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Green Business Model Innovation – The Need of Policies’ Initiatives [1]

Companies are increasingly recognising that sustainability can be a source of innovation that can help them become more competitive by either developing new products and services based on new technology (i.e. greentech and cleantech) or by making changes to their business models. These changes are here referred to as *companies’ green business model innovation*. Companies might innovate by substituting to greener inputs, reusing or recycling resources, offering their product as a service function while continuing to have ownership of the products, or by developing greener products, services and processes.

When considering the role of policy for green business model innovation, policy makers need to consider whether their emergence and the related innovation should be left to the market or whether policies are needed to support it and what should such policies look like. The rationale for policy intervention lies in market failure related to the negative externalities of climate change and other environmental challenges leading to underinvestments in eco-innovation and green business model innovation. Furthermore, there might be systemic failures hindering the flow of technology and knowledge, and reducing the efficiency of the innovation efforts.

The greening of businesses is structured with respect to two main categories of elements in companies’ business models: the incentive models and the life-cycle models.

1. *Incentive models*: companies create incentives for customers and themselves to use resources more efficiently by e.g. offering a service where the pay is linked to the usage of a product, rather than the product itself. The company is incentivised to expand the life of the product through good care, while the customer pays less the less is used. The incentive models identified are Functional sales (FS), Energy Saving Companies (ESCO), Chemical Management Systems (CMS), and Design, Build, Finance, Operate (DBFO).
2. *Life-cycle models*: companies focus on greening their value chain, in parts or throughout the entire value chain. Companies improve resource use, design products so they can be taken back and reused or recycled, or develop products that are not harmful to the environment and customers’ health. The life-cycle models identified are Green Supply Chain Management (GSCM), Take Back Management (TBM), Cradle to Cradle (C2C), and Industrial Symbiosis (IS).

These eight elements of business models are *ceteris paribus* perceived to have a more positive impact on the environment than “business as usual” practices in businesses, as well as to have the possibility to have a positive impact on the company’s earnings. These elements often have an emphasis on non-technological innovations, or the

technology is an enabler of the innovation rather than the driver of the innovation, which is the case for greentech and cleantech companies. This list of elements to green business model innovation is most likely not a complete list, but has formed the basis and focus area of the research.

Policies for Green Business Model Innovation

Some countries have developed and implemented policies targeting specific green business model innovation. They do not seem to form part of national or more overall strategies with respect to green business model innovation, but have the characteristic of being single standing policies in the countries that have implemented them. Policies that directly impact one of the eight elements of green business model innovation have been identified. The following table gives an overview of the policies identified:

Business Model Element	Existing policy
Incentive models	
Functional Sales (Fs)	No Policies identified
Energy Saving Companies (ESCO)	Federal Energy Management Program (FEMP), USA Green Deal, UK ESCO Light, DK Decoupling Policy, California, USA
Chemical Management Services (CMS)	Registration, Evaluation, Authorisation and Restriction of Chemical Substances (REACH), EU
Design, Build, Finance, Operate (DBFO)	Private Finance Initiative, UK
Life-Cycle Models	
Green Supply Chain Management (GSCM)	No Policies identified
Take Back Management (TBM)	Directive on Waste Electrical and Electronic Equipment, EU
Cradle to Cradle (C2C)	Cradle to Cradle Network, EU National Waste Management Plan, NL
Industrial Symbiosis (IS)	Industrial Symbiosis Kalundborg, DK National Industrial Symbiosis Program, UK Kwinana Synergies Project, Australia

Business Model Element Existing policy

When looking at the two main categories of elements for green business model innovation, it was possible to identify at least one policy initiative for the three specific incentive models, but none for the more generic functional sales model.

The ESCO business model seems to be the single functional sales model that has achieved most attention from policy makers so far. The results from the FEMP in the US are encouraging, speaking for implementing similar policy initiatives in other countries.

The CMS business model is promoted in Europe through a European-wide policy initiative REACH. However, if the goal is to eliminate toxic chemicals from industry, additional policy has to be developed and implemented in order to create the right incentives for companies to change their way of doing business.

The DBFO business model has been promoted in the UK. While there have been some controversies related to the price of private finance versus public finance, it still seems like a policy that could foster sustainable projects through public private partnerships in a time of financial crises and the need for sustainable growth.

When it comes to policies for the life-cycle models, policy initiatives were identified for three of the four main categories of models.

TBM is in its early days of being promoted through EU policy focusing on recycling and reuse of electrical and electronic equipment. While this is an important first step that encourages producers and consumers to consider what happens to obsolete equipment, policy could be developed to broaden the scope of take-back of products to other industries.

C2C is mainly promoted through policies that focus on waste prevention. There seems to be a gap when it comes to areas such as developing materials and designing products that can be reused and recycled or which can be used as compost. There also seems to be a lack of policy to promote new “infrastructures” that can enable the collection of used materials in order to bring them back into the manufacturing processes.

Industrial Symbiosis (IS) is promoted through policy in a range of countries. We have described three countries that have created specific policies in different ways to promote IS. However, these policies all have the same main ingredients – they facilitate the meeting between different companies, identify relevant synergies and provide the necessary skills and competencies for analysing the by-products that can be utilised.

Policy recommendations to promote life cycle models

Companies transforming their business models into incentive models, also meet a series of challenges. Some of the most important barriers are large investments in machinery and infrastructure systems, unwillingness among partnering companies and suppliers to share information on chemicals and materials, redesign of products and processes to enable the use of new materials, and lack of competencies and knowledge in companies and public authorities.

In order to overcome these key barriers, the following policy recommendations have been developed to promote the use of life cycle models:

- *Green Public Procurement:* Develop selection criteria based on existing certifications to be used in public tenders. Green public private partnerships can be developed on innovation platforms where problems that need to be solved in the public sector are identified.
- *Infrastructure for recycling:* Promote and develop systems and infrastructures that can encourage the reuse and recycling of obsolete products and materials, as well as infrastructure to handle decomposing of biological materials such as bioplastics.
- *Standards:* Ensure that relevant sustainability standards are used for products and processes in all industries where standards have been developed. A good example is the Ecolabel standard, that is a voluntary ecolabelling scheme that evaluates a product's impact on the environment.
- *R&D of new materials and chemicals, and access to information:* Support business development with focus on R&D of new materials and chemicals in order to enable new design and processes, for example in partnerships with universities.

Green Business Model Innovation – Policy Report, Kristian Henriksen, Markus Bjerre, Jakob Øster, Tanja Bisgaard, Nordic Innovation Publication 2012

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