Social learning through low carbon and green economy in climate actions (SLATE)

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Circular business model

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Circular business model

I.What is a circular business model?

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I. What is CBM?

The current linear model, which grew out of industrialization, is reaching its limits at the same time that the circular economy is being talked about more and more as a new way of doing things.

Circular business models (CBM) represent fundamentally different ways of producing and consuming goods and services. They have the potential to drive the transition towards a more resource efficient and circular economy and, in doing so, significantly reduce the environmental pressure resulting from economic activity

Circular business models serve to reduce the extraction and use of natural resources and the generation of industrial and consumer wastes. They represent the key activities required to transition to a more resource efficient and circular economy.

I. What is CBM?

Some circular business models have experienced rapid growth in recent years, largely in response to the emergence of new technologies. For instance, Airbnb has gone from being a curiosity in the accommodation sector ten years ago to being the largest single supplier of short term stays today. Most other circular business models – recycling and repair being good examples – are relatively mature.

In some cases, the emergence of enabling technologies, more supportive consumer preferences, or new business risks will drive increased adoption of circular business models. Public policy also has a role to play. In particular, governments could focus on addressing widely cited barriers such as:

- the mispricing of natural resources that results from under-priced externalities and the provision of subsidies for extractive sectors
- the transaction costs that hinder collaboration within and across value chains
- the trade policies that restrict cross border flows of used products and secondary material feedstock
- the status quo biases that are often inherent in investment and consumer behaviour

II. Key characteristics of circular business model

Circular business models modify the pattern of product and material flows through the economy. By doing so, they can reduce the adverse environmental side-effects resulting from the extraction, use, and eventual disposal of natural resources and materials. This results not only from facility level improvements in material productivity, but also from more fundamental changes in production and consumption patterns. For example, instead of using natural resource inputs more efficiently, renewable energy generation and the production of raw materials from scrap do not use them at all.

II. Key characteristics of circular business model

Five headline business models for a more circular economy:

1. Circular supply models, by replacing traditional material inputs derived from virgin resources with bio-based, renewable, or recovered materials, reduce demand for virgin resource extraction in the long run.
2. Resource recovery models recycle waste into secondary raw materials, thereby diverting waste from final disposal while also displacing the extraction and processing of virgin natural resources.
3. Product life extension models extend the use period of existing products, slow the flow of constituent materials through the economy, and reduce the rate of resource extraction and waste generation.
4. Sharing models facilitate the sharing of under-utilised products, and can therefore reduce demand for new products and their embedded raw materials.
5. Product service system models, where services rather than products are marketed, improve incentives for green product design and more efficient product use, thereby promoting a more sparing use of natural resources.

III. The environmental potential of circular business models

Circular business models, by closing resource loops and by slowing and narrowing resource flows, can reduce the environmental footprint of economic production and consumption.

These environmental benefits can be significant. In the case of the resource recovery business model, producing raw materials via recycling, rather than from non-renewable natural resources, can reduce greenhouse gas emissions by as much as 90%. The magnitude of emissions reductions involved varies across materials, but is significant in almost all cases

Other circular business models also have considerable environmental benefits. Remanufacturing products that have reached their end of life can reduce the extraction of natural resources and generation of waste by up to 80% relative to manufacturing new products. Reduced extraction, processing, and transport of natural resources also translates into energy savings, often in excess of 50%

III.
The environmental potential of circular business models

The environmental potential of circular business models is clear, but risks remain.

Some of these risks are business model and sector specific:

1. The adoption of the circular supply business model in the form of increased production of bio-based materials could stimulate land cover change and place additional pressure on ecosystems and biodiversity.
2. Without appropriate controls, more widespread material recovery and recycling could increase society's exposure to harmful chemical substances contained in secondary materials.
3. The continued emergence of collaborative modes of consumption could trigger a shift away from green substitutes (in the transport sector for example, where consumers may choose car sharing or pooling over public transport).

IV. The current scale of circular business model

The market share held by circular business models is limited. Some circular business models have achieved significant market share, but typically only in restricted economic niches. Examples of such niche market penetration include product service systems in automative coatings and resource recovery in the steel sector.

Some circular business models are scaling rapidly, mostly in response to technological drivers. For the circular supplies model, technological innovation in manufacturing technologies along with an increased consumer willingness to pay for green products have been important drivers. For sharing models, and for certain variants of product service system models, it is the emergence of the internet, mobile phone technology that have allowed certain products to be shared more widely than ever before. Example: Airbnb has gone from being a curiosity in the accommodation sector ten years ago to being the largest single supplier of short term stays today. Similarly, global membership of urban car sharing schemes is growing at an annual rate of up to 65%

IV.
The current scale of circular business model

Other circular business models are relatively mature but the business case for further adoption is lacking.

The emergence of enabling technologies, more supportive consumer preferences, and new business risks will also offer opportunities for the adoption of relatively mature circular business models. The appearance of technologies associated with the socalled Fourth Industrial Revolution - robotics, artificial intelligence, sensor technology, and 3D printing among others – seem particularly promising, but require further investigation.

V. Key policy messages

Policy interventions are required to create the conditions for the wider adoption of circular business models.

Ultimately, transitioning to a markedly more circular and resource efficient economy – one where the environmental pressures associated with economic production and consumption are significantly reduced – will require more widespread penetration of circular business models.

Policy can play an important role by addressing the market failures, policy misalignments, and status quo biases that currently hinder the competitiveness of these business models

V. Key policy message

Policy can help to:

1. ensure that the full environmental costs of production and consumption activities are reflected in market prices;
2. improve collaboration within and across sectoral value chains. Fostering industrial symbiosis clusters, promoting online material marketplaces, establishing secondary raw material certification schemes, and, more generally, facilitation of cooperation within and across value chains may be worthwhile initial steps;
3. ensure that existing regulatory frameworks are coherent and fit for purpose, and not serving to preserve an existing status quo;
4. improve existing educational and information programs to provide individuals with a better understanding of the unintended consequences of their consumption choices. The use of behavioural insights and nudges, such as through labelling requirements, may be a promising way forward;
5. promote the supply of circular products or demand for them .