SUSTAINABLE FINANCE LAB

# FINANCING CIRCULAR SERVICES

How are circular service businesses currently financed? And if not, why not?

**In this paper**

A different approach to risk assessment is needed to finance circular businesses.

Current financing forms need to be adapted to finance circular businesses.

The financial sector could encourage CE by a more proactive role of account managers.

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WORKING PAPER

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The Sustainable Finance Lab (SFL) is an academic think tank whose members are mostly professors from different universities in the Netherlands. The aim of the SFL is a stable and robust financial sector that contributes to an economy that serves humanity without depleting its environment. To this end the SFL develops ideas and provides a platform to discuss them, thus bridging science and practice.

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### Working Paper

Sustainable Finance Lab publishes different types of publications.
This is a Working Paper. In Working Papers SFL members or employees work out ideas that have a more reflective and academic nature. These publications typically do not contain concrete (policy) proposals.

## Background to this report

The Platform voor Duurzame Financiering (Sustainable Finance Platform), hosted by the Dutch Central Bank, has installed various working groups with the aim of making the financial sector more sustainable. Last year the working group 'Financing Circular Economy' was launched. The working group consisted of three subgroups: (1) a level-playing-field, (2) metrics & assessment and (3) a sector's strategy that were sponsored by the Ministry of Infrastructure and Water management.

This paper is a product of the working group a level playing field for financing the circular economy, supported by the working group members: ABN Amro (chair), Bird & bird, DOEN participaties, EIB, Fair capital partners, ING, KPMG, Ministry of Infrastructure and Water management, and Sustainable Finance Lab.



The practices and advice described herein are in no way binding for the individual financial institutions comprising the industry organizations which are part of the subgroup, nor are they committed to take any specific follow-up actions. Furthermore, this paper outlines private sector initiatives and as such does not contain any supervisory requirements.

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# CONTENT

# 1. INTRODUCTION AND BACKGROUND

The European Union and the Dutch government aim for a fully circular economy in 2050. A circular economy aims to use resources much more efficiently, and to eliminate waste and dependency on the use of non-renewable virgin materials. To reach that goal, the emphasis should shift from the current focus on recycling to business models that strategize for higher strategies on the “R-ladder”, such as refuse, reduce, rethink, re-use, rather than the lower strategies such as recycle (PBL 2021). In Circular service (CS) models, generated revenue is no longer based on selling as many products as possible but is rather linked to durability and optimal use of products, providing incentives for the higher R-strategies. The user pays for using a product rather than owning it. Although circular service models seem conceptually like existing rental or lease constructions there are some fundamental differences:

1. Circular assets are of low capital value and can be appreciating. Products offered in circular service propositions are often of relatively low capital value. Think of, for example, headphones, phones or washing machines as opposed to the traditional leased cars and construction machines. Additionally, circular assets are technically to be appreciating assets as they can increase in value and have residual value as they are re-used. This is different from traditional depreciating assets that are depreciated over time and assumed to be replaced at the end of their economic lifetime. As there are no valuation models yet for these types of assets, they are currently deemed unsuitable as collateral in asset-based financing models, such as lease.
2. Businesses with a circular service model are inflating up their balance sheets as their operating assets stay on their balance sheets for a long time. As a result, they must carry the cost of owning large fleets of assets.
3. Operational risks are different as cash flows come in periodically (or sometimes even per usage).

4. Finally, liabilities become complex, because responsibility for the used product is shared by users and its service providers who are in turn dependent on their supply chain partners.

## Circular service models remain difficult to finance

Because of these differences, circular service models have proved difficult to finance [ref]. In the working group Creating a level playing field for financing the circular economy the aim is to use the lever of the financial system to contribute to a level playing field for circular initiatives. This can be done through integrating a circular perspective into risk assessments, experimenting with concrete circular financing deals, and sharing knowledge.

## How are circular service (CS) models currently financed? Why not? What can we learn?

Without knowledge about the specific characteristics of circular service models and fitting methodologies to assess their risk and opportunities, these businesses will keep on struggling to attract affordable capital to scale up their business. Although circular propositions are still in an early phase and therefore not yet perfectly circular and still small, it is important to start taking steps to generate knowledge on this new business logic. Currently, circular service (CS) models are financed – if they are – by customized financial instruments, that oftentimes do not fit the true financing need. At the same time, financial institutions are looking for ways to provide more standardized ways to finance clients that want to transition to a circular service model, or new clients that apply a CS model. Therefore, investigated was the question: how are circular service models currently financed? And if not, why not?



To answer this question, interviews were conducted with 10 people from 4 banks and 2 investment funds with different backgrounds: bankers, investment managers, account managers and impact investors. Concrete CS business cases were discussed and details on the lending technologies were asked, such as terms of the contract, duration, collateral pledges, et cetera. In many cases it was difficult to obtain details, because of confidentiality issues. In addition to that, most parties interviewed only had limited experience with financing CS cases. Only a handful of actual deals were made.

## The more circular, the less financeable

A strong negative connection was found between the circularity of the business and financeability. The service models that were considered truly circular were found difficult to finance, due to a weak business case (long payback period and low revenues). At the same time, the circularity of the stronger business cases were questionable; low value of underlying serviced products and short depreciation schemes do not incentivize longevity but did increase financeability.

The rest of the report is structured as follows: First, we list all the CS cases that were mentioned, their characteristics and the financing rationale. Second, the used financial instruments were mentioned with their limitations, followed by financial improvements that could be made to current instruments. Third, we list regulatory and other obstacles to finance, and ways how businesses, financiers and policy makers could mitigate those. Finally, the results are concluded and discussed.

# 2. CIRCULAR SERVICE BUSINESS CASES

A wide range of CS business cases were mentioned by financiers. The assets can broadly be categorized into four categories:

1. Clothing (3)
2. Electronic devices (4)
3. Mobility (3)
4. Home appliances, furniture, and decoration (4)

The value of the asset varies greatly, with decorative silk flowers being in the lowest part of the scale and e-bikes, laptops and washing machines being assets with the highest capital value. 10 out of the 14 cases were financed by banks or investment funds, some of them having multiple funding sources. One of the cases mentioned faced bankruptcy and 4 of the 14 CS cases went through a screening phase and did not obtain financing.  While all 14 CS businesses serve the B2C market, 4 of them also cater the B2B market.

In terms of circularity, 2 cases were not deemed circular at all and did not receive financing. For the remaining 12 cases, 9 of them were considered circular because they had a clear connection to the manufacturer (sometimes inhouse) to assure the use of the asset for multiple cycles and recovery at the end of its life. There were 3 CS cases that were deemed partially circular as they struggled to connect with the manufacturer (but tried) to replace a specific component without having to discard the old asset and replace it by a new device. Lastly, a business case servicing LED lighting, had difficulty to assure multiple lifecycles since detaching it from buildings is expensive, but necessary form a circular perspective.

Discussed cases are summarized in Table 1.

## Table 1. Overview of discussed cases with a summary of circular and financial implications

| Type of asset | Type of PaaS | Price (eur) | Customer base | Circularity consideration | Financed | Financing Rationale |
|---|---|---|---|---|---|---|
| **Clothing** | | | | | | |
| Baby clothing | monthly rental suscription | NA | B2C | Yes | Yes | Financed because of strong circularity despite weak initial business case |
| clothing library | monthly rental suscription | NA | B2C | Yes | Yes | Low revenue and lack of customers. If utilization rate is low, users have incentive to buy clothes instead of renting.<br><br>They now commercialize their software platform as a Service (SaaS) increasing their appeal. |
| High quality Jeans | monthly rental suscription | 119-139 | B2C | Yes | Yes | Financed due to high circularity despite low revenues |
| **Personal use electronic devices** | | | | | | |
| Apple devices iPhone, iPad, Apple Watch | start fee+monthly leasing suscription | NA | B2C | Yes:High utilization rate<br>No :lack of agreement with manufacturer to replace battery at end of life | Yes | Replacement of parts was not possible, needing to replace old devices by new. This made suscriptions costly, dried up customer base and lead to bankrupcy |
| Sustainable Phone | monthly leasing suscription | 399-439 | B2C | Yes | Yes | Multiple funding sources due to high circularity, marketability and capital value |
| Headphone suscription | monthly leasing suscription | 159-325 | B2C and B2B | Yes | Yes | High circularity but for consumers, high suscription cost might push for buying instead of leasing. |
| Laptop suscription | monthly leasing suscription | NA | B2C | No: lack of agreement with manufacturer to replace battery at end of life | No | Lack of circularity made it difficult to differentiate from regular leasing business, hence financing not possible |
| **Mobility** | | | | | | |
| E-bikes | yearly or bi-yearly leasing suscription | 2000 | B2B and B2C | Yes | Yes | The company belongs to a larger linear holding that served as back up. The B2B component of the project, the circularity ad the high utilization rate expected for the B2C also contributed to financing |
| Recycled chidren's bikes | NA | NA | B2C | Yes | No | Despite high circularity, expected revenue was extremely low |
| Electric Scooters | sharing pay per minute | NA | B2B and B2C | Yes: certain parts were refurbished<br>No: The battery is not modular so not replaceable | Yes | High utilization rate and demand for this service, as well as connection with manufacturer to refurbish are advantages. Risks perceived are no-usage risk and which party absorbes the risk. |
| **Home appliances, furniture and decoration** | | | | | | |
| Washing machines, tumble dryers, dishwashers and coffee machines | fixed fee+monthly leasing suscription | NA | B2C | Yes | Yes | Multiple funding sources, existing second hand market for machines |
| LED lights | monthly leasing suscription | NA | B2B and B2C | Yes: lower energy consumption<br>No: problem to remove them from building. Difficulty for multiple lifecycles | No | Low residual asset of led lights and the difficulty of removing them from buildings after lifecycle is over made financing not possible. |
| Mattresses | monthly leasing suscription | NA | B2C | Yes | Yes | The company belongs to a larger linear mattresses holding that acted as collateral. The PaaS part of the business represents 2% of total. Risk of lending is minimal. |
| Decoration bouquet flowers made of silk | monthly renting suscription | NA | B2C | No | No | Unclear circularity benefits and low residual value of asset |

Conclusions visible from the table are that lack of circularity is an obstacle to financing, and that all CS businesses that have a B2B component were financed. Higher price assets are also more often financed than assets such as the decoration bouquets. The reason behind these observations will be further analyzed in the following section.

# 3. FINANCING STRATEGIES: BARRIERS AND MITIGATING STRATEGIES

Through the analysis of the different financing strategies, some factors stood out as relevant or critical to make a business case appealing or suitable enough to be financed. The main factors were:

1. Having a (partially) business-to-business (B2B) proposition,
2. Having re-marketable assets or being part of a larger holding,
3. Be able to prove the circularity of the case,
4. Funding need is too small and too early stage for banks,
5. Legal barriers.



In this section we will provide an overview of those relevant factors and their mitigating counterparts.

### 1. Circular services with a business-to-business (B2B) component are easier to finance

B2C models are problematic for banks since they make the collection of assets difficult in case of default. This is due to a lack of tracing/monitoring capabilities, expenses to be made to return the assets, a linear perspective on risk assessment and a focus on assets, rather than future value of cashflows.. Additionally, in a B2C environment, operational risks are high as income is unpredictable. This is especially the case in mobility, for example, that use a pay-per use and/or sharing model where no-usage risk is high. To aggravate matters, a clear definition oftentimes lacks on who bears this risk, the business, or the bank (Bank 2, Employee B).

#### Mitigating factor:

- Having evidence of high demand for a service can act as leverage to the risk of no-usage in case of a pay-per-use model. Having large, expected revenue due to known high demand can mitigate the risk as high

utilization rate makes up for uncertainty in revenue stream. (Bank 2, Emlpoyee B).

- For pay-per-use CS models, clarifying in the contract who bears the "no-usage risk" and who bears the risk if the price of the asset falls, is important to avoid uncertainty perceived as risks for financial institutions.

On the flipside, B2B models provide better grip on the asset since they are found at few locations, they provide stable revenue and creditworthiness of clients is much easier to check than in B2C. The tenor of the contract for B2B is also often longer, which provides more stability and better expectation of the future revenue stream (Bank 2, Employee B; Bank 1, Employee A).

### Mitigating factor

- Having a B2B component in the business or increasing the B2B part as a condition of the loan when financing a CS model made the difference, in the decision to finance an e-bike company. It was quoted as a desirable feature that mitigates risk by several interviewees.

## 2. Collateral: having remarketable assets or being part of a larger holding



A way to mitigate the risk of a circular service model is to have more grip and security on the collateral value of the underlying assets, for example, by proving marketable value in a second-hand market, or buyback guarantees by supply chain partners.

*"The assets must be remarket-able [...]. We like to have a grip on the assets. We want everything to know about the secondhand markets of the assets."*
Employee A, Bank 1

Another way is to provide a track record of stable historical cashflows. Both are, however, often difficult for CS models to overlay, and that is why circular services that are initiated or backed up by a larger established (linear) holding, that can provide the necessary collateral and revenue stream, is a strong card for circular services with a funding need. For banks, CS businesses that were financed were part of a larger holding to back them up. Moreover, the part dedicated for circular services represented oftentimes only a tiny part (< 2%) of the total credit facility available for the larger holding, meaning that the risk for the bank is minimal, if considered as a ratio of the total (Bank 1; Bank 2).

### Mitigating factors:

- When due to low value of assets, no grip on the assets, or lack of historical data as well as long payback periods pose a problem. The

'Groenregeling', for example, creates a possibility for banks to get cheaper funding. People with a Green Saving Deposit (GSD) have a tax benefit and as a result accept a lower interest rate. The cheaper funding is – as a Green Discount – forwarded to clients with a Green Loan (E-bike case of Bank 2, EIB loan allowed for a discount in loan). Two banks and fund investors mentioned this as a mitigating element.

- Knowledge of amortization/depreciation schemes and a mature second-hand market of the underlying asset improves the suitability of using the asset as collateral for finance (Bank 2, Employee A).

### 3. Circularity: involvement of manufacturer

For both investment funds, but also for bankers, proving the circularity of the business was an important driver to deciding on whether to finance them. Either by proving that the lifetime of assets was extended by refurbishment or maintenance, or by showing the increase of their utilization rate. Not only because of sustainability concerns but also because only then the asset continues to generate revenue after its' economic lifetime. As a financier put it:

*"The longer the asset is in the loop, the more revenues it can generate for you"*
Employee B, Bank 2



The lack of parties that are able or willing to re-use the product or parts proved also problematic. Some cases (e.g., e-scooter, laptops, and phone services), proved that having a connection to the manufacturer, or other party that can replace parts of the product, is essential. If such a relationship is not established, the product cannot draw on the added revenues generated by multiple lifecycles. On the contrary, the service provider must reinvest in entirely new products which not only is not circular, but also increases costs, and in turn subscription fees and dries the customer base.

*"If there's a CS, and the manufacturer is not involved at all, you immediately have an obstacle because: what will you do with the objects at the end of the first lifecycle? Who takes care of them [...] you need to set that up, together with other external parties"*
Employee B, Bank 2

The above factors seem to play a determinant role when it comes to financing or not a CS model. But they are not the only elements financiers look at. The section below outlines other relevant obstacles to financing as well as helpful risk mitigating strategies. Both financing barriers and enablers are divided into Financial /Regulatory and Circularity criteria.

### Mitigating strategies:

- For investment funds, but also for certain banks, minimum circularity criteria are required to allocate funding. Having a proposition that is truly circular can compensate in the case of investment funds for a less strong business case or lack of historical data or difficulty of having grip on the asset (Investment Fund 1, Impact investor A)
- Have a strong plan for how to become more circular in the future can improve financing possibilities as some banks improve financing pricing as companies achieve certain predetermined circularity benchmarks (Bank 4, Employees A & B). When a CS business commits to reaching certain circularity benchmarks upon which the bank can extend the amount of the loan or offer more competitive rates. This is a smart strategy to overcome the profitability vs. circularity trade-off mentioned before. This is also an incentive to boost circularity for businesses that are not circular enough for stricter fund requirements.
- Service assets that have relatively high capital value as opposed to cheap assets as they counterpose the circular incentive.

### 4. Other financial instruments are required: small ticket equity



Some companies are looking for relatively small amounts of funding. For banks who usually finance from half a million euro onwards, or even with company debt size of minimum 5 million onwards, these cases represent too high a risk and too low potential revenue (Investment Fund 1, Impact investor A). Because of a lack of early-stage venture capital, circular service initiatives oftentimes struggle to grow the scale needed to meet the criteria for bank finance.

- Having multiple sources of funding to increase subordinated capital (Investment Fund 1, Impact Investor A). The business cases for servicing phones, washing machines, tumble driers and coffee machines, having diversified sources of funding is useful to not put too much weight, and hence risk, on one single financing entity.

### 5. Legal barriers

Another barrier that is mentioned to influence the financing decision are for legal reasons. Article 4 of Book 3 of the Dutch Civil Code explains the concept of “natrekking” according to which the ownership of an asset joined to a building cannot be separated from the ownership of the building. That undermines ownership rights and circularity incentives of CS assets, since, in case of LED lighting, solar panels or heating pumps, third companies that service those assets, struggle to retain ownership of their asset. Business cases that involve attachment

to buildings or larger structures not owned by the same business are therefore difficult to finance (Bank 4, Employees A & B)

Another disincentive to finance, is the need for tailor made contracts for circular services that are too costly for small companies (Bank 1, Employee A).

## Mitigating factor:

- Current EBA regulation does not allow for loans to be underwritten by pledging contracts as collateral, but investment funds can. Investment fund 2 took 2 types of coverage for their loans: assets and customer contracts (Investment Fund 2, Internal Presentation). Accepting contracts as collateral could allow for more bank financing.

# 4. NEW FINANCING FORM FOR CIRCULAR SERVICE COMPANIES

This section gives an overview of financing forms that were mentioned to be used to finance circular services, and the advantages and disadvantages of these financing forms. The section is concluded with some insights of characteristics of financing forms that were mentioned to be desirable that fit circular service models better. Financing forms that were mentioned to be used most often were the following:



- Vendor Lease
- Revenue-based loan
- Term loan

## Vendor lease

Vendor lease was mentioned as the closest fitting structure to circular service models since a lot of CS models are forms of leasing or renting. However, vendor lease is a form of asset-based financing, focusing on the underlying asset as the primary source of collateral. As CS assets often have no known residual value yet, no mature second-hand markets, and are priced to be linearly depreciated assuming replacement with new assets at the end of their economic (not technical) lifetime. Hence the assets hardly serve as collateral. This makes a case to look at other sources of security for financing, beyond the assets themselves. Also, it conflicts with the circular logic as it leaves little incentive to re-use the asset.

## Revenue-based financing

In revenue-based financing, investors receive a periodic share of the businesses income until a predetermined amount has been paid. This form of financing is considered a hybrid between debt and equity as payments are not fixed and are proportional to how well the business is doing.

As circular services' main asset are the cashflows that are continuously generated from the assets, revenue-based financing seems to fit quite well. Revenue-based financing is very flexible and can even be turned into equity if the company can't repay. When there is no revenue yet, there is no pressure to repay, contrary to a fixed repayment schedule like in a term loan, which is discussed below. In the mentioned revenue-based financing structure, loans were backed with assets and customer contracts. For investment funds, however, it seemed that companies took too long to generate enough revenue, to survive without the need for more capital injections, creating an ongoing dependence on external capital. For the businesses themselves this financing structure was too expensive, given the small margins in the beginning. Another drawback to this structure is the increasing cost of money once the revenues increase. This made the remaining margin too low at the end for them to reinvest and scale up. Around 70% of start-ups could not survive after the first year without another capital injection, since the financing cost was too expensive (Investment fund 2, Impact investor B).

### Term loan

A term loan provides the borrower with a lump sum of cash with specific terms: a certain payment schedule against a fixed or floating interest rate. Term loans are generally targeted for businesses with sound financial statements. The advantage for using term loans for financing circular services is that they are more readily available than more sophisticated tailormade products. The main disadvantage of this financing structure, however, has to do with the funding need of circular services. Circular service companies need working capital to acquire operating assets as they grow. In a term loan all the capital is provided at once, at the start, and interest is charged immediately whereas the assets are not yet generating cashflows. Therefore, for circular services this can be an expensive financing form.

### Other - more suitable? – financing types

The lack of flexibility of a term loan and vendor lease raises questions on their suitability to finance CS. Revenue based financing provides such flexibility by moving along the revenue of the company. However, its high cost puts a strain on CS that struggle to build up sufficient revenue to scale up and consolidate. Another key difference of CS models versus other (linear) business models that was mentioned was that the returns are expected to be moderate or lower but are expected for a much longer term. Financing types with flexibility, long-term and a lower return expectation would be a step closer to finding a proper form that fits this business model. Existing financing forms that were mentioned that might fit better to the CS model were: Project Finance, a credit line, and green bonds. More flexibility is allowed through project finance and a credit line, while green bonds provide an idea of what a low return instrument would look like.

## Project finance

There are similarities to be found in the structure of securing Project Finance and CS models as securities lay in future cashflows that are generated by an asset and the relationships (i.e., supply chain partners, service providers and users) organized around that asset. When assessing risks of a CS model by existing Project Finance models, the CS risk is assessed to be lower (Bank 1, Employee A). The problem of the growing balance sheet and negative EBITDA are offset. Project Finance is repaid by the business from the cashflow. The business' assets, rights and interests are pledged as secondary collaterals. Project finance is perceived especially attractive because businesses can obtain funding off-balance sheet as it is structured in a separate (isolated) entity. This offsets the risk of the growing balance sheet risk. Another upside to is that Project Finance structures are allowed to pledge contracts as collateral. To use project finance for (smaller) loans some form of standardization is required. Sustainable energy projects - such as wind and solar - are now financed on a large scale by banks because there is standardization in contracts and models. Moreover, those projects often receive government subsidies that mitigate risks involved in these projects. Therefore, standardization and a form of public financing to mitigate risks, is necessary.

## Credit line



Another instrument that provides flexibility is a credit line that doesn't require paying commitment fees like in term loan. The credit line is used along with the need of financing depending on the amount of assets businesses have in the market. However, you need good monitoring tools for this (Bank 2, Employee A). By doing so, and not committing to a one-time loan allocation for a big amount, CS businesses can avoid locking in their working capital (Bank 2, Employee A).

## Low return instrument

Revenue-based financing is attractive for its flexibility but is quite expensive. Using green bonds to finance debt is appealing since these bonds don't expect a very high yield and accept lower interest. This is interesting for CS financing because of low initial revenue and the fact that CS businesses cannot afford to pay much on their debt while still growing (Investment Fund 2, Impact investor B).

# 5. CONCLUSION

Across financial institutions, there is a consensus of the barriers and perceived risks of financing circular service companies. Also, there is agreement on the fact that the instruments needed to finance circular services already exist. What is needed, however, is a different approach to risk and innovative ways to adapt current financing forms to a circular business model. Current financing forms have certain advantages, but they come short to adapt to circular service models. Namely, more flexibility and less expensive financing is needed.

Instead of expecting a big holding behind every circular service, which would prevent smaller businesses to take the lead in innovating business for circularity, relying more on circular service contracts that materializes as future revenue is key. Instead of expecting contracts with high returns, which requires charging a high price and scares off demand, value smaller returns over a longer time span.

Financing operating assets for circular services, requires a flexible financing structure: only when the business grows and new assets are required, a new funding stream needs to be tapped.

Lastly, what would help for the circular economy to grow is a more proactive role of account managers to approach their customers with a financial proposition for circular initiatives or projects. Starting with bigger companies that are easier to finance and, when knowledge is gained, gradually extend the proposition to smaller companies. Education on circularity within banks is necessary to shift the concept of value to include long-lasting subscription contracts that secure stable cashflows for years in the future, and to recognize residual value of assets that can be reintegrated into a supply chain if refurbished/maintained.

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