METABOLIC

City of Amsterdam

Copper8

Circular revenue models

The circular tool box

Content

After reading this article, you will:

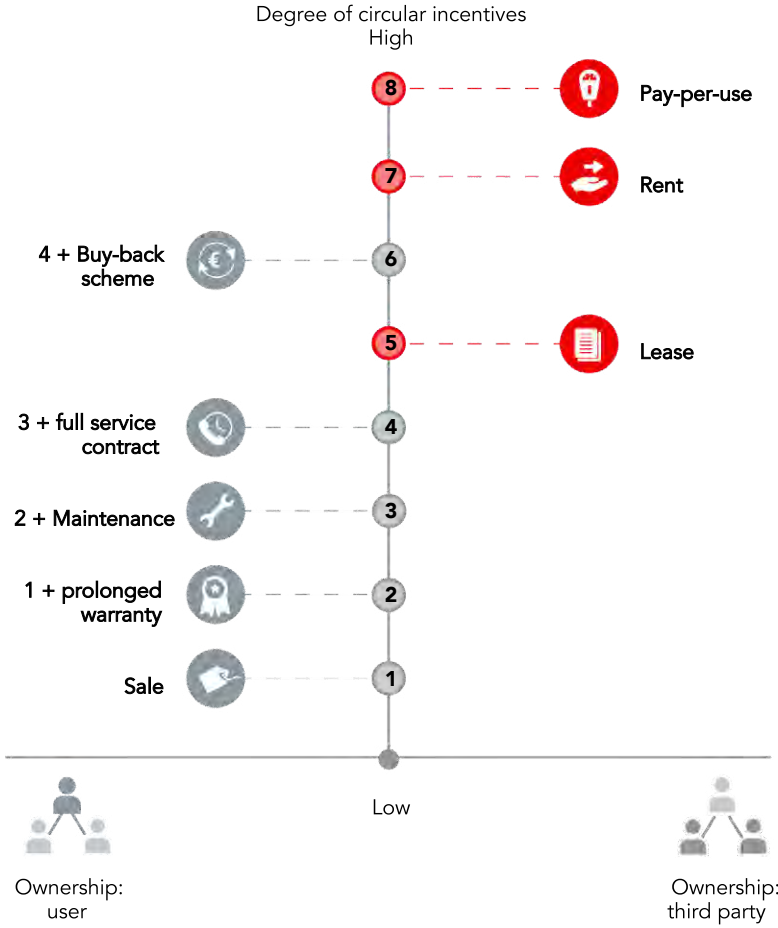
- become familiar with circular revenue models.
- be able to apply circular revenue models to construction.
- understand the current barriers to its broader application.

Summary

Circular revenue models help shape Extended Producer Responsibility (EPR), a policy approach that broadens the responsibility of producers for their products. We distinguish eight circular revenue models that currently give producers a financial incentive to design circularly, to increase the quality of their products, and possibly, to take them back at the end of their service lives (as explained in Figure 1). However, a circular revenue model is not the only thing that makes a product circular; construction products will have to change at a technical level as well.

The application of circular revenue models for construction needs to be developed further, partly because current financing, valuation, and tax and legal frameworks are still geared toward the linear-based economy. As a result, applying a circular revenue model is currently time-intensive, requires a lot of coordination as well as legal costs. Despite the various barriers that make the application of new models more difficult, there are some successful experiments involving products for lighting, walls, and lifts.

Figure 1: Eight circular revenue models (Copper8, 2019)



Recommendations

- The application of circular revenue models should not be viewed as an end in itself, but as a means of putting Extended Producer Responsibility into practice, thereby promoting quality and value retention.
- For the time being, opt for a model for a building in which ownership transfers to the user and does not remain with the manufacturer. A sale with a full-service contract and buy-back scheme currently seems to be the best option. This increases the financial attractiveness of the revenue model and simplifies implementation.
- Opt for circular revenue models in particular for layout (partition walls, pantries, etc.) and for systems (lift, lighting, climate control), areas with the greatest probability for success at the moment.
- As a client, actively request circular revenue models, even if this is not financially more advantageous than standard purchasing. This is a step toward creating more practical experience and further development of the practice, sector-wide.

Substantive deepening

Business model versus revenue model

The terms *business model* and *revenue model* have different meanings, although they are often used interchangeably. A *business model* describes how an organization creates, delivers, and retains value in a broad sense. A *revenue model* provides insight into the way in which an organization generates income. In addition, a *circular revenue model* is the way in which an organization earns money based on a longer-term relationship with the customer (vis-à-vis sales). Examples include maintenance during the entire life of a building or extending the life of that building.

Circular revenue models as a way to shape Extended Producer Responsibility

Circular revenue models, such as buy-back, lease, and *pay-per-use*, are often mentioned as a way to accelerate the transition to a circular economy and circular construction. Since ownership partially remains with the manufacturer, they receive what is called an Extended Producer Responsibility.

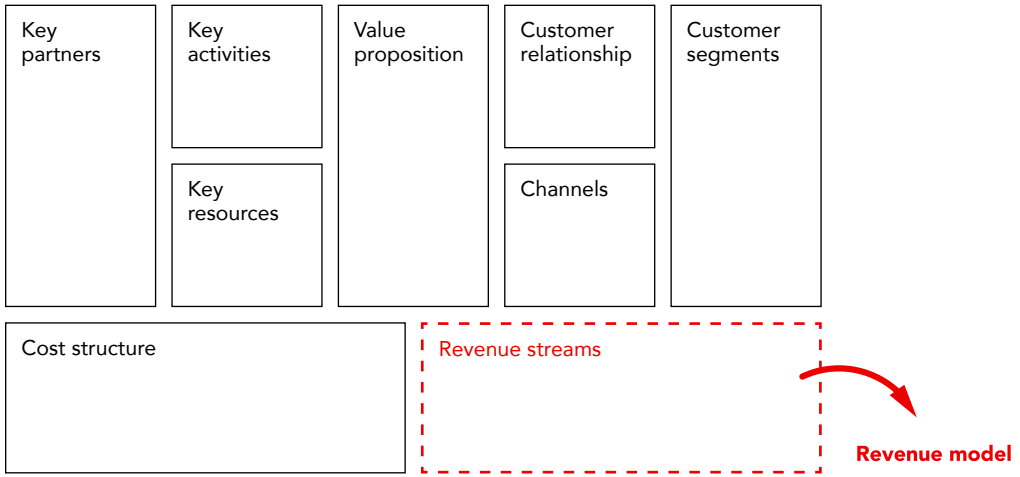
As a result of the shift in ownership, producers are given an incentive to design better products of higher quality, that last longer and retain higher resale value. The importance of this is emphasised in both Dutch and European policy, for example in the Government-wide Circular Economy Programme and the EU Circular Economy Action Plan, respectively.

As stated earlier in this article, a circular revenue model in itself may not lead to increased circularity. After all, a producer can decide to offer lease products instead of selling them, without adjusting the design. That is why a circular revenue model is not an end in itself, but a means of giving shape to EPR.

Eight circular revenue models

Eight different (circular) revenue models can be distinguished that range from a sale to pay-per-use, in which responsibility increasingly shifts from the building owner to the producer. The eight models are detailed below, in order of minimum to maximum producer responsibility:

Figure 2: The revenue model as part of the broader Business Model Canvas (based on Osterwalder & Pigneur, 2010)



1. **Sales:** a traditional model in which producer responsibility is equal to the legal warranty period.
2. **Sales + extended warranty:** a sale in which extra warranty periods are provided on top of the legal terms.
3. **Sales + extended warranty + maintenance:** a sale in which the manufacturer provides maintenance on top of the extra warranty.
4. **Sales + full-service contract:** a sale accompanied by a service contract that provides the customer with a full-service solution, including maintenance, repair in the event of damage, insurance, etc.
5. **Lease:** the user pays a fixed fee to the lease company, which finances the product, if the producer and user are unable or unwilling to finance.
6. **Sales + full-service contract + buy-back:** a sale with a full-service contract

and agreements on buying back, which means the product is returned to the producer at the end of life.

7. **Rental:** the user pays a fixed fee to the producer for product availability, with the financial risk and product responsibility remaining with the producer
8. **Pay-per-use:** the user pays a variable fee to the producer for use of the product, as part of which the price is linked to a usage and/or performance factor

Application: ownership by the producer versus ownership by the building owner

Every structure has its own specific context, which is important when choosing a certain circular revenue model. In general, revenue models "higher" on the ladder provide stronger financial incentives for circular choices. However, in these higher models, ownership of a part often also transfers to a producer, supplier, or external leasing company (for example, in a *pay-per-use* model). Unfortunately, this transfer of ownership presents several obstacles that often make application difficult (see the section below).

It is also possible to apply revenue models in which ownership remains with the building owner (Model 2, 3, 4, and 6). A revenue model based on sales with a buy-back scheme and a full-service contract (Model 6) guarantees relatively large producer responsibility with relatively few barriers. In this model, like in the as-a-service models (Model 5, 7, and 8), the producer is responsible for the product during use and at the end of product life.

Application promising for specific building components

Buildings have a relatively long life, longer than most companies and organizations plan for. Since a building often exists for decades, it is difficult to agree on circular revenue models for such a long timeframe. However, some parts of buildings have shorter technical lifetimes. When viewing a structure in terms of the layers that compose it (see Stewart Brand Six S's model in the Circular Design Paper)[2], the relevant layers are the building's *space plan* (layout) and *services* (systems). Due to the more manageable duration of these product terms (three to 15 years) circular revenue models prove more applicable.

Important barriers

The application of circular revenue models in the built environment is still relatively rare. Practical experience from recent years has revealed a number of important obstacles:[1]

- In the **financial risk assessments** for producers, circular revenue models are often seen as risky due to revenues being spread over time, uncertainty about contract terms, and balance sheet extension occurring due to producers continuing to own their products. As banks gain more experience with circular revenue models, they can better assess opportunities and risks.

- In the **valuation** of buildings, circular revenue models can lead to a lower building value, when the ownership of parts rests with manufacturers. After all, the building is divided into smaller parts, each with a different contract, whereas a building as a whole has more value for investors. Various parties are therefore developing a circular valuation model based on the value of raw materials.[3] Ideally, this will be further developed into valuing individual building components.

- In **legislation**, one of the basic principles of Dutch property law is that the owner of an object also owns its separate parts. If an object becomes part of another object (a wall becomes part of a building), this is called "accession". Consequently, the wall cannot legally be the property of the producer. By applying right of ground lease or the right of superficies, in some cases, ownership can still remain with the producer.

To start removing these barriers, it helps to continue to ask for circular revenue models as a client, to gain practical experience, so that ultimately, circular products of higher quality are delivered.

Case study 1

Facade leasing

Alkondor, a facade manufacturer, offers the user/owner of a building the possibility to lease or rent a facade. Alkondor has developed a facade leasing agreement for the building owner, which defines all performances that Alkondor must deliver within the service offered, as well as the monthly rental costs.

After production, the facade is therefore not sold at a certain profit percentage, but generates a cash flow (rental income) that is spread over the total contract period. This way, Alkondor is assured of continuity for 15 to a maximum of 30 years. Alkondor arranges pre-financing together with lenders.

This revenue model is an interesting way of creating a steady stream of income, but also to safeguard sustainability and circularity. After all, the manufacturer is responsible for the functioning of the product, and can be held accountable for failure to deliver the promised performance. By means of a ground lease arrangement (*right in rem*), letting actually becomes legally possible. In the event of bankruptcy, Alkondor can theoretically reclaim the facade, but since this is not desirable in practice, it has been stipulated that, in such instance, the facade lease will be transferred.

Case study 1

Lift-as-a-service in Circl

Mitsubishi is known globally for its cars, but the company is active in many other markets as well. For example, Mitsubishi supplies high-quality lifts for various properties. Years of experience show that it is sometimes difficult to market high-quality, sustainable products. There is a difference between the interests of the contractor (who builds the building) and the building owner; the contractor has a short-term responsibility, while the building owner has to ensure that the building continues to perform in the long term.

How can you market quality in this scenario and reconcile the different interests? Mitsubishi invented M-use, the lift-as-a-service. Customers can decide what initial investment amount they pay and what part they pay during the life of the building. In addition, part of the payments over the product lifetime is linked to use. If fewer trips are made than budgeted, the user will receive a refund, and vice versa. One of the first applications of M-use was in Circl, ABN AMRO's circular pavilion located at the Zuidas.

The lift remains the property of Mitsubishi at all times, which encourages it to deliver a high-quality and sustainable product. What is special about this product is that different revenue models have been combined: one part purchase costs (*sales*), a periodic component (*rental*), and a usage component (*pay-per-use*).

More information

The following publications offer more information about circular revenue models in construction:

→ **Circulaire verdienmodellen in de bouw: op zoek naar de kansen en barrières (Copper8): a white paper listing the opportunities and barriers of circular revenue models within construction and explaining the next steps.**

→ **Circular revenue models: Required Policy Changes for the Transition to a Circular Economy (Copper8): a white paper describing the broader context of circular revenue models and explaining why financial incentives are so important.**

Footnotes

1. Copper8 (2020) *Circular revenue models in construction: opportunities & barriers*
2. Brand (1994) *Buildings that Learn*
3. Grant Thornton (2020), *Wereldprimeur: eerste vastgoedtaxatiemodel dat ook circulaire bouwmaterialen waardeert*, available online at https://www.grantthornton.nl/persberichten/persberichten-2020/wereldprimeur-eerste-vastgoedtaxatiemodel-dat-ook-circulaire-bouwmaterialen-waardeert/