – and the visionary level states how BMESs are related to the seven dimensions mentioned in this section of the chapter.

The core of the BMES refers, therefore, in this perspective to:

How a BMES is constructed and intends to operate its “main” and “essential” business related to the seven BMES dimensions – value proposition, user and/or customer groups, value chain (internal functions), competence, network, relations and value formula.

In this context we acknowledge that some BMESs operate without a strong vision, strategy or intention – others not – or that these evolve as the BMES grows, lives and dies.

In our research, we found that many BMESs do not stick strictly to their core business and how they were meant or intended to run and be. They have, in fact, a variety and mix of BMs which sometimes have different value propositions, users and customers, value chains with different functions, competences, networks, relations and value formulae – they cross “the borders” of “the core BMESs”. One set of dimensions of a BMES does not always fit all

Table 6.1 Generic dimensions of a BMES

Core dimensions in a BMES (each can be physical, digital or virtual)	Core questions related to dimensions in a BMES
Value proposition/s (products, services and processes) that the BMES offers	What value propositions does the BMES provide?
Customer/s and users that the BMES serves – geographies as well as physical, digital, virtual	Who does the BMES serve?
Value chain functions (internal)	What value chain functions does the BMES provide?
Competences (technologies, HR, organizational system, culture)	What are the BMES's competences?
Network: network and network partners (strategic partners, suppliers and others)	What are the BMES's networks?
Relations(s)	What are the BMES's relations?
Value formula (profit formulae and other value formulae)	What are the BMES's value formulae?

BMs and businesses. This mix of dimensions – which we classify as different BMs – exists and coexists within the core business of the BMES – what we call BMs inside the business – but also exists and coexists outside the BMES. Individual BMs are not necessarily aligned strictly nor have to be aligned to the core business model of the BMES and the seven dimensions of the BMES.

We argue therefore that a BMES's different BMs cannot be explained by just one BM – “the core business model” of the BMES – but would preferably be better explained by different BMs in the BMES – still each with seven dimensions, but with different characteristics. In our research, we found many examples of different BMs operating in a BMES.

As a consequence, we propose that any BMES can be said to have more BMs offered by different businesses – the multi business model approach (Lindgren 2011) – which are more, less or not aligned with “the core business model” of a BMES. However, any of these BMs can be defined as related to an overall generic BMES BM consisting of seven generic dimensions. Each of the seven dimensions of a BMES addresses some core questions in relation to each individual BMES's dimension's characteristics and logic (see Table 6.1).

6.6 The BMES BM's Dimensions and Component Level

Each BMES can be divided into different dimensions and components. We now exemplify the BMES dimensions and components by explaining firstly how each dimension and component in any BMES can be different and then how they can be characterized on a BMES dimension and component level.

6.6.1 The Value Proposition Dimension – “What Value Propositions Does the BMES Provide?” (VP)

BMes are key in understanding the value “offered” in a BMES. However, BMes vary in the BMES related to their different BMes’ dimensions – value proposition, users, customers ... the BMES’s value proposition is often very complex to understand in detail because it is not static but dynamic over time. The BMES’s value proposition is also complex to understand because it is often a mix of shared value propositions offered by more BMes. Therefore, the BMES’s value proposition has to be understood from different perspectives, for example of the BMES customer and/or user it is servicing, its network partners, by the context the BMES delivers its value proposition in, the time in which the BMES delivers its value proposition and the “place” where the value proposition is offered by the BMES (physical, digital or virtual). The BMES can be said to be closely connected to the concept of “the BMES’s total value and cost to its users, customer and network partners”. In this case, staying at the point of entry to a BMES or a BMES’s value proposition process over time is strongly related to the user’s, customer’s and network partner’s total perceived value and total perceived cost of the value proposition offered by the BMES. This is why it is incredibly difficult from the outside to measure, read the values and cost of a BMES and how the users, customer and network partners value it, and decide the degree of attractiveness of a BMES.

Classifying the value proposition of BMES is often different for each **user, customer, network over context, time and place**.

Inspired by Payne and Holt (1999) we outline four types of values related to values proposed by a BMES.

1. **Use value** – the properties and qualities which accomplish a use, work or service for the users, customers and network.

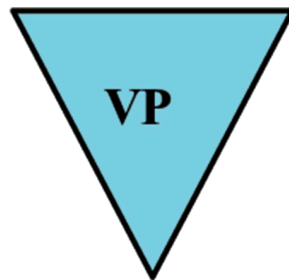


Figure 6.4 The value proposition dimension of a BMES.

2. **Esteem value** – the properties, features or attractiveness which inspire a desire to own the product, service or process in the users, customers and network.
3. **Cost value** – the sum of labour, materials, and various other costs required to produce value for the users, customers and network.
4. **Exchange value** – the properties or qualities which enable exchanging the value proposition for something else that the users, customers and network want.

We found that the list of types of BMES values that solve “the pains and gains” (Osterwalder 2014) of BMES users, customers and network has to be complemented by an overall dimension of the BMES work time vs. life time (Kirkeby 2000, 2003). Time as the factor that defines the BMES’s users’, customers’ and network’s personal or BM values of being part of the BMES – the, for example, trade or process related to an overall lifetime value perspective of the BMES – and describes the sum of actions taken in order to find work life-fulfilling and transcend the BM, a value often seen as the driver of the BMES (Tillich 1951; Austin and Devlin 2003; Sandberg 2007).

The value proposition of a BMES has to be measured **before, during** and **after** the BMES exists. This means that a BMES’s users, customers and network could trade or collaborate on the different value and cost the BMES offers but also on the value of the relationship that exist in the BMES and between BMESs. The creation, capturing, delivering, receiving and consumption of values from the BMES through its relations are the value creation, capturing, delivery, receiving and consumption of an “inter-BM organizational collaboration business” – a network-based BM business. This is one important value and also an attraction factor, which could be, in this case, a BMI of a “to-be” BMES – when existing BMES’s BMs are not enough. The value formula of this can be money to the BMs participating in the BMES (Apple’s App Store, YouTube, Food Tech 2014 Fair, Roskilde Rock Festival), but it could also be other values, e.g. learning, supporting a vision, a case (Greenpeace, the Red Cross, a political party). This is in line with research claiming that the value of relationship, activity links, resource ties, and actor’s bonds (Håkansson 1982; Axelsson and Easton 1992; Håkansson and Snehota 1995; Ford 2001; Ford et al. 2002, 2003) can be even more important than the value of money for products or services of a BMES. The value of the relationship of a BMES is both an input and an output of the BMES and BMES innovation process, which supports the argument that value and cost of a BMES are not static but dynamic.

As values are created, captured, delivered, received and consumed in a value process in the BMES; BMESs are continuously undergoing change

throughout the BMI process or the lifetime of a BMES. The values and cost of BMES relations can be related directly (e.g. profit, volume, safeguard functions) but also indirectly (e.g. innovation, market, scout, access functions). The value and cost functions can further be of a low- and/or high-performing character which is often up to the user's, customer's and network partner's judgement to influence the degree of this value and cost.

The value and cost of a BMES should also be understood as perceived value – benefits and cost (Woodruff 1997; Walter et al. 2001; Lindgren and Dreisler 2002), which means that the real value of BMES can in some cases be neglected in favour of a higher or lower perceived value of the BMES value proposition.

Furthermore, perceived value should not just be related only to each individual BM in the BMES but also to groups of BMs in the BMES – what we propose be called the portfolio level of a BMES. Therefore, it is the user's, customer's, competence's and network's interpretation of “value” and “cost” that is important and not just what “the business of the BMES”, its stakeholders (investors, the industry, sector, cluster), society and others think ought to be or are the values and cost of a BMES.

It is therefore very complex when analysing and understanding a BMES's product, service and/or process of value proposition, to analyse all BMs' and stakeholders' values, costs, perceived values and the costs of a BMES. Furthermore, it is important to analyse these over time, during trades or inter-BMES collaborative processes, as values and cost are dynamic and will therefore by definition always change throughout the entire value and cost innovation process and thereby over time. Today no industry, sector and cluster framework has managed to cover and capture value and cost change over time – from different viewpoints. The holistic picture of a BMES value proposition is still very blurred and very complex “to see” but opens up to a whole new way of viewing value contrary to the market, industry and cluster approach.

In summary, any BMES may offer a value proposition – tangible and/or intangible. Value proposition from a BMES can be expressed in value propositions but also in the values of relations. In fact, the values of a BMES can be seen at least from seven different viewpoints, which we comment on in Part 2 of this book.

6.6.2 Customers and Users Dimension – “Who Does the BMES Serve?” (CU)

All BMESs that we researched had users and customers. However, we found that many BMESs do not have customers that pay for the BMES's value

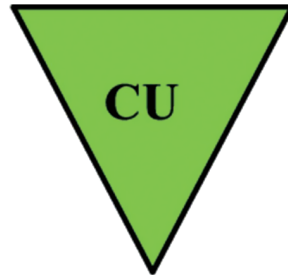


Figure 6.5 The customer and user dimension of a BMES.

proposition. Several BMESs are “just” constructed around users – maybe for a very limited time and a limited topic (Brent Spar Shell 2014), which provides the foundation for the BMES or even for other BMESs with customers related to the BMES – sponsorship, membership, likes, referrals. Facebook, Skype, LinkedIn, Twitter and Google could be examples of such BMES. This indicates that a complete mapping of the BMES BMs can be extremely difficult to establish – also because our research shows that BMs in different BMESs can be users and customers of the BMES in focus at the same time – but in very different contexts.

Our research showed that BMESs built upon users, when growing big in numbers of users, can attract and activate customers from other BMESs willing to buy or pay for value propositions in BMs in the BMES (Facebook, Skype, LinkedIn, Twitter and Google as examples again). Either users start to pay for better performance, advanced use, deeper content, for example, or other customers from other BMESs buy, for example, promotion, data, analytics because there are so many and valuable users in the BM. In these cases, the customers pay for other or different value propositions – or a different BM – as access to, for example, knowledge and learning about the users in the BMES is attractive. Stock buyers placed in a different BMES to Facebook and Alibaba.com BMESs could be an example of this.

6.6.3 Value Chain Functions (Internal) Dimension – “What Value Chain Functions Does the BMES Provide?” – (VC)

All BMESs carry out certain functions to produce the value proposition to the users and/or customers and network partners. Porter’s value chain framework was related to an operating business. However, when BMESs start to create a “to-be” BMES there are really no active activities, just wishes and expectations of value chain functions the BMES should carry out. Further, when

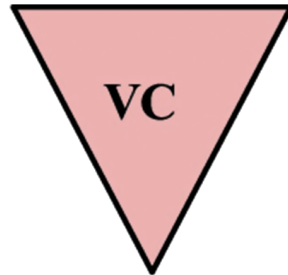


Figure 6.6 The value chain function dimension in BMES.

we observe an operating BMES at a certain moment – in this case, we freeze the picture of a specific BMES – we do not see “running” functions but just functions that are carried out. Value chain functions in our BMES framework represent the value chain functions that have to be carried out or are being carried out within the BMES – internal value chain functions in the BMES. We acknowledge that there are value chain functions outside the BMES but in our framework we only focus on the internal value chain functions of the BM.

6.6.4 Competence Dimension – “What are the BMES’s Competences?” (C)

All BMESs rely on and use competences, either from the focal BMES, from BMES network partners or even from BMES customers and users to carry out the value chain functions to be able to create, capture, deliver, receive and consume the value propositions of the BMES. As we have discussed, according to Prahalad and Hamel (1990) competences can be divided to four main categories: technologies, HR, organizational system and culture.

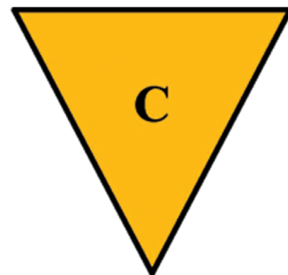


Figure 6.7 The competence dimension of a BMES.

Technologies within a BMES we divided into:

1. Product and service technologies of a BMES
2. Production technology – both “product- and service-production technologies” of a BMES
3. Process technology – that runs and steers the production technologies so that the product, service and production technologies can create, capture, deliver, receive and consume the value propositions of the BMES.

Each BMES has a specific mix, integration and use of product and service technologies, production technologies and process technologies. Sometimes the mix, integration and use of technologies is so unique to the BMES that the competence can be a core competence of a BMES in relation to other BMESs.

Human Resources are “the people” of the BMES placed in the BMs in the BMES.

Organizational system is what the BMES uses to organize the use of BMES technologies, human resources and culture to carry out the value chain functions.

Culture is the “soft” part of the competence dimension. We claim that any BMES has a specific culture.

6.6.5 Network – “What are the BMES’s Networks” (N)?

No BMES is a lonely island – at least not for very long. Why? Because if a BMES does not receive value from outside, our research shows that it will slowly shrink and vanish. If it does not offer a value proposition of any kind to another BMES it will not be able to receive value from a long-term perspective. The BMES network thereby becomes vital to any BMES.

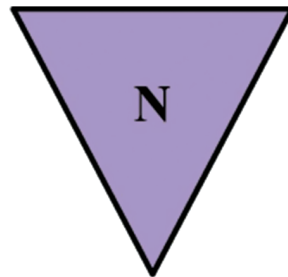


Figure 6.8 The network dimension of a BMES.

6.6.6 Relations Dimension – “What are the BMES’s Relations?” (R)

Any BMES relies on relations between BMs inside the BMES. In our research, we, however, found four sets of relations that are of importance to BMESs and should be attended to.

1. The “**inside BMES inside BMs**” area relations – business model relations transferring values inside the BMES BMs.
2. The “**inside BMES outside BMs**” area refers to relations between different BMs inside the BMES.
3. The “**inside BMES outside BMES**” refers to relations between the BMES’s BMs outside of the BMES.
4. The “**outside BMES outside BMES**” refers to relations and relation areas where the BMESs do not share a relation to the BMES that are different.

Value propositions and competences of a BMES can be seen from many perspectives as shown in Figure 6.2 at the beginning of the chapter. Value propositions from a BMES can not only be related to products, services and processes of the BMES but also strongly connected to its relations and thereby a result of the relation between BMESs, activity links, resource ties and actor’s bonds (Håkansson 1982; Axelsson and Easton 1992; Håkansson and Snehota 1995; Day 2000; Ford et al. 2003). These are all tools which can be used to describe and map relations to and in the BMES.

The creation, capturing, delivering, receiving and consumption of value in a BMES is enabled through these relations (Lindgren 2012). Relations connect the different BMESs’ BM dimensions’ components and enable the creation, capturing, delivering, receiving and consumption process of value. However, if a BMES is not able or willing to relate and later send and receive value through relations, then the relation has no value, no task – and gives no obvious meaning and value to a BMES.



Figure 6.9 The relation dimension of a BMES.

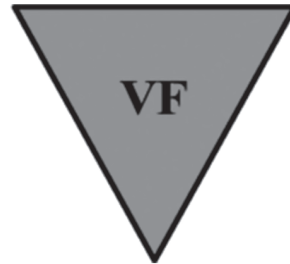


Figure 6.10 The value formula dimension of a BMES.

6.6.7 Value Formula Dimension Component Level – “What are the BMES’s Value Formulae?” (VF)

Any BMES will have one or more value formulae, which can be expressed in either a monetary and/or in a non-monetary value formula. We found that the term “profit formula” is too narrow a terminology to express the formula by which BMES calculates the value formulae of a BMES. Our research showed that many BMESs and their BMs are not focused, or, better, are not exclusively focused on profit but instead on other value formulae of the BMES. They “calculate” on other value formulae and to get a full understanding of why BMESs exist and are innovated it is definitely necessary to include other value formulae. We propose profit formula as one of many value formulae that can be the “calculated” output of a BMES.

Having proposed that the seven dimensions of the BMES exist, it enables us to complete the concept and picture of the generic BMES, which we believe can be expressed with the same generic model and questions as proposed in the B-star model (Figure 6.11).

However, we discovered that the seven dimensions form a BMES cube with the “IN IN” relations inside the BMES, as shown in a sketch model in Figure 6.12.

The 2D version is very helpful when working on a BMES dimension level and a 3D version would be helpful when working on a BMES in a BMES relation axiom level. Both presentations would be helpful when working on BMI of BMES.

6.7 BMES Cases

6.7.1 Case 1 – Danish Energy BMES

The Danish energy market can be considered in a certain context as a BMES. Oil (Mærsk, Statoil, ELF, Shell, Dong, Q8, OK, etc.), coal (Dong, Neas, etc.),

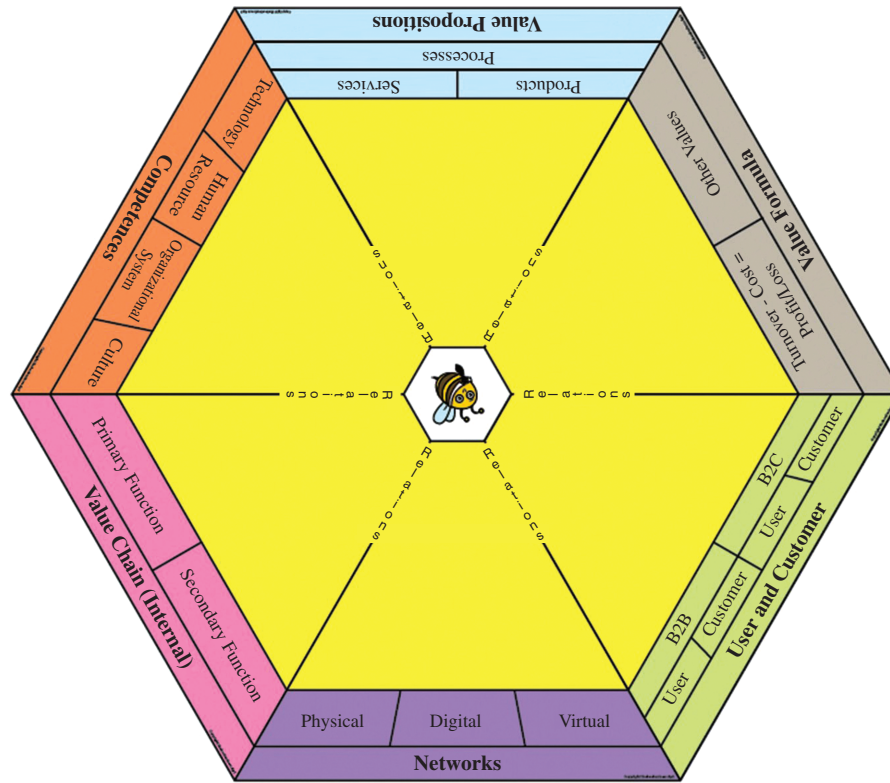


Figure 6.11 The seven proposed dimensions of the BMES. Beestar: Source and ©The BeeBusiness.

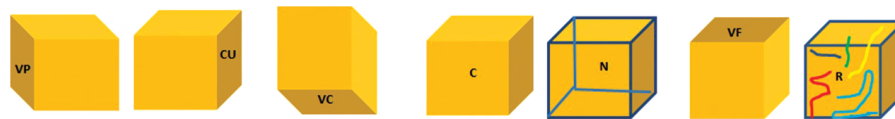


Figure 6.12 The seven dimensions of a BMES presentation.

gas (Dong, Praxair, Kosan, etc.), Biogas (EON, Blue Planet, Maabjerg, etc.), solar (Dansk Sol Energy, etc.) and electricity from windmills (Dong Energy, Watenfall, Neas) are considered as major energy forms in the Danish.

Energy BMES. As can be seen different businesses operate in the BMES and some businesses even operate with more than one BM in the BMES (Dong, Shell, EON, etc.).

Denmark has considerable sources of fossil energy – oil and gas from the North Sea. The production of oil fell from 523 PJ in 2010 to 470 PJ in 2011.

Consumption of oil fell from 315 to 306 PJ (Dansk Statistik 2012). Denmark expects to be self-sufficient in oil until 2050. The production of natural gas fell from 307 PJ in 2010 to 265 PJ in 2014. Consumption fell from 187 to 157 PJ. However, gas resources are expected to decline and production may fall below consumption in 2020, making imports necessary. Politically there is a major wish to exchange natural gas (“black gas”) with Biogas but Biogas only took 3 per cent of total gas consumption in 2014 (DWI 2014). The Danish government have announced that the aim is to have “black gas” exchanged for more “green gas” so that Denmark can save more CO₂ and become more independent of fossil gas (Danish Ministry of Climate and Energy 2011). Businesses that operate in the Biogas market today are several private biogas producers together with companies including EON and HMN.

A large proportion of electricity is still produced from coal but a growing part by wind turbines, which met about 39 per cent of electricity demand in Denmark by 2014 (https://en.wikipedia.org/wiki/Wind_power_in_Denmark). To encourage investment in wind power, families (customers) were offered a tax exemption for generating their own electricity within their own or an adjoining commune. While this could involve purchasing a turbine outright, more often families purchased shares in wind turbine cooperatives which in turn invested in community wind turbines. By 2004 over 150,000 Danes were either members of cooperatives or owned turbines, and about 5,500 turbines had been installed, although with greater private sector involvement the proportion owned by cooperatives had fallen to 75 per cent.

In February 2011 the “Energy Strategy 2050” was announced by the Danish government with the aim to have Denmark become fully independent of fossil fuels by 2050 (Danish Ministry of Climate and Energy 2011). The Danish government target is to have 50 per cent wind power in the electricity system by 2020 – a major change in the relative balance between energy sources in the Danish BMES.

Denmark’s electrical grid is, however, connected by transmission lines to other European countries (other BMESs) – Norway, Sweden, UK and Germany and has thereby, according to the World Economic Forum, the best energy security in the EU – but is also heavily influenced by these BMESs. In Table 6.2 a description and analysis of the Danish Energy BMES are presented.

Coal power provided 48.0 per cent of the electricity and 22.0 per cent of the heat in district heating in Denmark in 2008; and in total provided 21.6 per cent of total energy consumption (187PJ out of 864PJ) and is based mainly on coal imported from outside Europe (other BMESs). Businesses operating in this market are primarily Dong Energy, Watenfall and others).

Table 6.2 Fossil fuel consumption in Denmark

Energy in Denmark						
Year	Capita (Million)	Prim. Energy (TWh)	Production (TWh)	Export (TWh)	Electricity (TWh)	CO ₂ -Emission (Mt)
2004	5.40	233	361	117	35.8	50.9
2007	5.46	229	314	64	36.4	50.5
2008	5.49	221	309	54	35.5	48.4
2009	5.52	216	278	43	34.5	46.8
2010	5.55	224	271	42	35.1	47.0
2012	5.57	209	244	19	34.1	41.7
2013						
2014						
change 2004 to 2014	+3.7%	-10%	-32%	-84%	-4.7%	-18%

Denmark has also two geothermal district heating plants, one in Thisted, founded in 1988, and one in Copenhagen, operating from 2005. They produce no electricity.

In 2012 Denmark reached its year 2020 governmental goal of installing 200 MW of photovoltaic capacity. As of 2013, the total PV capacity from 90,000 private installations amounts to 500 MW. Danish energy sector players estimate that this development will result in 1,000 MW by 2020 and 3,400 MW by 2030.

In the model of the Danish Energy BMES (DEB) it is possible to see registered operating business models.

6.7.2 Case 2 – Danish Renewable Energy BMES

The Danish energy BMES as sketch in a model in Figure 6.13, could also be seen in another context where the focus is just on the renewable energy BMES, as seen in Figure 6.14. The renewable energy BMES in Denmark consists of electricity from windmills (Dong, Watenfall, Neas), solar energy (Dansk Solenergy, Energy Midt, private households, etc.), Biogas (EON, Sydenergi, etc.), geothermal energy (Thisted Termical Energy, etc.), and blue energy based on algae (Blue Energy, Folum, etc.) as seen in Figure 6.13.

The market volume of the BMES for renewable energy in Denmark is of course smaller than the total energy BMES in Denmark. Further, some of the minor business models in the energy BMES suddenly become bigger and even large players if we change the context to now only considering the renewable energy BMES.

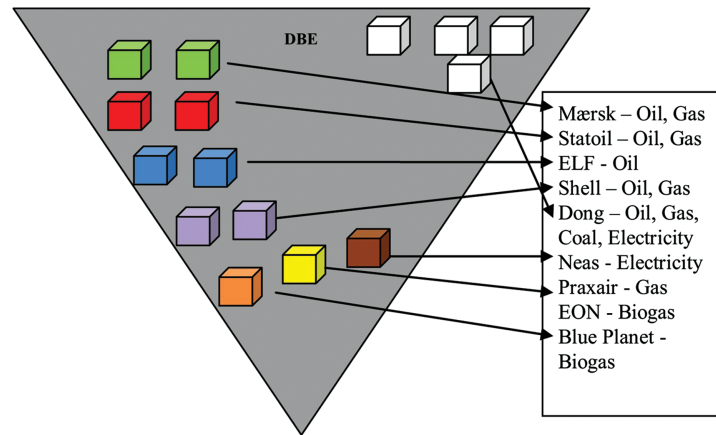


Figure 6.13 Danish energy BMES with elected BMs of operating businesses.

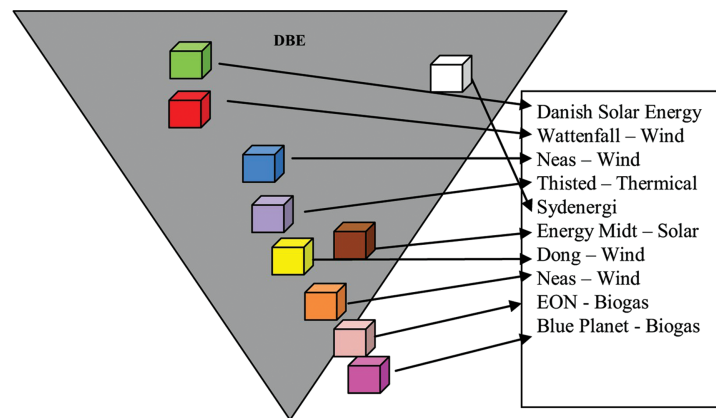


Figure 6.14 Renewable energy BMES in Denmark.

Also interesting is that the numbers of “to-be” BMs and the degree of innovation increase in the renewable energy BMES compared to the energy BMES. Some universities and GTS institutions are now actors in the BMES with a different value formula than money – namely research and learning as a focus. Also several municipalities, regions (Denmark is divided into five regions) and even the state government are now actors, and even investors, in the BMES due to political and renewable energy-based value formulae dictated from BMESs outside, for example the EU.

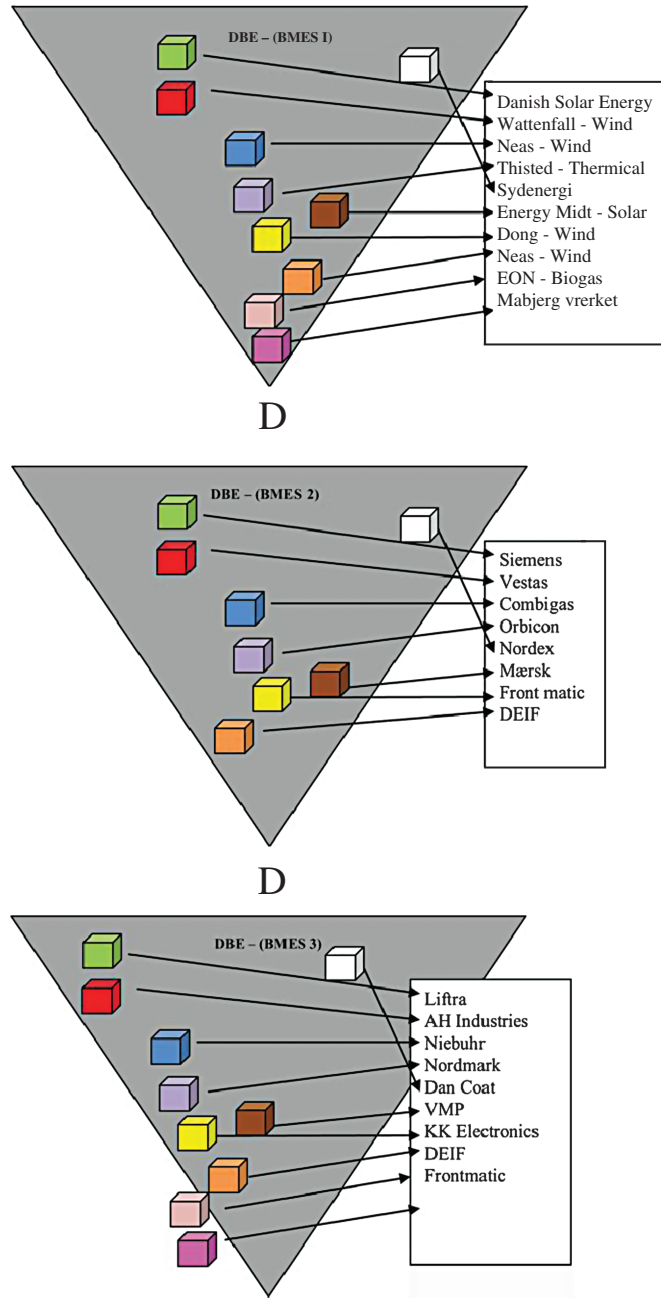


Figure 6.15 Vertical BMESs in Danish energy production.

6.7.3 Case 3 – Suppliers to Danish Energy Production BMES

The Danish Energy BMES has a tremendous number of suppliers in both Denmark and other European countries. Beneath we mention some of these different BMES seen in different contexts:

1. Oil BMES – Mærsk, Dong, Shell, Statoil, etc.
2. GAS BMES – Kosan, Praxair, EV Metalværk, etc.
3. Wind Mill BMES – Liftra, AH Industries, Nordmark, Siemens, Vestas, Niebuhr, KK Electronics, DEIF, DSV, etc.
4. Biogas BMES – Orbicon, Jenbacher, Gas2move, etc.
5. Solar BMES – Danish Solar Energy, Nordisk Solar, etc.
6. Termical Energy – Thisted Termical
7. Blue Energy – Foulum

Figures 6.15 and 6.16 show some elected vertical and horizontal BMESs.

6.7.4 Case 4 – HI – BMES to the Danish Energy BMES and Other BMESs

MCH is one of Scandinavia's largest and most flexible amusement centres with over 900,000 visitors each year. MCH has four BM portfolios – the Fair Center Herning, MCH Herning Kongrescenter, MCH Arena and Jyske Bank Boxen. MCH has the capacity to provide meetings for 15 people, conference space for 2,000 participants, football matches and arena space for 11,000 spectators and fairs for up to 50,000 guests. MCH's competence is to provide BMs and a BMES where amusements and business model exchange are core. Amusements can be a broad spectrum – rock, theatre, musicals and big sports events. MCH hosts and sets up more than 500 arrangements per year and is a market leader in setting up a BMES of amusement. MCH strengths are professional and service-minded employees, and up-to-the-minute facilities. Unique experiences and facilitating people and technology to meet each other are MCH's core competences.

MCH set up every second year an industry fair – a BMES – for the wind-mill industry and other industries from other BMESs. The industry fair, called HI Fair, functions as a BMES for five days. Many businesses with many different BMs operate in the HI BMES led by MCH, as can be seen in Figure 6.17. All BMs present at and under the HI BMES negotiate with MCH to be able to offer their BMs in the BMES.

Until now MCH has had very limited interest in relating to different BMESs but due to a decline in some of MCH's BMES they have decided to open up, for example, to the University BMES.

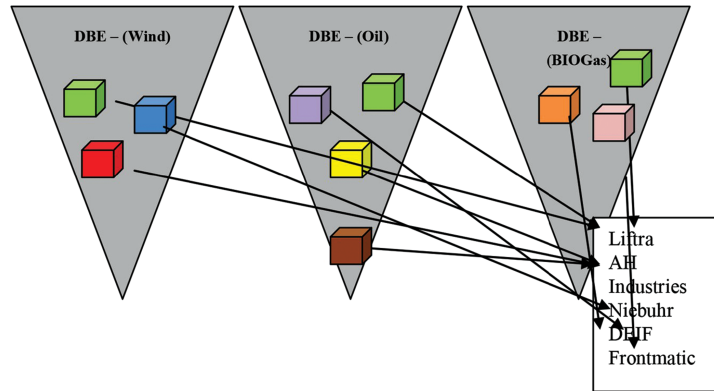


Figure 6.16 Horizontal BMESs in Danish energy production.

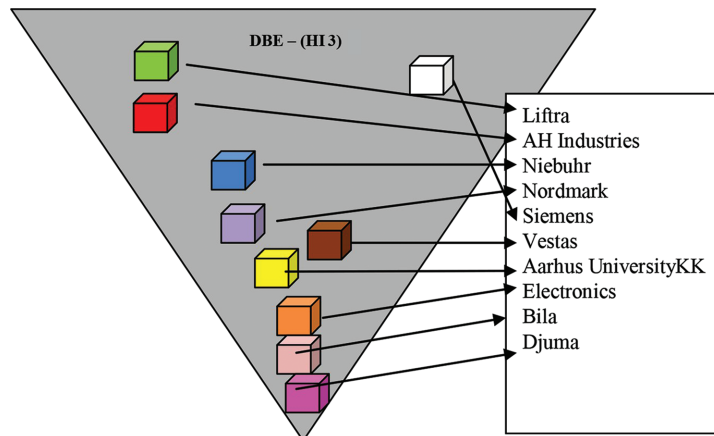


Figure 6.17 HI BMES set up by MCH.

6.8 Discussion

Today, most academics and practitioners consider the BM as a part of a market, industry, sector or a cluster – measurable, objective and one of a kind. Although there are many different definitions and types of business groups most define these related to a business model level but at a business level. We have earlier proposed that there is a need for a distinction between levels of business model focus, the business level and the business model level. We propose that the BMES core level should be focused on in research as “forming”

an “umbrella” of “as-is” and “to-be” BMs represented in a specific BMES but also measured on related BMESs and BMESs that are not related – the BMES relation axiom. This is to prevent fuzziness and support discussion and further development of the BM theory.

Some BMESs together can form a group of BMESs that is interrelated – what we call a portfolio of BMESs – e.g. renewable energy BMES, fossil energy BMES – all focusing on energy production but measured in different viewpoints and contexts – either vertical or horizontally. These BMESs form a group of BMESs that have similarities due to, for example, the same customer focus, use of the same value chain, use of the same network, focus on the same mission – for example, energy production. Often the BMES portfolios like to be considered as interdependent, like Green Lab. Green Lab Skive is a business development park which will be located in a designated energy and resource landscape on the outskirts of Skive in the Central Denmark Region. The core of GreenLab Skive is a power-to-gas plant. GreenLab Skive is a symbiotic setup, where surplus energy and waste resources are used for testing, demo projects and other projects within green energy systems and green gas. Being part of the GreenLab Skive business development park will give you the opportunity to test your own technologies and projects in real time and within a full-scale renewable energy context (www.greenlabskive.dk). Sometimes each BMES in a portfolio competes with other BMES, sometimes they manage to “live” in symbiosis. As earlier mentioned, some BMESs, however, attract users who then attract customers to other BMESs in the BMES relations portfolio.

Further, we found businesses can be part of one (Vestas – Windmill) or even more BMESs (Siemens – Windmill, Hydropower, Solarpower). BMESs are where the business BMs operate and “exchange” their value proposition. The representation of BMs in different BMESs is a strategic choice of the business.

We propose that BMES business models and BMI should be viewed on different levels, as shown in Table 6.3.

BMESs can do BMES BMI at different BMES levels. The BMES vertical and horizontal level is considered as being complex but the BMES diversification is, however, the most complex level of BMES BMI – and is maybe therefore often not used by BMESs to secure their survival. The BMES Cube can be useful for downloading, seeing, sensing BMESs “on the way to begin operating” (“to-be” BMESs) and on BMESs “already operating” (“as-is” BMESs). It is possible to “innovate”, “measure”, “test”, “download”, “see” and “sense” any levels of a BMES. It is possible to “see” if the BMES can operate and how and why it is functioning or not functioning. It is possible to

Table 6.3 Levels of BMES

Levels of BMES	Characteristics of the BMES level
BMES component The smallest part of a BMES dimension	BM's value proposition components Value attitudes, attributes of different BMs BM's customer and user roles BM's value chain functions Primary functions: inbound logistics, operation, outbound logistics, marketing and sales, service Support functions: procurement, human resource management, administration, finance infrastructure, business model innovation BM's competence Product, production and process technologies HR – employees/people Organizational system Culture Network Physical, digital and virtual network BM's relations Tangible and intangible relations BM's value formulae Profit and other value formulae
BMES dimension	Value proposition Customer and/or user Value chain functions (Internal) Competence Network Relations Value formulae
BMES BMs BMES BMES portfolio BMES business	BM of BMES both “to-be” or “as-is” BM Cube Group of BMs that are interrelated in the BMES Core business level of a BMES with seven dimensions
BMES vertical	BMESs that are vertically linked together
BMES horizontal	BMESs that are horizontally linked together
BMES diversification	BMESs that are not linked together

see the BMES and its characteristics including dimensions and components at all different levels.

Summing up, we propose that any BMES consists of seven dimensions – six sides and the BMES relations inside the BMES that binds all the BMES BM's dimensions and components together and enables creation, capturing, delivering, receiving and consumption of values within the BMES.

6.9 Conclusion

There is until now not an accepted language developed for BMESs, nor is the term “BMES” generally accepted in the business model literature. This chapter commences the journey of building up a “language” on BMES based on case studies within the Danish Energy BMES, Suppliers to Danish Energy production BMES, The Danish Renewable Energy BMES and HI Fair BMES. The research shows that the old thinking of industry, sector and cluster systems defined these days is very much challenged because it gives the business and even the industry a kind of false security related to what really is the market, industry, sector or cluster. Especially when competitors or other business and BMESs begin to define the BMES differently – in a context-based way – then “conservative”-thinking businesses, industries and clusters are challenges; challenges because they lack strategies and competitive tools as many of them have formulated their strategy on the basis of market, industry, sector and cluster thinking – some would say old-school strategic thinking.

In contrast to the market, industry, sector and cluster definition we propose a different terminology – the business model ecosystem (BMES), defined as related to a context-based and viewpoint-based approach – including both “as-is” and “to-be” business BMs. We propose that any BMESs are defined in seven dimensions (value proposition, user and customers, value chain function, competence, network, relation and value formula). The BM is the focus as the smallest part of any BMES, contrasting with previous terms using the business as the focus. Each BM Cube can later be used to detail any BM in terms of dimensions and components (Lindgren and Rasmussen 2013).

The BMES framework and approach is built upon a comprehensive review of academic business and business model literature together with an analogy study of ecological ecosystems and ecosystem frameworks and studies of market, industry, sector and cluster terminologies.

The BMES today has to change fast related to the context or risk in the future of vanishing. BMESs may be considered to be established and look different from those we have seen in the past. A deeper understanding of BMES, seen in a context approach, could maybe give some answers as to why some BMES are successful and others not.

The chapter has addressed the concern with the difference between “the core business” of the BMES and the variety and strategy of its “as-is BMs” and “to-be BMs”. If the distance between these becomes too large this can be a reason why the BMES falls apart or finds survival a challenge.