MAKING CYCLING CIRCULAR: THE CASE OF SWAPFIETS

Ensuring long-term financial viability for circular Product-as-a-service businesses

A white paper of

COALITION CIRCULAR ACCOUNTING

CIRCLE ECONOMY

NBA Koninklijke Nederlandse Beroepsorganisatie van Accountants

INVESTNL

CONTENTS

KEY TAKEAWAYS

This white paper elaborates on the need and potential of integrating information on circular impact into the financial reporting of a company. Key takeaways include:

1. **CURRENT TAX POLICY DISINCENTIVISES CIRCULAR VALUE MODELS:** Taxation is a regularly used method to incentivise 'good' value-adding behaviour and disincentivise 'bad' value-extracting behaviour among businesses and individuals. Despite this, the existing tax system is yet to start actively supporting a circular economy, and in some cases circular business models are required to pay even more tax in comparison to their linear counterparts. If the tax system were to change to accommodate circular businesses, the result would be beneficial to businesses, consumers, the government and wider society, as it would be a considerable step toward decoupling economic activity from the consumption of raw materials and resources. It should be noted that the complex frameworks that guide these primary taxations are somewhat rigid and difficult to change. 'Pseudo' taxes such as subsidies, and grants are a more effective short-term solution while the processes to shift legislation are pursued.

2. **EXISTING DEPRECIATION SCHEMES RESTRICT THE FUNDING CONDITIONS FOR CIRCULAR BUSINESS MODELS:** The linear manner in which asset depreciation is accounted for (i.e. a fixed depreciation value that is detached from the actual value) poses a problem for Product-as-a-Service (PaaS) businesses, whose financing structure is based on asset value rather than business or contract value. Linear asset depreciation fails to consider the value that service providers add to their assets through regular maintenance, repair and replacement of parts. This means that the depreciation period is also shorter (more rapidly declining) than we see in actuality with circular businesses. An underestimation of the residual value of assets means that financiers see PaaS businesses as riskier than single-sell businesses. This results in PaaS businesses receiving less favourable financing conditions, but it also acts as a direct disincentive for maintaining or adding value to a product, as the effort of doing so is not financially beneficial.

3. **PRODUCT-AS-A-SERVICE BUSINESSES OFTEN FACE A TRADE-OFF BETWEEN SHORT TERM PROFITABILITY AND CIRCULARITY:** Selling the use of a product instead of the ownership of a product is not a 'silver bullet' in regard to the circular economy, nor is it the only way of conducting business in a circular way. The business model is however one of the most prominent tools for enabling circularity in businesses—service providers are incentivised to maintain the value of the products they provide as-a-service by offering high quality and durable parts. Unfortunately the novelty of this approach means that many processes—particularly in taxation and accounting—are not oriented to the needs of PaaS businesses. In some cases, the legislation and norms to which PaaS must abide require them to either restrict their circular ambitions or restrict their profitability, and the two often have an inverse relationship.

1 INTRODUCTION

Today, the economic imperative in the vast majority of the world is growth, and this is often pursued through the extraction of resources: as society becomes more developed, its demand for raw materials increases in tandem. A circular economy can address this challenge by using less, for longer, and with regenerative materials—while closing the loop on products and materials at their end-of-use.[1] Transitioning to a circular economy requires new and innovative ways of doing business.

In contrast to a 'for-sale' business model, the Product-as-a-Service (PaaS) business model ensures that the provider retains ownership of products and provides customers with their use solely as a service. As such, businesses are incentivised to create and maintain durable products that are easily repairable, refurbishable and recyclable at the end of their useful life.[2] Unfortunately, however, we see that promising circular businesses that adopt the PaaS model are impeded by the linear context within which they operate. Various legal, financial and accounting practices rely on assumptions of linearity, and this restricts both the circular incentives and financial viability of PaaS businesses.[3]

This paper looks at two specific challenges PaaS businesses face: the first relating to rigid tax incentives, and the second regarding current depreciation schemes that fail to recognise the long-term value of these businesses. Currently, overcoming such challenges requires circular businesses to operate within the existing linear ruleset and adapt their way of doing business—often to the detriment of the model. This paper will explore potential business solutions to these external challenges, but will also make resolute suggestions for legislative change.

1.1. ABOUT THIS WHITE PAPER

This whitepaper details the findings of an endeavour by the Coalition Circular Accounting (CCA) to address the tax and accounting challenges faced by 'Bike-as-a-Service' provider Swapfiets.

The company serves as an indicative case study through which to highlight the shortcomings of existing tax legislation and accounting practices. The paper details the outcomes of a collaborative research effort that the CCA held with Swapfiets, focusing on how the company can best navigate the challenges they face as a prospective circular business in a linear world. The following sections detail the findings of the CCA —by focusing on the disincentives created by existing tax structures, we hope to inform other circular PaaS providers as to how they can overcome the financing challenges produced by linear accounting rules and traditional practices of financial institutions.

1.2. PRODUCT-AS-A-SERVICE

In traditional models of business, customers purchase products from suppliers and the legal ownership of the product is transferred. When a supplier engages in a seller-buyer relationship such as this, they relinquish responsibility for the product and are then unable to recoup its residual value at the end of its useful life. In contrast, the PaaS business model allows the supplier to retain ownership and oversight of the materials that constitute a product, thereby making it possible to reuse and refurbish the parts that may still be in working condition.

This demonstrably benefits companies, consumers, government and wider society. The company is able to keep its products at their highest level of value for the longest period of time, capturing residual value for the product or its parts at the end of its useful life. In turn, consumers can access a high-quality, durable product with a lower personal risk of accidental damage or breakage. For society, the planetary benefits are clear: lower dependency on virgin materials. Socio-political benefits, such as less reliance on foreign imports and the generation of local jobs, may also be apparent.

ABOUT THE COALITION CIRCULAR ACCOUNTING

Circle Economy, The Royal Netherlands Institute of Chartered Accountants (NBA), and Invest-NL have formed a coalition to jointly identify and investigate reporting and accounting issues in the circular economy. The coalition consists of internal financials, financiers, sustainability consultants, accountants and researchers. In the CCA, we collaborate to gain a better understanding of current financing and reporting guidelines and, where necessary, to formulate new guidelines that are fit for purpose in the circular economy. The coalition utilises a variety of practical case studies to investigate challenges and develop new knowledge and potential solutions.

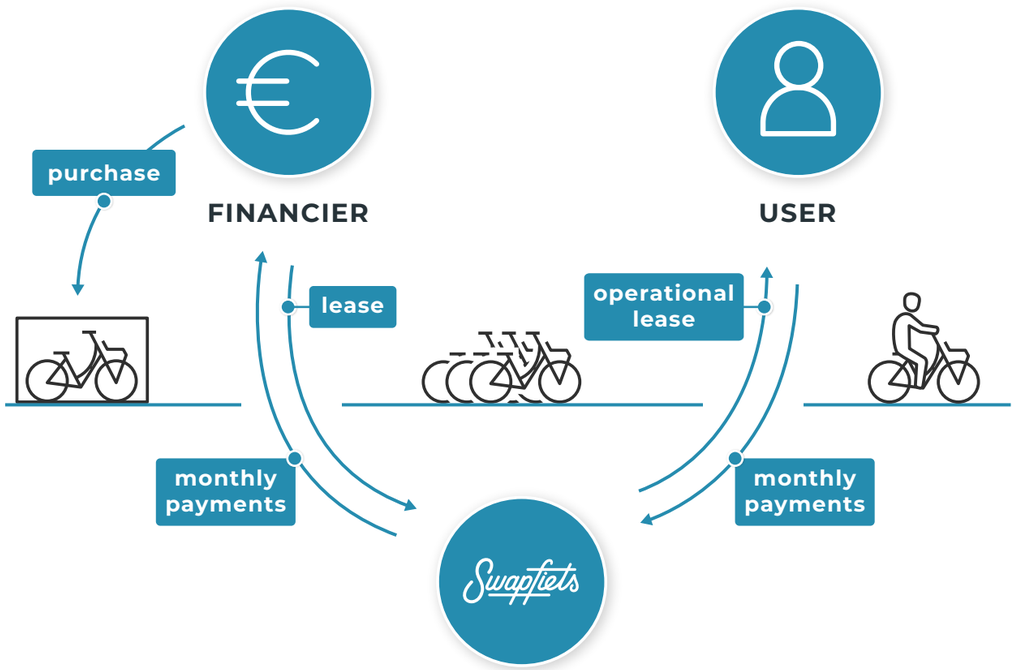
The CCA has been working on the Swapfiets PaaS case in a Community of Practice (CoP) format—a pre-competitive environment where stakeholders with different professional backgrounds share and develop knowledge.

1 INTRODUCTION

Figure one depicts the Swapfiets Business Model, showing the relationship between the business, the financier, and the end user. The Swapfiets Business Model:

The financier purchases a fleet of bikes and leases them to Swapfiets. It holds the assets on its balance sheet and earns a profit over the lifetime of the asset.

The end user (customer) leases the bike directly from Swapfiets with repairs and maintenance included in a single monthly fee. The customer has no option to buy the bike outright.



As Swapfiets has members subscribe to a bike rather than selling them, the revenue is spread over the lifetime of the bikes. To avoid short-term capital troughs, Swapfiets leases the bikes rather than purchasing them outright.

Swapfiets pays a set monthly fee to a financial service provider for a fleet of bikes, with the option to purchase them outright after the leasing period.

ABOUT SWAPFIETS

Swapfiets is a subscription bicycle company that provides users with a fully functional bicycle in exchange for a monthly fee. Included in the 'fully functional' element is unrestricted access to in-store services for maintenance and repair. The company aims to offer users a 'hassle free' cycling experience by selling a bicycle as a service—taking full responsibility for all inconveniences and breakdowns. Founded in the Netherlands in 2014, the company has grown to serve 285,000 users across nine European nations.[4] It targets the most liveable cities in Europe, where cycling is considered, or becoming, a primary mode of transportation.

Swapfiets is perhaps the most prominent example of a circular PaaS in the Netherlands. It is a registered B Corp organisation and has lofty ambitions to leverage its business model to create products that are more circular - current strategic focuses for the business include engaging with part suppliers (e.g. tires, lights) to consider circular PaaS models, and improving the amount of renewable resources in its product line. It provides us with an illustrative example of the challenges faced by circular PaaS businesses.

2 LEVELLING THE TAX PLAYING FIELD FOR PRODUCT-AS-A-SERVICE BUSINESSES

2.1 TAXATION AS AN ENVIRONMENTAL INCENTIVE

Taxation is an invaluable political tool thanks to the revenue it provides governments to fund common goods, redistribute income, and invest in infrastructure. Applied effectively, it can also be decisive in incentivising 'good' behaviours and disincentivising 'bad' ones among both businesses and individuals. Taxation has, for example, been fundamental in reducing the amount of tobacco consumed in many parts of the world,[5] and the more price sensitive the population is to a product or service, the more effective the taxation.

In the EU, one of the stated principles for environmental policy is that 'the polluter should pay,[6] but in some cases the existing tax structure ensures that this is not the case. For example, only 6% of total tax revenue in the EU comes from environmental taxes (on resource use, emissions or pollution) while 52% of revenue in Member States is derived through labour (income tax, social security and payroll).[7] The effect of this is significant: the high taxes on labour ensure that the opportunity cost of its use is higher than that of resources—which is still relatively tax free. Businesses are incentivised to maximise the use of resources and minimise the use of labour, meanwhile individuals are required to pick up the cost of government spending. In this way, the tax stimuli for the linear economy and the circular economy are unbalanced, often prompting companies to pursue 'business as usual' approaches rather than embracing circularity.

It has been argued that lowering the tax burden on labour and increasing taxes on pollution and resource use would address these challenges in a systemic way, spurring both socially and environmentally beneficial outcomes.[8] Research from the Ex'Tax Project suggests this would instigate a shift towards decoupling economic growth from emissions and resource consumption, supporting labour-intensive repair and recycling activities—making used resources more competitive in the marketplace. While some research contradicts the extent to which these environmental benefits would be felt,[9] it is clear how the change would provide greater incentives for businesses to become circular. Let's consider Swapfiets, for instance: as a business focused on limiting the amount of virgin resources it uses, it is clear that such taxation changes would bring huge benefits—and that these benefits would grow over time.

It is clear, however, that such a large-scale change will not happen in the short- to medium-term, and certainly not in the time frame required to aid circular PaaS businesses like Swapfiets' immediate taxation challenges. But income and resource taxes are not the only forms of taxation that contribute to the misaligned incentives for progressions in the circular economy.

Currently Swapfiets and its users, like many circular PaaS businesses and consumers, are required to pay more value added tax (VAT) over the lifetime of its products than in a linear, single-sell model. The recurring VAT fee of 21% is incurred at each subscription payment, as opposed to the one-off alternative in a traditional business. As this section will highlight, Swapfiets, like many circular PaaS product providers, are ultimately required to pay more VAT than a traditional bike shop that sells bikes and maintenance services separately. In order to be able to apply the reduced VAT rate on its repair activities, Swapfiets will have to make considerable changes to its existing business model.

2.2 VALUE ADDED TAX AND THE CIRCULAR ECONOMY

VAT, in its current form, was designed in the early 20th century and was enacted in the 1960s and 1970s in Europe, with the rest of the world following suit shortly after. VAT is a consumption tax on goods and services that is levied at each stage of the supply chain where value is added.[10] More than 170 nations have opted to implement the VAT or an equivalent indirect tax (GST, JCT, etcetera) as an improved sales tax to replace all other sales taxes. VAT has been so successful due to the fact that it is relatively invisible in perception to the public. It collects relatively large amounts of tax as it encourages tax compliance by closing most loopholes, and the evasion routes that would result from international disharmonisation.

At the European level, the minimum standard VAT rate stands at 15%, yet most countries have opted for a higher standard rate which averages around 20%. The EU also allows for a maximum of two reduced VAT rates to be introduced, the lowest of which must be 5% or above.[11] In the Netherlands, for example, there are three basic rates of VAT: 0%, 9%, and 21% as the general tariff—next to these rates, certain supplies of goods and services are exempted from VAT, zero-rated, or fall outside of its scope (for example, damage payments and dividends). In principle, the standard VAT rate of 21% applies to all goods and services unless there is a reason for a VAT exemption, reduced rate or the 0% rate. A business may be eligible to apply for a reduced VAT rate of 9% if it provides an approved good or service like supplies of food, services by hairdressers or labour work in relation to bike repairs.[12]

Given that one of the services on which the reduced VAT rate is applicable is bike repairs, it would make sense that Swapfiets is eligible for the 9% reduced rate on its repair services. In order to mitigate the overconsumption of new materials and to ensure local job provision, Swapfiets has developed its entire business model around reducing reliance on new bicycles. Yet this is not rewarded nor incentivised by lowering the amount of tax the business (and thus its customers) must pay. The current eligibility criteria for the reduced rate on repairs seemingly prevents Swapfiets from applying the 9% rate on its repair service, and the primary reason for this is the hassle-free monthly subscription payment customers pay for an all-in-one service that is strictly a generic service subject to the standard rate of 21%. Although the repair activities are an integral part of the Swapfiets business model, the all-in-one payment structure makes it unclear to customers that they are paying for a multitude of different services subject to other rates separately seen, rather than for a single working bike. This is an important distinction for the current legislation around composite supplies. From a VAT perspective, the service supplied by Swapfiets (i.e. the rental of the bike and the repair services) is considered a composite supply subject to the 21% VAT rate. Under the existing legislation, as long as Swapfiets' service offering is wrapped into an all inclusive service, it will be unlikely to be able to apply the reduced rate on repair services. As a result, Swapfiets customers are generally paying more VAT over the lifetime of the product than a single-sell equivalent—and worse yet, the longer the bike remains in service, the wider this gap becomes.

2.3 CURRENT VALUE ADDED TAX LEGISLATION DISADVANTAGES PRODUCT-AS-A-SERVICE BUSINESSES

The key benefit of the PaaS approach is that the producer retains ownership of products, and is therefore incentivised to take good care of the products by repairing them and retaining their highest value. The provider is able to manage its own repairs to ensure that maximum value is maintained, but is also then able to properly manage the parts at the end of their useful life. Incentivising PaaS models is essential to creating an effective circular economy.

The case of Swapfiets is an example of how existing legislation actually disincentivises circular businesses. Under the current requirements, applying the reduced VAT rate on repair activities

would logically mean considering Swapfiets' repair service as a separate element, rather than a part of a 'composite supply'. Composite supply is the technical term given to a situation where two or more goods or services, subject to different VAT rates, are supplied together. This is a concept developed by the Court of Justice of the European Union (CJEU) and enshrined in the legal framework through case law, rather than by the legislation itself. The overall legal framework of which policy can also be a part is designed to identify the correct taxation in instances of complex supplies of goods and/or services. For more information on the composite supply rule please see *Annex 1.2 Composite Supplies*

Currently, there are three approaches to dealing with the issue of composite supplies (specific cases provided in Annex 1.2). The main rule, splitting, denotes that the two (or more) services are sufficiently distinct to have their own VAT treatment independently from each other. For Swapfiets, this would mean that the renting services would remain taxed at 21%, but that the repair services would be taxed at 9%. This would, however, require Swapfiets to ensure a number of criteria are met, with reference to the cases in Annex 1.2:

- Every supply (the renting of the bike and the repair of the bike) needs to be distinct and independent.
- To consider each supply as independent, they must be an end in itself for the average consumer.
- The consumer must be able to benefit from one service without having to benefit from the other, so the repair service would likely have to also be provided separately.
- Having different invoices is not enough to determine that services are independent.

Furthermore, there are two notable exceptions to this main rule. The first—'single supply'—states that in cases where the provided services are so closely linked that it would be artificial to split them, the standard rate should be applied to all as a 'single supply'. The second—'principal and auxiliary'—dictates that in any case where there is an obvious primary service (for Swapfiets, using the bike) and one or more ancillary services related to this (repairs of the bike), all elements should be treated in line with the primary service. Both of the exceptions would likely see the 21% rate applied to all of Swapfiets' business activities, as things stand.

This means, effectively, for Swapfiets to be able to apply the reduced rate it would have to fundamentally change its business model. Swapfiets would need to ensure that all customers are completely aware that they are acquiring two separate services. To do so, the bike and the repair service would likely have to be provided separately and through different subscription payments. This is a change that would impact the desired customer experience for a Swapfiets user. The whole premise is geared toward ease of use and being 'hassle free'—if customers choose to pay for maintenance, they will only come into the store when there is a substantial problem with the bike. If users come into the shop for repairs significantly less frequently, this limits the opportunity for Swapfiets to engage in the regular preventative maintenance that ensures its products have an extended useful life. In other words, it would drastically reduce the level of product longevity and thus the circularity of the business.

The Swapfiets case shows us that under existing VAT legislation, repair-oriented, circular PaaS businesses have to make significant alterations to their business models in order to benefit from the reduced VAT rate. Repair, a cornerstone of circularity, has to be provided independently from other services like renting. As discussed, the changes required will likely have negative impacts on both the appeal of PaaS products as a 'hassle-free' alternative to single-sale equivalents, but also directly restrict the level of oversight providers have over their products—a critical tenet of circularity.

2.4 ADAPTING VALUE ADDED TAX LEGISLATION TO MAKE PRODUCT-AS-A-SERVICE BUSINESSES MORE FINANCIALLY VIABLE

Tax legislation represents a critical lever for governments in the transition to a circular economy, and in sustainable development more generally. The long-term solution to the tax incentive problem should be to aid genuinely circular and sustainable businesses, and research shows that transitioning taxation from labour to resource use and emissions would be one of the most effective ways of doing so. In the short term, however, providing easier access to the reduced rates of VAT would represent a significant incentive to the growth of circular businesses and the demand for (cheaper) circular products. As the previous section detailed, in the current framework some PaaS businesses are required to make significant and counterintuitive adjustments to their business in order to qualify for the reduced rates of VAT, and this is largely because the composite supply rules make it almost by definition a standard rated supply.

Clearly, expecting circular businesses to do this is a suboptimal solution. Based on the findings outlined in this chapter, the most immediate solution from this VAT endeavour is for Swapfiets to make the necessary changes to its business model that have the least negative impact and then ask for a ruling request from the Dutch Tax Administration. The ruling will then formally clarify what the applicable VAT rate is for the different elements of the business, and whether the legislation can be interpreted in a way that would allow them to apply the 9% rate on repair services with only these minor changes to the business. A 'tax ruling' is the Tax Administration's interpretation of how the tax law applies in specific transactions of one taxpayer. Rulings give a single taxpayer or a group of taxpayers an interpretation of how a tax law applies to a particular arrangement. For Swapfiets, this would be valuable in giving clarification of whether the less severe approach to business model change is suitable—i.e. making it clear to customers that there are two separate services and providing an option for the bike usage separate to the repair service—or whether they would have to make further amendments to apply the 9% rate.

Beyond this, Swapfiets could also aim to lobby for the legislation to be changed in regard to how VAT is applied in the first place. In this case, Swapfiets would be required, ideally supported by a number of businesses in the same position, to take its case beyond the tax authorities and to policy makers themselves. The company would have to demonstrate exactly how the sustainable element of the business is hampered by the existing legislation. If successful, the outcome could be a tweak in the existing VAT legislation so that it supports PaaS businesses that engage in preventative maintenance and cycling of resources, rather than hindering them. Though legislation is developed at the EU level, there is some flexibility in how each Member State applies it, meaning such a lobbying exercise could take place at the country level rather than the EU level. Clearly, a more incremental change in tax legislation is a more viable solution to aid circular businesses than the proposal to shift the tax burden from labour to resources, but in regard to lobbying for legislative change, this could still take place over a number of years rather than months. It should be noted that this is related to broader legislation on how VAT itself is applied rather than relating to the rulings for composite supplies, as these are related to jurisprudence and so legislative change does not apply. For more details on the jurisdictions in regard to VAT please see *Annex 1.1 The Legal Framework of the VAT*

3 UNDERSTANDING THE TRUE VALUE OF THE SWAPFIETS BUSINESS MODEL

3.1 BALANCE SHEET IMPLICATIONS OF PRODUCT-AS-A-SERVICE

As has been discussed, PaaS business models are a critical component of a circular economy as they allow manufacturers and/or service providers to retain ownership of their products and thus manage their life cycle accordingly. However, as was developed in two previous CCA reports,[13,14] retained ownership comes with some significant balance sheet implications for circular businesses. PaaS businesses extend the revenue capture from each product over the lifespan of the product, while the use of the product is arranged in a contractual agreement with the user. For circular PaaS businesses whose products have a significantly longer lifespan than linear counterparts, this means that in the long run more revenue is acquired than in a purchase agreement. However, it also requires PaaS businesses to keep the value of each unit on their own balance sheet, significantly increasing their need of working capital in the early stages of their development. As such, many PaaS providers look towards financial service providers to supply initial funding in order to grow their business.

When Swapfiets was founded over eight years ago, it needed a suitable financing model that would allow it to access a fleet of bikes without the need to sell them in the short term to balance the books. At that time, the main working example of a leasing structure was one used for cars—an operational lease where periodic payments are made over a specified leasing period based on an assumption of linear depreciation. The lessee then has the option to buy the asset outright at the end of the agreement for a considerably lower price than the original value. As such, this model was adopted by Swapfiets.

What Swapfiets has found, however, is that this leasing model now undervalues the assets: the bikes undergo regular repair and maintenance to keep the value high, which actually then restricts access to more favourable funding conditions. As noted in previous CCA literature,[15] the balance sheet extension of PaaS business is seen as problematic by financiers that look at historic traditional ratios (solvency, liquidity, profitability) when assessing the financial viability of a business. As this section will develop, the assumption that Swapfiets' bikes depreciate in a linear way means that the assumed value of its bikes is in fact significantly lower than the actual value, meaning that the period leasing payments paid to the financier are considerably higher than they should be.

3.2 WHAT IS RESIDUAL VALUE AND WHY IS IT IMPORTANT?

The residual value (RV) of a given product is the estimated remaining value after a specified period of use.[16] Most commonly, RV is calculated for the end of an agreed leasing period or at the product's perceived end-of-life, when some of the individual parts may still be of some value. For PaaS businesses, as with traditional leasing companies, estimations of RV at the end of a leasing period are critical to determining the amount of money the lessee pays in periodic leasing payments. If there is a considerable amount of RV at the end of the leasing period, the lessor may not need to receive the full value of the product over the course of the leasing stage to turn a profit. In such a scenario, the asset that remains at a relatively high level of value can be considered as a security to the lessor, and so the period payments can be lowered over the course of the lease.

For a car leasing company, the linear depreciation model adopted by Swapfiets makes sense. Cars are assets of considerable value and have a long useful life if well maintained. There is also a prominent market for second-hand cars and their parts, which makes residual value estimations easier. Furthermore, the customer is just paying for the vehicle, and so is liable for the cost of any damages for which they are at fault. For Swapfiets, in the early stage of the business, this agreement was critical to its growth, as it provided the upfront capital necessary to expand the different facets of the company required to scale up. Now that it is an established company, however, the arrangement restricts financial performance in the short term, while also providing obstacles in the pursuit to become a circular business.

The critical distinction between the Swapfiets case and that of a car is that the actual depreciation of a Swapfiets bike is not linear, as the financing agreement assumes. Swapfiets, as a PaaS business rather than a leasing company, includes the maintenance of its bikes as part of the monthly subscription and actively maintains the value of its assets. This means that customers are incentivised to come into the physical stores for both preventative maintenance and repairs—they are paying to use a bike of a specific standard. In reality this means that over its lifetime, a Swapfiets bike has peaks and troughs in its value. Value peaks after maintenance and diminishes the longer bikes go without it. On the whole, Swapfiets data shows that this is a much slower depreciation than the assumed linear trajectory of the leasing agreement.

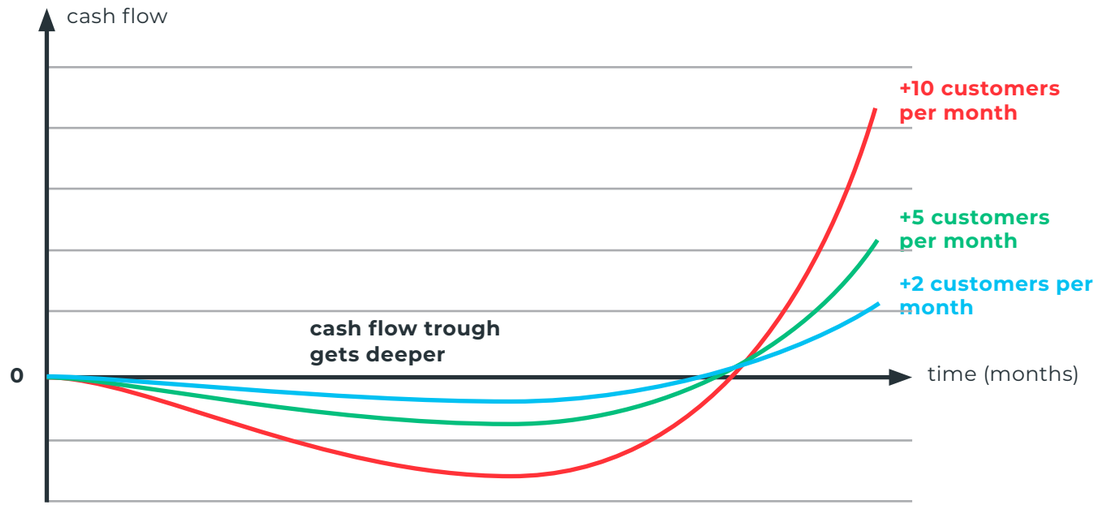
So why is the assumption of linear depreciation problematic when actual depreciation is not linear? The first and most evident reason is that Swapfiets outlay a significant amount of financial cost on the value-adding repair element of its service that is then not accounted for in the linear depreciation model—and thus the repayment structure to the financier. Further still, once the leasing period is over and Swapfiets is able to purchase the bikes from the financier at a set proportion of the original investment amount, many of the parts of the bike have already been replaced at cost to Swapfiets. In effect, as a result of the desirable modular design Swapfiets has to buy parts of the bike that have already been paid for. The way Swapfiets currently finances its bikes, based on a linear not an actual value assessment, is a direct disincentive to maintaining their value and extending their useful lifetimes.

Swapfiets' revenue model ensures that revenue generation is spread over a longer period of time than in a single-sale model, and the way in which it leases bikes from the financier is supposed to mitigate this issue. For Swapfiets, however, the fact that the business keeps the bikes at a significantly higher level of value than linear depreciation assumes means that the amount of security that the financier (the lessor) has is larger than is accounted for. This means the monthly leasing payments are higher than they should be, and the actual risk to the financier is lower than the estimated risk because of the circular business model.

The fact that the repair costs and the actual bike value are not accounted for in the current leasing arrangement lowers the amount of working capital Swapfiets can access in the leasing period. It does not benefit from maintaining the bikes at a high value during the leasing period, only benefiting from the higher retained value once it buys the bikes back at the end of the leasing period, as the actual value of the bike is higher than the assumed residual value in the contract.

The relationship can be seen clearly in the 'hockey stick' effect displayed in Figure two. The structure of the business means that expected future profit requires current cash flow troughs—the higher the expected future profit, the lower the current cash flow troughs. The leasing agreement is designed to limit the short-term cash flow issue by lengthening the period of time over which the bikes are paid for, but this is restricted by the high monthly repayment costs and so the problem persists. The short term losses in working capital that result from this limits the amount of investment Swapfiets can make in its business, while also making it difficult to display the financial viability of its circular business model. Linear accounting practices reduce the profitability and presumed financial health of Swapfiets as a PaaS business in the short term for growing businesses, which is restrictive for a young company in an emerging market.

Figure two shows the Hockey Stick Effect, in which we see the short term cash flow troughs associated with PaaS business models.



Source: Circle Economy. (2016). Creating financeable circular business in 10 Steps. Retrieved from: Circle Economy Resources & Publications (page 13)

3.3 MODELLING ACTUAL VALUE FOR A MORE ACCURATE AND FAVOURABLE FINANCING STRUCTURE

Swapfiets' existing leasing arrangement is binding for the agreed leasing period, and for some of the bikes purchased in this way Swapfiets is now approaching the point at which it can buy the bikes outright and use them without further financing cost. For the CCA, the task was to consider how Swapfiets can develop a future financing arrangement that reflects its ambitions as a circular business, while laying out how it can communicate the actual and future value of its business to new or existing financiers. As we have seen, using asset value as a proxy for business value is problematic for circular PaaS businesses. Linear depreciation fails to show the actual value of the asset as it does not account for regular maintenance, while banks are averse to financing in this way as it 'blows up' the balance sheet. As such, the CCA explored two alternative means to more accurately forecast the value of Swapfiets as a business. Critically, the notion was to not base the financing arrangement on the asset value, but rather on the contracts or the net present value of the business (i.e. the viability potential).

The first, relating to contract value, is a process through which Swapfiets can utilise historic data to display the stability of its subscription contracts, rather than the value of the bikes, as a means to attract debt funding from banks. The second is through calculations of Net Present Value (NPV)—an estimation of future cash flows that takes into account an array of factors including external risks and maintained asset value in order to gauge a more accurate evaluation of financial viability—which is particularly relevant for investors.

1. **Total Contract Value**

   As a subscription based asset provider, contracts are extremely important to the Swapfiets business model. Total Contract Value (TCV) is a metric for the financial value of contracts once they're signed. It indicates how much the contract will be worth to a business over the course of its duration. For a business like Swapfiets, TCV ties directly to the overall sales revenue and allows for more accurate predictions of what this looks like in the future.

   Having been operational for many years now, Swapfiets has access to a wealth of data on its contracts for each of its models, and so calculations of total and average contract value are both accessible and accurate. We know, for example, that the average contract length of a Swapfiets user has increased in recent years and that its revenues have been consistent and resilient to external shocks such as covid-19. Leveraging the financial stability that Swapfiets' contract value indicates would be an easier and more effective means to display financial performance to potential debt investors, as it utilises actual historical data rather than assumptions to forecast future revenue streams.

2. **Net Present Value**

   NPV is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. It is used to evaluate the current value of a future stream of payments for a company, using the proper discount rate. NPV accounting utilises contract value as the unit of measurement, breaking it down to provide total revenue over the contract length alongside the various costs that are incurred as well as the influence of other non-financial factors. For more detail on the calculation of NPV please see Annex 2.2

   For Swapfiets, the NPV calculation would still focus on the different bike offerings as the asset, and the value of the bikes would be incorporated into the unit margin per bike per year. The distinction, however, is that this would be one of a multitude of factors used to assess the NPV of the business as a whole. Taking a very basic example of an NPV (without full analysis of the external factors), the calculation showed that the value of the business improves significantly once the leasing period of the bikes is concluded and they are purchased outright.

As Swapfiets is now approaching the end of the leasing period for some of the bikes purchased, calculating the NPV becomes most relevant. Annex 2.3 provides an initial list of external factors to be considered, but the exact influence of each of these needs to be analysed in far greater detail. It is likely that NPV modelling is a slightly longer term solution for Swapfiets based on the complexity and the level of input required. That being said, the extensive amount of data Swapfiets now has on its products and its business will allow for accurate results, and it should strengthen the financial performance significantly, indicating the substantially lower risks in the business model when compared to linear businesses.

4 CONCLUSIONS

Bold and innovative businesses are increasingly looking to embrace the circular economy by utilising the PaaS business model. In doing so, they are taking responsibility for the resources that they use and the products that they make, committing to maximising resource efficiency, minimising waste and generating local employment opportunities. Given the importance of such businesses in enabling the circular transition, governments and financiers should give thought to support these efforts as much as possible—yet in many cases we see that the inverse is in fact true. Various examples exist in which government legislation and financial evaluations provide disincentives for PaaS businesses to further their circular credentials, or limit their competitiveness when compared with linear counterparts. This white paper endeavoured to address two specific examples in which this is the case, revolving around Swapfiets as an illustrative and generalisable case for a typical PaaS business with circular ambitions.

In both cases, the research findings showed a similar pattern: PaaS businesses can adapt their model or processes in order to improve their financial viability, but this comes at a significant cost in regards to the administerial requirement, or through a restriction of their circular intentions. It became clear that expecting PaaS businesses to adapt their own processes to fit within the requirements of existing policy and norms is not the first-best solution. Instead, progressive governments and financiers should play a more active role in enabling circular businesses, based on the new understanding of how they operate differently to traditional models of business.

In regards to taxation, research suggests that the long-term solution to enabling circularity is to shift the tax burden from labour to use of resources—but given the scale of such a shift this is likely to take quite some time to enact. In the shorter term, more subtle changes to the eligibility criteria for applying the reduced VAT rate for the repair services of PaaS businesses would be influential. They would be required to pay less taxation over the lifetime of their products, which could result in lower prices for consumers and a heightened demand for circular products over linear ones. The improved financial performance of circular businesses would lead to an acceleration of a more sustainable economy by market dynamics.

In regards to the financing of PaaS businesses, greater salience should be given to alternative accounting methods that highlight the value of circularity. Financiers must better incorporate linear risk into their business evaluations, and move beyond the use of traditional ratios that valorise linear businesses over circular ones. PaaS businesses can have significant influence over this shift by engaging in more accurate assessments of their own business and contracts, such as the NPV approach detailed.

Shifting the onus of responsibility from the shoulders of businesses alone to instead engage with governments, public bodies and financiers may seem a frustrating outcome, but it is an entirely necessary one nonetheless. The courageous businesses championing PaaS should continue to innovate and lead the transition to a circular economy, but as they reach a critical mass it is imperative that structures and institutions adapt to support their bloom further still.

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ANNEX ONE: VAT

1.1 THE LEGAL FRAMEWORK OF THE VAT

The value added tax (VAT) is harmonised throughout the European Union by the EU VAT Directive 2006/112/EC. The EU VAT Directive suggests that member states are eligible to apply for a discounted VAT rate for 'minor repairing of bicycles'. It should be noted however, that the Court of Justice of the European Union (CJEU) is responsible for interpretations of the EU VAT Directive while the Dutch Supreme Court is responsible for interpreting the Dutch VAT Act. In the Netherlands, where the standard VAT rate stands at 21%, a reduced VAT rate of 9%, established by Article 20 of the VAT Tax Act of 1968, was agreed upon for all bicycle repair services.

1.2 COMPOSITE SUPPLIES

Composite Supplies is the technical terminology used to describe two or more goods or services supplied together - the concept was developed by the CJEU. The case *Card Protection Plan* C-349/96 of 25 February of 1999 marks the first milestone of this doctrine and its relevance in the context of VAT treatment thereafter. Paragraphs 29 and 30 detail the legal framework for composite supplies:

29)

It follows from Article 2(1) of the Sixth Directive that every supply of a service must normally be regarded as distinct and independent and, second, that a supply which comprises a single service from an economic point of view should not be artificially split, so as not to distort the functioning of the VAT system, the essential features of the transaction must be ascertained in order to determine whether the taxable person is supplying the customer, being a typical consumer, with several distinct principal services or with a single service.

30)

There is a single supply in particular in cases where one or more elements are to be regarded as constituting the principal service, whilst one or more elements are to be regarded, by contrast, as ancillary services which share the tax treatment of the principal service. A service must be regarded as ancillary to a principal service if it does not constitute for customers an aim in itself, but a means of better enjoying the principal service supplied (Joined Cases C-308/96 and C-94/97 Commissioners of Customs and Excise v Madgett and Baldwin [1998] ECR I-6229, paragraph 24).

The relevant CJEU cases for the different approaches to dealing with composite supplies are:

Case C-349/96 Card Protection Plan Ltd [1999] ECLI:EU:C:1999:93

Case C-581/19 – Frenetikexito [2021] ECLI:EU:C:2021:167

Case C-463/16 - Stadion Amsterdam [2018] ECLI:EU:C:2018:22

ANNEX TWO: NPV MODEL

2.1 INTERNAL AND EXTERNAL FACTORS OF AN NPV MODEL

Net present value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. Scenario analysis is an important tool to incorporate future projections in the NPV model. Conducting a scenario analysis involves accounting for internal and external factors that may influence the NPV.

Internal factors must include cost related items including but not limited to: net revenue, other streams of revenue, warehouse costs, leasing costs, retail, customer service, transportation and storage, other costs (Please refer to Annex 2.3). Non-cash expenses such as depreciations, provisions and sunk costs should be excluded from the NPV model. On the other hand, external costs, which differ depending on the industry and should be considered continuously and be assessed on their severity and likelihood of impact on internal factors. A PESTLE approach can be used in a range of scenarios and gives an overview of the key external factors, noting their impact and likelihood, that can influence an organisation—where PESTLE stands for Political, Economical, Social, Technological, Legal and Environmental. Using this analysis model, external factors relevant to circular business models may include: CO2 pricing, circular subsidies, green bonds, economic projections like growth or inflation, new technologies, new certifications and extreme weather conditions (Please refer to Annex 2.4).

2.2 TABLE OF SWAPFIETS' NPV MODEL INTERNAL FACTORS

INTERNAL NPV FACTORS	
+	Net Revenue (Including doubtful debtors and missing bikes)
+	Other revenue
-	Warehouse: repairs
-	Lease costs
-	Parts
-	Retail: store
-	Customer service
-	Battery replacements
-	Transport/Storage
-	Other costs (Invoice/Marketing/HQ/Tax)

2.3 TABLE OF NPV MODEL EXTERNAL FACTORS (PESTLE)

EXTERNAL FACTORS (PESTLE ANALYSIS)		IMPACT	LIKELIHOOD
P	CO_2 pricing / circular subsidies	🔴	🟢
E	Green bonds / investments	🟠	🟠
	Economic projections (Growth / Inflation / VAT shift / Fluctuation energy prices / Doubtful debtors	🔴	🔴
S	Customer preference	🔴	🔴
T	Improved (battery) technology	🟠	🟠
L	New / existing certifications	🟠	🟠
E	Scarcity of materials	🔴	🟠
	Extreme weather conditions	🔴	🟢

Impact is based on (1) scale (2) scope (3) irremediable character and are estimations

Likelihood is the estimated chance an external factor would occur:
🟢 Green: low 🟠 Orange: medium 🔴 Red: high severity or likelihood factor

COALITION CIRCULAR ACCOUNTING

The **Royal Netherlands Institute of Chartered Accountants** (NBA) and **Circle Economy** founded the **Coalition Circular Accounting (CCA)** to identify and overcome accounting related challenges that hinder the transition to the circular economy. The Coalition Circular Accounting is a group of experts and scientists in the fields of finance, accounting and law. Members are NBA, Circle Economy, Invest-NL, ABN-AMRO, Sustainable Finance Lab, Impact Economy Foundation and scientists associated with Nyenrode Business University and Avans University of Applied Sciences.

COMMUNITY OF PRACTICE

The CCA partners come together and work in a 'Community of Practice', where experts from various disciplines join a pre-competitive environment to co-create open-source solutions that can improve a circular business model's viability.

GOAL AND STRATEGY

The goal is to **overcome existing reporting and valuation challenges** that hinder the transition to the circular economy. The CCA uses **real-life business cases** that show what accounting challenges occur when a circular economic business model is put into practice.

Case learnings are shared in white papers such as this one. The trajectory will be concluded by a final paper, with an overview of the encountered challenges and potential solutions, providing a roadmap for financial- and accounting professionals in the field as well as financial policymakers.

CCA PROJECTS

This is the fourth in a series of four cases with focus on different Circle Economy and accounting challenges:

1. Road-as-a-Service: Pursuing the financial reality of the circular road
2. The Circular Facade: Building a sustainable financial reality with Facades-as-a-Service
3. Valorising Residual Resources: Mitigating food waste—how cooperatives can boost the circular economy
4. How to Find the Value of Circular Impact in Business: Circular impact measurement and financial reporting

The trajectory will conclude with a *final overview paper, planned for 2021*

COLOPHON

We would like to thank members of the CCA and their organisations for their valuable contributions. Their expertise, motivation and collaborative spirit resulted in a tangible and transferable outcome, accessible to all.

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