



Policies for a Circular Economy

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Key Messages:

- The realisation of a Circular Economy will require first and foremost new business models
 - 'Circular' business models will usually require policy support in order to scale up due to the barriers they encounter
 - Policy interventions include both traditional and non-traditional approaches
 - More research is needed to examine what policy interventions 'circular' businesses need in order to scale up
 - Several policy areas need further research to advance, including eco-design for durability and reparability, waste rules and the effective functioning of waste markets, consumer and intellectual property laws, producer responsibility and take-back systems for repair and remanufacturing, and economic instruments for promoting repair and remanufacturing
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Towards a Circular Economy?

There is a growing political consensus in the European Union (EU) that we have to move away from our current linear economic system to one that is based on closing material loops - a Circular Economy. This implies that we need to move up the waste management hierarchy and promote waste prevention through designing more durable products, and stimulating product re-use, repair, remanufacturing and refurbishment.

Planing [1] has outlined four buildings blocks that are vital for the transition to a Circular Economy: (a) materials and product design; (b) new business models; (c) global reverse networks; and (d) enabling conditions. However, the transition to a Circular Economy will be very slow due to the many existing barriers, unless there are targeted policy interventions. In the recent EU research project POLFREE, it was concluded that business' barriers for increasing the resource efficiency are institutional, organisational, behavioural, technological and market based, and combined in a '*web of constraints*' [2]. A wide range of policy measures are therefore needed at various levels, including both changes in regulatory frameworks, public spending and consumer engagement.

Existing policies

A large number of policies can contribute to the Circular Economy objectives. Existing EU policies related to waste and producer responsibility, eco-design, and chemicals are of high significance as they regulate design and chemical content of products, and also trigger waste infrastructure that can be beneficial for reuse and remanufacturing of products and components. The number of policies are expanding, and more recently both the EU and its member states have implemented policies that provide incentives for manufacturers to design durable products [3].

However a major concern is that these policies can often be in conflict with each other. For instance, companies that want to use recycled materials in their products may still choose virgin materials because they are uncertain that recycled materials will comply with EU legislation on chemicals. In addition, waste related rules that aim to control the movement of waste in order to avoid illegal exports can have the unintended consequence that transport of waste destined for

reuse and remanufacturing becomes too expensive and administratively burdensome. This implies that a big part of the policy task in the coming years is to review and address conflicts among existing policies; this is also brought up in the EU Action Plan for the Circular Economy [4].

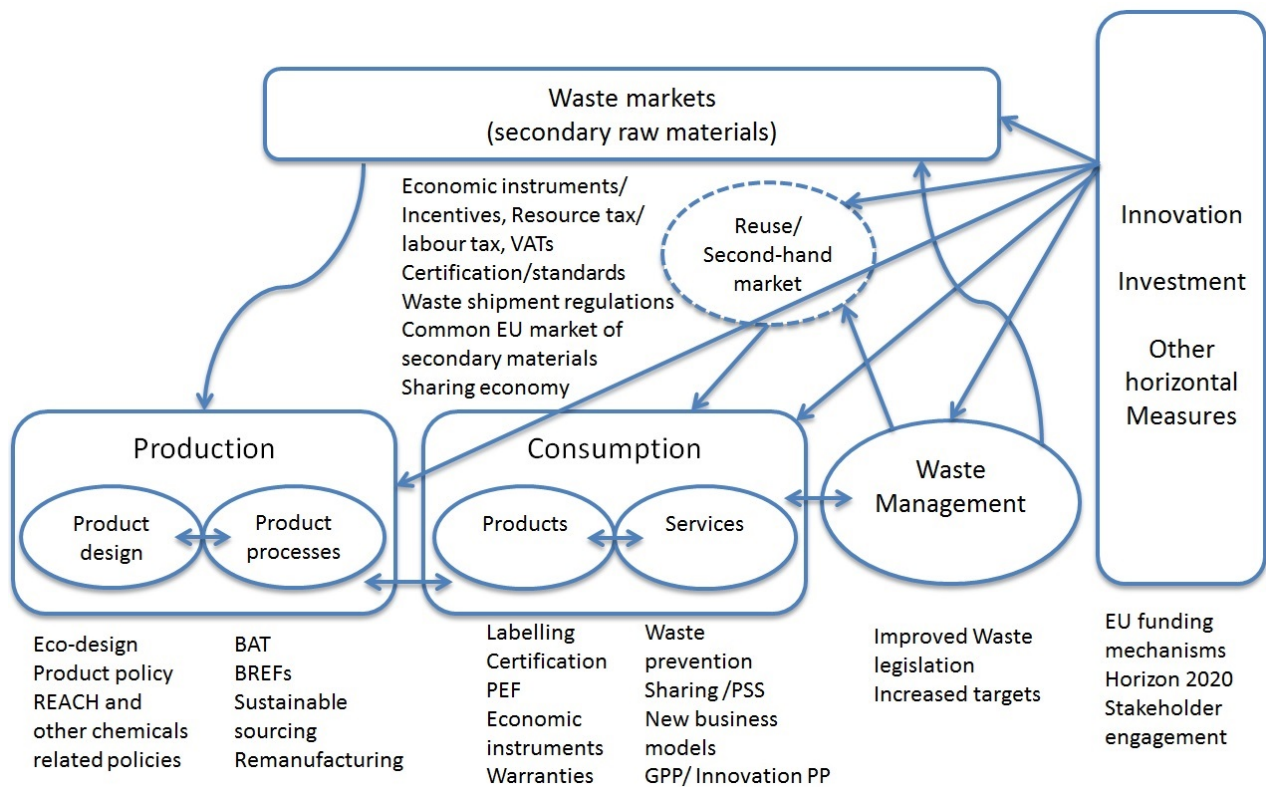
New policies

When it comes to new policies, the EU Action Plan discusses a range of potential policies, ranging from eco-design regulations and durability labelling to public procurement and economic instruments, and the development of quality standards for secondary raw materials [4]. It also puts the focus on specific waste streams (e.g. plastics, critical metals, construction and demolition), which have traditionally been managed poorly, causing considerable resource losses in the economy. At this point however, the only policy considered certain to emerge in the near future concern durability requirements in the Directives on Ecodesign and Energy Labelling.

In the POLFREE project, nine overall policy fields are proposed as a way forward [2]. New policies for transitioning to a Circular Economy need to be synergistic and able to overcome their incompatibilities and conflicts, as it is observed so far [5]. Therefore, a new approach in policy making is required, one that takes into consideration potential adverse effects of different policy measures and mitigates any impacts. This new approach is called '*policy mixing*' or alternatively '*policy packaging*'. It is necessary that a potential policy mix must be coherent, consistent and predictable. While this comprehensive approach is considered the most effective in principle, it is questionable whether it can be effectively applied in reality, since policies are implemented and improved in a rather ad-hoc manner, reflecting the political processes at the EU and national levels.

Furthermore, another related problem concerns the level of coordination between EU and national policies. While rules on eco-design, chemicals and waste are primarily decided upon at EU level, rules on taxation, public procurement and waste infrastructure are primarily decided at national level. EU Member States, as well as regions and municipalities, have already started to adopt a number of policies promoting Circular Economy, including procurement of used (second

hand) and remanufactured goods, reuse parks and community spaces for repair, differentiated **Policy landscape according to the EU Circular Economy Action Plan [own illustration]**



producer responsibility fees, and web platforms for sharing [6].

Policies to support Circular business models

Companies with some kind of ‘circular’ business model include a wide number of various business practices such as leasing instead of selling, take-back, repair, reconditioning, remanufacturing, material recycling, etc. [for details, see Mistra REES Business Brief].

Companies that want to develop more circular business models tend to face the ‘*web of constraints*’ mentioned previously [2]. An interview study with Swedish companies who have adopted a circular business model, confirmed several barriers for scaling up their businesses [7]. The findings demonstrate that the current regime hinders circular business models to fulfill their potential and fails to create the necessary enabling conditions. Policy interventions were therefore requested by all companies, though the desired interventions was sector-dependant. While for some companies taxes on labour and resources were the main

issue, for others consumer acceptability was the main concern.

Re-use, reconditioning and remanufacturing is one sub-set of circular business models. Traditionally, these business practices have received little policy support, but this seems about to change. Remanufacturing is a growing business which, apart from supporting a Circular Economy, can provide jobs and economic growth. Among the barriers for remanufacturing and reconditioning we find: poor product design, lack of steady access to used products, costly reverse logistics, consumer preferences for new products, consumer acceptability and understanding, and a lack of skilled workers. Also, high taxes on labour are making reconditioning and remanufacturing costly. Furthermore, the clarification of legal definitions, trade related rules and waste related rules is required. Among the policies proposed to support reconditioning and remanufacturing we find: reduced Value Added Tax (VAT) for reconditioned and remanufactured products, lower taxes on labour, subsidies for reuse, repair and remanufacturing, training and educational activities, legal reviews to aid the trade in reused, reconditioned and re-manufactured goods,

regulating product design through the Ecodesign Directive, and provision of infrastructure for consumers to hand in used products. Several EU Member States have ongoing inquiries about how to best provide policy support. Thus we can expect new policies in the near future.

Challenges for the future: Need for a bottom up perspective

Most existing studies review policies and policy mixes at a sectoral, national or international context. On the other hand, for understanding the interdependencies of the different policy areas “on the ground”, it is considered necessary to take a ‘bottom up’ approach in studies that examine desired policy interventions from the perspective of the ‘circular’ business. Such an approach is currently missing and it has the potential to enhance our understanding of the real-world constraints of businesses. Therefore, a series of company case studies will be initiated in early 2017 by the Mistra REES consortium.

A recent study of two Swedish remanufacturing firms provide a first example of this approach [8], shedding light on specific policy issues relevant for the specific sector, and the potential policies that could promote their businesses. Similar useful conclusions are expected to be drawn from the future company case studies.

Areas where more research is needed

There are also many areas of particular interest for policy research, especially regarding enabling conditions that could promote the uptake of circular business models. These include: (a) eco-design considerations and aspects related to consumers for increasing durability and reparability of products; (b) setting of infrastructure for collection and take-back of products in relation to reuse, repair and remanufacturing; (c) legal issues around product responsibility and intellectual property of remanufactured goods; (d) harmonisation and streamlining of revised waste rules across the EU that would enable the effective tracing and free movement of waste; (e) setting up competitive secondary materials markets; (f) enhancing Green Public Procurement (GPP) introducing specific

criteria that create a level playing field for circular businesses to compete; (g) promoting Public Procurement for Innovation (PPI) with a clear focus on criteria that leverage resource efficient solutions; (h) getting the prices right – introducing a progressive taxing regime that would put a price on resources and gradually reduce the taxation burden on activities that save resource (resource-efficient solutions), such as reuse and remanufacturing; (i) promoting alternative lifestyles that would favour resource efficient solutions in everyday life activities over existing practices and norms; and (j) infrastructure development to promote re-use and second hand markets.

Many of these areas will be researched in the Mistra-REES program. The cooperation with society applied in the research will not only comprise companies but also other entrepreneurs and municipalities. Municipalities have an important role to play as owners of infrastructure for takeback and recycling, and as the actors that have direct contacts with citizens and can influence their purchasing decisions, as well as their waste management behaviour.

References

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The Mistra REES programme gathers leading academic milieus, industrial companies and societal actors to co-create knowledge about more resource-efficient and effective solutions based on circular economy thinking.

Mistra REES responds to an increasing global concern for the over-exploitation and coming shortage of natural resources. Global reports from the UN as well as the comprehensive EU initiative "A resource-efficient Europe" clearly mark the need for innovative solutions and strategies to solve environmental and resource-related problems. Mistra REES represents a major contribution of the European and global movement towards resource-efficient solutions.

The vision of Mistra REES is to advance the Swedish manufacturing industry's transition towards a circular and sustainable economy. Once validated, methods developed in the Mistra REES programme will support Swedish manufacturing companies to develop and offer world-leading, new and innovative products and services based on circular economy thinking. For business partners, Mistra REES gives access to the most recent research results and a network of expertise for discussing, testing and developing the latest ideas and innovations.

Mistra REES is unique in bringing together competencies from three different research areas, "design of products and services", "business models" and "policies", with the ambition to understand how these three areas affect and interrelate with each other. The strong and dedicated collaboration between academia and participating companies enables a unique opportunity to co-create, evaluate and implement outcomes from the program that have clear added value for researchers as well as the participating business partners. Examples of outcomes

are methods and tools for REES product and service design as well as business models for REES. Another overall outcome will be the Mistra REES textbook.

Mistra REES consists of seven projects. The first project, PR1, aims to create a knowledge base for the rest of the programme about where the circular economy is most efficient. PR1 also maps the business and policy-related driving forces and barriers for a transition to more resource-efficient and effective solutions. Based on PR1, three additional projects, PR2, PR3, PR4, will develop methods for designing products, services, business models and policies. Various methods are used in PR1-4, e.g. literature reviews, semi-structured interviews, workshops and protocol analysis with participating partners, and life cycle and economic assessments.

Project five aims to describe and analyse the interrelations between product and service design, business models and policies for REES. Such knowledge will also contribute to creating approaches for more effective collaboration between actors working with REES. A conceptual model for the above listed interrelations will be constructed. Based on this model, a computerized system dynamics model of the systems will be developed and used.

Workshops with participating partners will be used to, based on the system dynamics model, extract recommendations regarding transition processes in the manufacturing industry and society that facilitate REES and the circular economy.

In PR6 and PR7, focus lies on program management in general and targeted dissemination of the research results. The Mistra REES textbook will be the main outcome of PR6.

Mistra REES involves researchers from 3 universities, 12 companies, 2 municipalities and 2 organizations.



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