



CIRCULAR BUSINESS MODELS AND ENTREPRENEURSHIP SHARING

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ABSTRACT

The circular economy is currently championed across different quarters as a potential solution to contemporary and multiple sustainability challenges. Academically, the concept has witnessed a substantial increase in scholars' interest. Yet the locus of current literature is mainly conceptual, and there is a dearth of contributions from business and management studies. Drawing on the circular business models and the nascent humane entrepreneurship literature, and an exemplary, micro-sized social enterprise, we find that circular business models generate multiple forms of social value beyond the creation of job opportunities only, and that they are characterized by a humane entrepreneurship orientation. More and more manufacturing companies are talking about what's often called the circular economy in which businesses can create supply chains that recover or recycle the resources used to create their products. Shrinking their environmental footprint, trimming operational waste, and using expensive resources more efficiently are certainly appealing to Management. But creating a circular business model is challenging and taking the wrong approach can be expensive but perhaps the most important is choosing a strategy that aligns with the company's capabilities and resources and addresses the constraints on its operations. In this article they identify the basic strategies to achieve circularity and offer a tool to help manufacturers identify which is most likely to be economically sustainable. Their recommendations draw on decades of research and consulting with number of manufacturers across the world.

Keywords: contemporary, sustainability, conceptual, circular business models.

1. INTRODUCTION

1.1 Meaning

Circular model

A circular model is defined as an economic framework that emphasizes the recovery and reuse of materials, components, and products, aiming to eliminate waste and promote sustainability through the interconnections of design, production, consumption, and disposal.

Circular business models are systems for creating value that prioritize waste reduction and resource regeneration, moving away from the traditional linear "take-make-dispose" model by keeping products and materials in use through strategies like reuse, repair, remanufacturing, and recycling. Circular entrepreneurship refers to the act of establishing businesses with these circular principles at their core, often through innovations in sharing platforms, product-as-a-service models, and product life-extension to create value while minimizing ecological impact.

Circular entrepreneurship

Circular entrepreneurs run their businesses without generating waste. All raw materials used are recycled or reused. A circular economy is often referred to as a closed-loop economy. Waste separation plays an important role in this

1.2 Definition

A **circular business model** is a system employed by businesses to increase efficiency and reduce environmental impact. These models are designed to save money, eliminate waste and achieve sustainability.

Circular Economy

As a projected global population of nine billion people by 2050, the stark reality of limited resources, including energy, water, and raw materials, has rendered the current “take-make-dispose” model unsustainable (EMF 2013). Amid this pressing challenge, the circular economy concept emerges as having a potential for sustainable solutions. The circular economy "focuses on designing out waste and pollution, keeping products and materials in use, and regenerating natural systems," according to the EMF. It distinguishes between technical and biological cycles and strives to maintain materials, components, and products at their maximum usefulness and worth at all times. It is restorative and regenerative by design. Additionally, as stated by the World Economic Forum, "Things are produced and consumed in a circular economy in a way that reduces our use of the world's resources, cuts waste and reduces carbon emissions. Products are kept in use for as long as possible, through repairing, recycling, and redesign so they can be used repeatedly.

It's simple to understand why industrial organizations are increasingly discussing what is commonly referred to as the "circular economy," which involves supply networks that collect or recycle the resources used to create their products. Shrinking their environmental footprint, trimming operational waste, and using expensive resources more efficiently are certainly appealing to top management.

In 2000 Interface shifted its focus from long-term leases to producing modular carpet tiles using sustainable materials, such as recyclable nylon fibers and recyclable vinyl backings. And as it turned out, manufacturing the new carpet tiles emitted 75% less carbon than the industry average. Combined with a transition to renewable energy on production sites, these innovations have shrunk Interface's total carbon footprint by 69%, according to company reports. Unlike leasing, the focus on recycling has leveraged what Interface does best: manufacturing and selling carpets.

Interface's experience shows that creating a sustainable circular business model depends on many factors, but perhaps the most important is choosing a pathway that aligns with a company's capabilities and resources as well as one that tackles the limitations imposed on its activities.

2. Three Strategies for Circularity

Manufacturing companies from the producers of products that serve the new economy to the more traditional companies that provide our clothing and furnishings can create a circular business model in many ways. The majority combine three fundamental tactics.

In the traditional form of the retail product ownership (RPO) strategy, the manufacturer leases or rents the product to the consumer instead of selling it. As a result, after consumers have used a product, the producer is held accountable.

Extension of product life (PLE) Businesses using this approach concentrate on creating items that are more durable, which could lead to new markets for old goods. Because a longer product lifespan means fewer purchases over time, this may seem like a bad idea for original-equipment manufacturers. However, as demonstrated by the luxury home appliance brand Miele and the outdoor apparel producer Patagonia, durability is a crucial distinction in the marketplace and offers a compelling case for premium pricing. Additionally, PLE can assist businesses in keeping their clients from switching to a competitor's brand. To extend their lives and compete with new products from low-cost, low-quality manufacturers, Bosch Power Tools, for example, remanufactures their used tools. Preventing customers from switching to a competing brand For instance, Bosch Power Tools remanufactures its used tools to prolong their lifespan and compete with new items from low-cost, low-quality manufacturers used tools by remanufacturing them, thereby enabling it to compete with new products from low-cost, low-quality producers.

Recycling-friendly design (DFR) In order to maximize the recoverability of the materials involved for use in new goods, companies using this strategy modify their manufacturing processes and products. This tactic frequently entails collaborating with businesses that possess specialized technological know-how or that might be most qualified to utilize the recovered resources. Particular technological know-how or who could be most qualified to utilize the recovered resources.

3. The Circularity Matrix

Only when value can be economically recovered from the product is a circular business model viable. It might be realized through reusing the product, thereby extending the value of the materials and energy put into the manufacturing process, or by breaking it down into components or raw resources to be repurposed through recycling. Of course, value doesn't have to

be material; designer apparel serves as an example of how a circular business model may be developed where value is nearly entirely intangible.

However, the exact amount of that value that a circular business model could unlock is hard to predict. Gorenje, a Slovenian white-goods manufacturer, tried leasing its washing machines, which seems like a reasonable approach for the product. With proper care, washing machines' usable lives can be prolonged and their life spans can be increased. However, the services that customers expected from a leasing contract cost more than Gorenje was ready to spend on maintenance, and they were aware that they would pay more over the course of the lease than they would to own the machines.

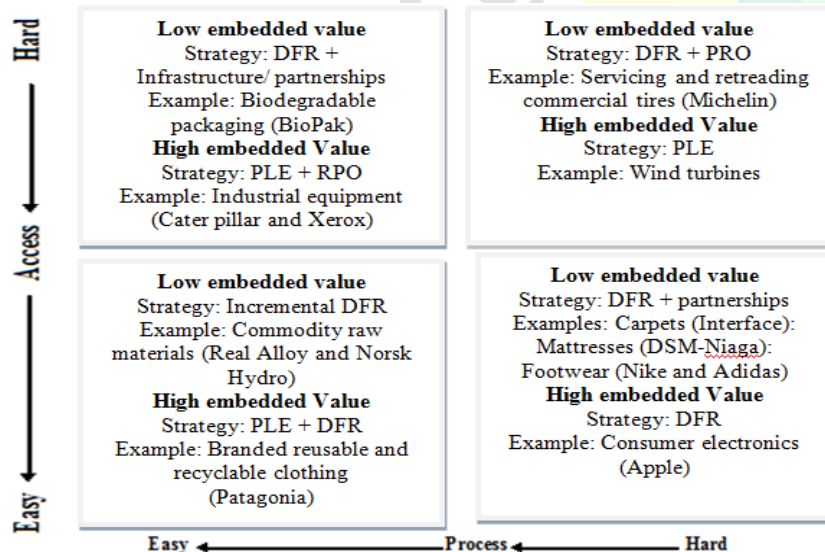
A certain degree of experimentation and piloting, along with a comprehensive evaluation of costs and value, are necessary to determine whether a particular circularity method is feasible. However, companies can clarify their thinking by answering just two questions:

1. How simple is it to return my item? Over 97% of plastic bottles in Norway are recycled. That's because Norwegians are unusually enthusiastic about recycling and also because a large retail network (including reverse vending machines) exists for bottle collection, supported by a government-run deposit-refund scheme. In other words, infrastructure and public involvement are two essential components of Norway's reverse supply chain. As seen by far lower rates of plastic-bottle collection and recycling in other regions of the world, it can be difficult to obtain used products for circularity without them. The availability of secondary markets for commodities and used goods, where extracted raw materials might be traded, is another factor to take into account. Power tools and construction equipment are examples of used goods having a high resale or exchange value that consumers will naturally be unwilling to part with, making it challenging for original sellers. to close the circle.

2. How easy is it to recover value from my product? Extremely heavy or bulky products and those containing potentially hazardous materials may be easy for producers to reclaim legally but difficult and expensive to move and recondition. In a reverse supply chain, moving a washing machine, for example, will clearly be much harder and more expensive than moving an ink cartridge. Intricately manufactured products also make value recovery challenging.

4. THE CIRCULARITY MATRIX

Businesses trying to develop circular product business models the right model will involve one or more of three basic strategies: retain products ownership (RPO). Product life extension (PLE), and design for recycling (DFR).



How quickly value can be recovered from the product and how easy the maker can obtain the product back will determine the best course of action. Depending on its capabilities and competitive environment, each firm will encounter different obstacles along each dimension. These challenges may also alter as a result of innovations made by the company and its rivals.

Accessing and processing can be challenging. Particularly for items with relatively little value locked up in them, products in the upper right quadrant may suffer from a degree of wear and tear that makes simple repair and remanufacturing impossible, eliminating the possibility of product life extension.

Even with pricey items that contain many valuable elements, going circular may not be worth much for businesses in this area. An extreme example would be wind turbines, which, despite the significant amount of money invested in their construction, are very difficult to reach due to their size and distant locations, and their composition and intricate architecture make it difficult to extract reusable elements or components. Wind turbines are accumulating in desert landfills for this reason.

Accessible but challenging to process Carpets, mattresses, and sports shoes are among the comparatively low-embedded-value items in the bottom right quadrant. On the one hand, there is a good chance that these products can be recovered from the customer due to their mobility and lack of a profitable secondary market. However, they are difficult to recondition and the process of removing materials from them is intricate.

Going circular in these situations will entail designing products to be recyclable. An entirely recyclable mattress with six modular parts and carpets made of pure polyester instead of the industry-standard materials that include an indissoluble complex of chemicals, including numerous known carcinogens, were created by the Dutch start-up DSM-Niaga in 2014. At the end of the mattress's life, the raw materials may be recycled, and the mattress is simple to disassemble for easier maintenance (for instance, the mattress coverings are washable and detachable). Carpets' uniform design greatly speeds up material recovery and lowers the amount of water and energy required during production. Additionally, the new carpets are lighter, which facilitates handling and transportation.

Even very large companies may need to find partners to make circularity work when their products are relatively low in value. One example is Adidas, as was previously said. This quadrant's products contain a number of compact, high-tech gadgets, like smart phones, which have limited life cycles, many highly integrated components, and poisonous ingredients that are hard to remove. These goods usually have thriving secondary markets, which is advantageous for the environment generally but makes it more difficult for original manufacturers to reach them.

For the major producers of high-tech consumer devices, that is less of an issue. They frequently end up serving as the pillars of an industry ecosystem that lowers entry barriers for manufacturers by erecting exit hurdles for device owners. Large-device manufacturers are able to invest extensively in DFR as their road to circularity because of the simple access provided by the dynamics of their ecosystems.

Secondary markets often emerge as embedded value rises, which can make it more challenging for the original manufacturer to obtain products. Although RPO circumvents the access issue, it frequently presents difficulties, even for businesses whose goods might appear to be a good fit for an RPO approach. The cost of gathering and transporting used equipment to a company facility for remanufacturing and reconditioning caused one washing machine manufacturer with whom we worked to abandon its plans to offer a leasing option. To prolong product life, businesses in a similar situation frequently combine traditional purchasing with a thorough service guarantee.

Because RPO both makes it easier to get parts that would be very expensive to recreate from scratch and fosters consumer trust, which increases participation in trade-in and remanufacturing programs, PLE and RPO combinations are more prevalent the higher the embedded value.

The heavy-equipment manufacturer Caterpillar offers a variety of PLE choices. Customers may return equipment to Cat Certified Rebuild for restoration to like-new condition at the end of its functional life. Customers may purchase used equipment from authorized dealers on CatUsed.com, which is a great illustration of how a business can stop expensive goods from evaporating through the secondary market. As an alternative to full ownership, Cat Financial offers a range of loan and lease options on the RPO side. The capacity of Caterpillar to remotely monitor the state of its goods supports all of these business models. Using digital technology and AI, so that it can intervene as necessary a practice known as installed base management.

Accessible and simple to handle Products in the lower left quadrant are typically parts or goods that already have a well-functioning recycling system, such as plastic bottles in Norway. This category also includes a large number of commodity raw materials. Nearly 75% of all commercial-variety aluminum produced to date is still in use, according to the Aluminum Association of the United States. Enterprising citizens frequently fill the void in nations without a formal framework for recovering and returning the metal to producers by gathering cans and other abandoned aluminum objects to trade for small sums of money.

Circularity works best with high-value items that are simple to access and process since they don't necessitate a major shift in business strategy or extra work to support material recovery. Products in this category are generally lightweight and valuable more for their brand than for their function or material. Businesses that are not now a part of the circular economy have a lot of room to consider doing so.

5. CONCLUSION

In order to realize the environmental benefits, policy frameworks will need to evolve to create the conditions for wider uptake of circular business models. Ultimately, achieving a genuine transition to a more circular economy will be unlikely if circular business models continue to occupy small economic niches. 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, including:

Ensuring the full environmental costs of production and consumption activities are reflected in market prices
Improving collaboration within and across sectoral value chains, through e.g. fostering industrial symbiosis clusters, promoting online material marketplaces or establishing secondary raw material certification schemes, and, more generally, facilitation of cooperation within. The existing regulatory frameworks are coherent and fit for purpose, and not serving to preserve an existing status quo;

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