
This report was written by members of the Ellen MacArthur Foundation network

ReValu-Parts

Rethinking the Value of Used Parts

Necessary next steps on valuation of used parts for enabling a circular economy: a pathway to implement the International Financial Reporting Standard for used parts using a remanufacturing business case in the automotive aftermarket



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List of abbreviations

| | |
|--------------|--|
| CE | C ircular E conomy |
| FMV | F air M arket V alue |
| NRV | N et R ealisable V alue |
| IFRS | I nternational F inancial R eporting S tandard |
| IAS | I nternational A ccounting S tandard |
| IAS 2 | I nternational A ccounting S tandard 2 |

Glossary

component

A component is a part or element of a larger whole, for example, a product. From the point of view of manufacturers of components, those components can be considered products themselves.

core

A used part intended to become a remanufactured product in the automotive industry. It is neither considered as waste nor as scrap.

infill

Cores are the basis for the remanufacturing activity. Generally, the number of cores returned is lower than the demand for remanufactured products. To compensate for this gap, it is a common practice that remanufacturers buy a certain percentage of cores from core dealers and scrap yards to feed their product line. Alternatively, they buy new goods which they sell as remanufactured products. Both external sourcing options are referred to as infill to fulfil the demand for remanufactured products.

leakage

Products, components and materials leak out of the system if they are discarded rather than cycled back into the system (e.g., via reuse, remanufacture or recycling).

maintenance

A product can be maintained by performing inspection and servicing tasks to preserve its functional capabilities and/or cosmetic conditions. Often, maintenance tasks are pre-planned for accomplishment at specific points in time.

remanufacturing

Remanufacturing denotes the process of disassembly of products into components, testing and recombining those components into a product of at least original performance and that is used for the same purpose. Generally, the resultant new product is given a warranty that is identical to that of an equivalent product manufactured out of all new parts.

repair

Repairing specific faults in a product to bring it back to satisfactory working condition. Generally, there is no new warranty on the repaired product, apart from the components that have been replaced.

reverse logistics

Reverse logistics is the process of moving goods from the location at the end of its use-phase for the purpose of capturing value, or proper disposal. Remanufacturing and refurbishing activities may also be included in the definition of reverse logistics.

refurbish

Refurbishment is the process of returning a product to a satisfactory working condition. It may include repairing or replacing major components of the product. Generally, any warranty on a refurbished product applies to all major wearing parts but is less than that of a newly manufactured equivalent. Usually, a new use-cycle (but no new lifecycle) starts after a product is refurbished.

residual value

The residual value is the value of the product at the end of its service life which is traded on the market.

surcharge

When selling remanufactured products, in addition to the price of the remanufactured product most remanufacturers invoice a so-called surcharge, often incorrectly declared as a deposit, to incentivise their customers to return a core. By paying the surcharge, the customer receives the right to sell back a core to the remanufacturer, given certain return conditions. Usually, the surcharge is at least more than twice as high as the residual value of the core.

workshop

Workshop is an automotive business where cars are serviced and repaired.

1 Circular businesses and their access to capital

An increasing number of businesses recognise tremendous opportunities in circular business models because they allow them to capture additional value from already existing products while at the same time alleviating risks from resource price volatility and resource supply constraints (Lacy and Rutqvist, 2015, p.17). Circular economy aims to gradually decouple economic development from the extraction of finite resources and to design waste out of the system. Shifting towards a circular economy requires building long-term resilience, creating opportunities for businesses and the economy and at the same time positively impacting on the environment and society (Ellen MacArthur Foundation 2020a). Circular economy approaches can also transform waste streams, such as used parts, into new economic inputs (Lacy and Rutqvist, 2015, p.17).

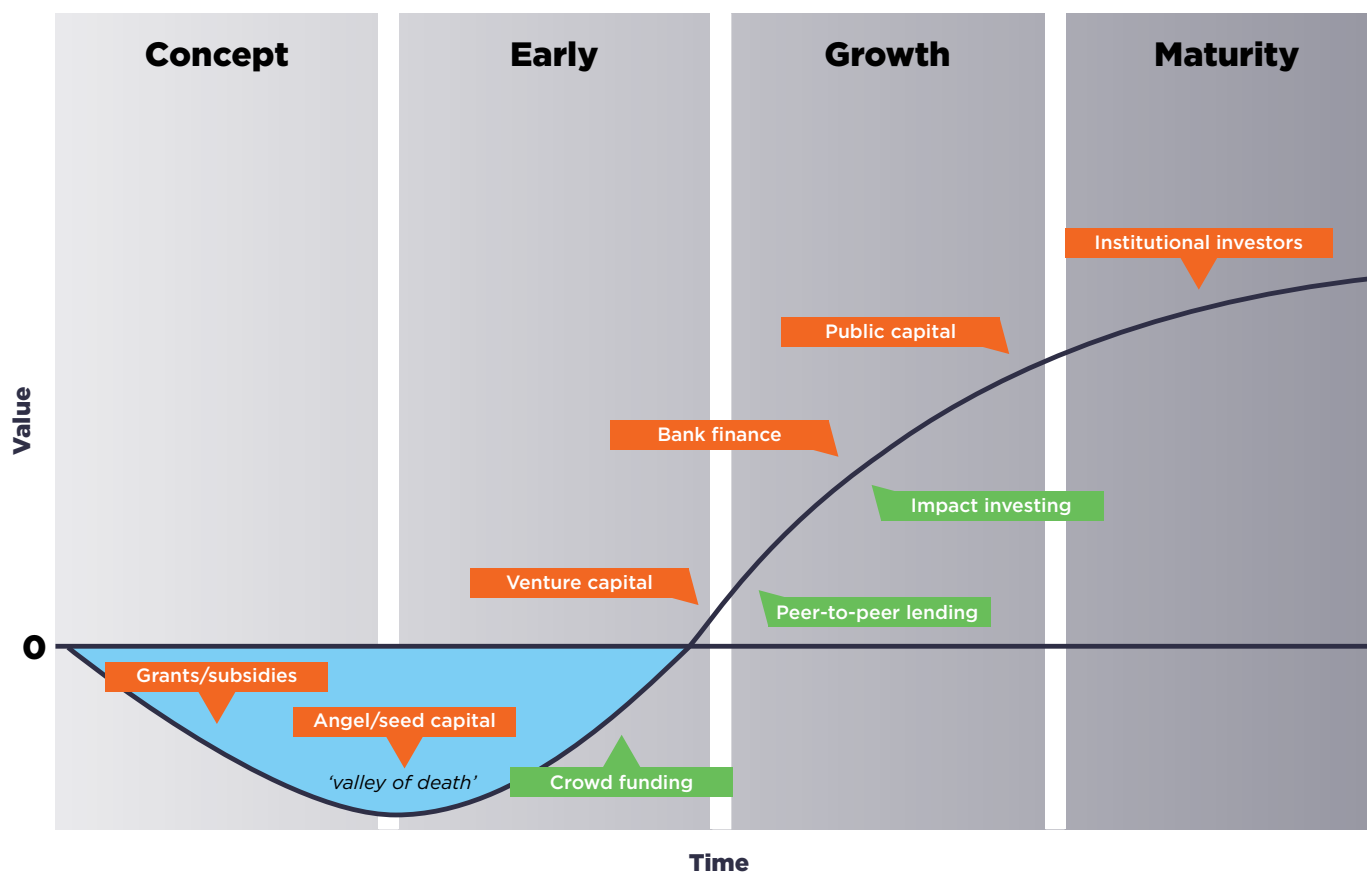
According to the Ellen MacArthur Foundation, an enabling environment and favourable system conditions, including accounting and access to finance, are key to transition towards a circular economy (2020a). The main financial hindrances to achieve this shift are taxation, valuation and credit decision processes (Lundberg Larsen, 2019). This report addresses the importance and nuances of financial valuation of used parts on the balance sheet of companies moving towards a circular economy. This can, of course, link and support the taxation and/or credit decision processes. However, these topics are not part of this report. Today, while we count, document, and report the internalities of our businesses, traditional accounting models do not include external costs. However, the impact of these externalities is now a significant global concern and is represented in the form of environmental damage, climate change, and the depletion of natural resources. To succeed in limiting global warming, we must realise the goals of the Paris Agreement and reduce greenhouse gas emissions. To do so, the transition to a circular economy is an important step. We need to manage and conserve the natural resources we have processed, and use them in recurring production cycles instead of throwing them away.

With the rise of companies implementing circular solutions, inputs based on primary raw materials will be increasingly replaced with the shift to using secondary sources of materials. Just as in the linear model, the characteristics and properties of these inputs are important in the circular model and need to be reflected in operations and financial statements.

Recently, an expert group from the European Commission studied the reasons why circular economy start-ups or businesses exploring circular transformation lack access to necessary financial support from banks and investors. Their conclusion was that circular economy markets are not working properly. Hence, when a potentially successful circular business is not viable due to market conditions, financial institutes cannot risk granting them (enough) finance (European Commission, 2019, p.8).

Like all innovation stories, a successful circular business should be able to move from one development stage to the next with the support of the relevant funding. Figure 1 illustrates the different development stages of a company. During a company's development there are typically different funding streams available, each designed to reflect the risk and liquidity of a company. It rests with the management team of the company to persuade investors of the merits of their business to access funding. Likewise, investors and financiers need assessment tools to analyse risks and opportunities. This means that the development of a company from a start-up to a mature enterprise has the precondition that it can be financially evaluated at each stage. Funding providers are not only looking for strong businesses that can move to the next stage of development, but they are also seeking appropriate pricing and returns in line with the risk of their investment, both in terms of debt (providing a loan) and equity (investment in the company). Is the expected return in line with the risk being taken? In the case of debt, this is expressed in the interest rate of the loan. In the case of equity, it is the expected return on equity.

Figure 1: Company's growth phases and sources of financing



Source: ING 2016

Evaluating a business is an important part of deciding whether it receives equity or whether a loan is granted, and, if so, what conditions are applicable. Companies and funding providers require a different assessment framework through which to view the risk and return balance in circular businesses. This may lead to potential discrepancies in the valuation of circular businesses and could impact investor appetite.

This circular economy challenge has been studied by the FinanCE working group (2016). Their conclusions emphasised the need to better understand finance

and valuation of companies making the transition towards a circular economy. This paper therefore discusses whether and how existing accounting standards can be used to financially value used parts, as they have an impact on the valuation of the company. The paper explores the impact of the current valuation approach of used parts in the balance sheet of a company on the company valuation. In contrast it shows the expected impact of an adapted valuation approach of used parts in the balance sheet on the company valuation, using the example of remanufacturing in the automotive aftermarket.

2 Remanufacturing in the automotive aftermarket

In the automotive aftermarket, several circular economy approaches are applied: reuse, repair, remanufacturing and recycling. Of the total spare parts turnover in the automotive aftermarket, 10% is generated through remanufactured parts (Bartel 2016). In 2015, the number of remanufacturing firms in Europe was estimated at nearly 2,500. This group of remanufacturers generated a turnover of EUR 7.4 billion, employing approximately 43,000 people, and handling ca. 27,286,000 used parts (European Remanufacturing Network, 2015).

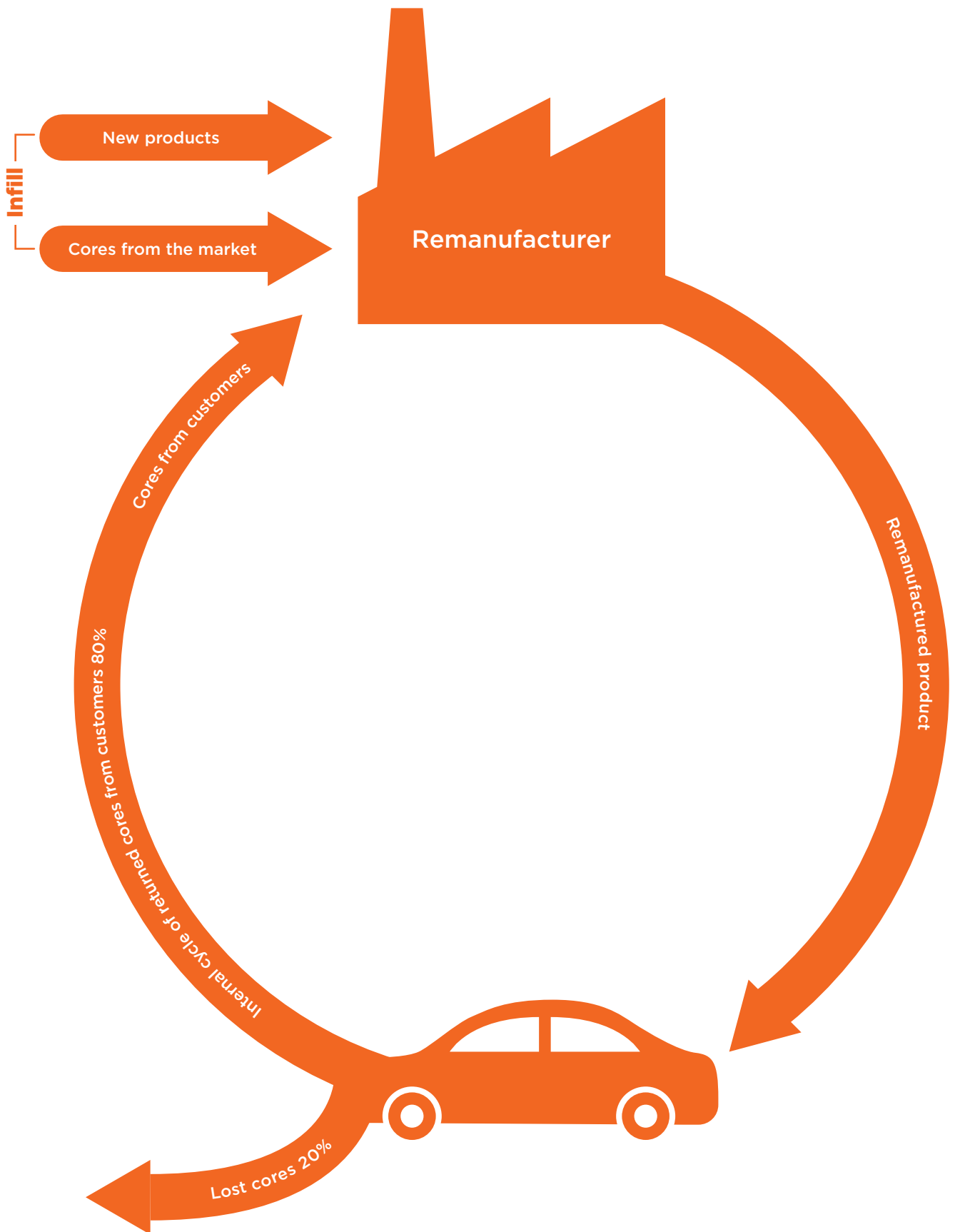
Generally, in the case of a defective vehicle, end customers demand timely and high-quality repair of the vehicle at a reasonable price. The fundamentals of the remanufacturing business model in the automotive aftermarket are that remanufacturers offer a broad product portfolio of remanufactured parts for passenger cars and commercial vehicles via multiple trade levels to workshops. Remanufactured products feature the same high quality, durability, and warranty as a new product.

The relationship between the remanufacturer, different trade levels, and workshops are important. Remanufacturers incentivise the return of a defective part by selling remanufactured products with a surcharge, often declared as a deposit. Concretely, with the purchase of a remanufactured product and the surcharge, the workshop receives the right to sell back a defective part via different trade levels to the remanufacturer. Once the workshop repairs the end customer's vehicle, it collects the defective part and returns it via multiple trade levels to the remanufacturer, who in turn refunds the surcharge. The remanufacturer's invoice shows both the price for the remanufactured product and the surcharge amount.

The amount of the surcharge plays a crucial role. A typical value for the surcharge is approximately twice the residual value of a core. The residual value is the value of the core as traded on the market. Based on the residual value, remanufacturers independently set the amount of their surcharges to motivate their customers to return a core. As a result, if the amount of the surcharge is not significantly above the residual value, different trade levels, such as wholesalers, and workshops have no incentive to return the core to the remanufacturer.

The prerequisite for a successful remanufacturing business model is the availability of cores in the remanufacturer's warehouse. However, as illustrated in Figure 2, due to several factors, a certain percentage of cores do not return to the remanufacturer from the internal cycle through customers, both in the beginning and during the product life cycle of a vehicle. To compensate for this shortfall in cores, it is common practice for remanufacturers to buy cores from core dealers and scrap yards to feed their remanufacturing process. Alternatively, they buy new goods which they sell as remanufactured products. Both external sourcing options are referred to as infill. Generally, about 80% of the core demand of a remanufacturer accrues from the internal return cycle through customers and the remaining 20% is procured as infill on the market i.e. the majority of the market is 'true' remanufacturing.

Figure 2: Sources of a core for a manufacturer



3 Challenges of valuing circular businesses in the field

3.1 Business perspective

Remanufacturers in the automotive aftermarket have not adopted a uniform approach to applying the existing International Financial Reporting Standard (IFRS) techniques for the valuation of cores on the balance sheet. As a result, remanufacturers in the automotive industry have adopted inconsistent methodologies to assess the value of their business. Furthermore, they generally have a high stock of cores available to balance the unpredictable core return from the market. This creates a lot of scope for remanufacturers to influence the valuation of cores, and, in turn, means a high uncertainty for investors about the adequate valuation of the company. Consequently, remanufacturers are at risk of receiving less investment than they potentially should.

3.2 Investor perspective

The underlying driver of an investor is to derive a return from the invested capital. Thus, the key requirement for an investor is to assess the ability of the business, across multiple variables, to generate a return on capital. The financial performance can provide useful data points for the potential return on capital.

For instance, the assets on the balance sheet allow a business to trade, but it is likely that a well-run business would be able to attract a value, as a going concern, in excess of the balance sheet value. In the remanufacturing business model of the automotive aftermarket, explained in chapter two, the valuation of the business is likely to focus on the track record of the business in delivering profits and growth. Furthermore, the valuation depends on the management team's ability to continue delivering profits and growth with the resources available.

One of the challenges investors have in evaluating the potential of remanufacturing businesses is in assessing the value attributable to the lower turnover stock items where market values are opaque and where there is little track record of delivery of consistent margin. It is in these markets that investors will challenge the management team's valuations the hardest.

3.3 Impacts of inconsistent valuation approaches

The availability of external financing is a key factor for successfully implementing circular business models. For example, in the automotive remanufacturing business, the core inventory often represents up to 30% of the reported company assets. Representing such a significant contribution, it is critical to have a commonly agreed valuation for the core of the business activity. Yet due to insufficient guidelines and information on how to correctly apply IFRS to the valuation of cores, businesses and investors often do not reach an agreement. Therefore, the access to capital for circular economy businesses is restricted.

4 Valuation methods

4.1 Inventory valuation according to the IFRS framework

The inventory is a complete list of items such as raw material, property, goods in stock, or the contents of a building. In circular business models, such as remanufacturing, used materials are often the main part of the component going into a new production cycle.

The balance sheet, as well as the profit and loss account, must show the financial realities of the business. From a circular economy perspective, there are no specific standards in the IFRS framework directly applicable for the recognition, measurement and valuation of used parts. Therefore, relevant general principles in IFRS will apply. This includes IAS 2 inventories and – in the case of non-mature markets, or when track records for most of the business transactions are missing – the principles of IFRS 13 fair value measurement.

IAS 2 provides guidance for determining the ‘cost of inventories’ and the subsequent recognition of the cost as an expense, including any write-down to ‘net realisable value’. It also provides guidance on the cost formulas that are used to assign costs to inventories. Inventories are measured at the lower cost and net realisable value.

Cost of inventories

Inventory cost includes the costs to order and hold inventory, as well as to administer the related paperwork.

Net realisable value

Net realisable value is the estimated selling price in the ordinary course of business minus the estimated costs of completion and the estimated costs necessary to make the sale. The existence of a mature market is essential for a proper estimation of the selling price. For used parts within the remanufacturing process one should therefore consider if a market for this component exists.

The lowest cost principle is relevant if there are uncertainties about profits resulting from trading the goods. Accounting rules prescribe that the valuation is done at the lowest of

either purchase price or market value (selling price). The challenge arises when a market value has yet to be developed because the market is not mature, or if the used parts accrue from the internal return cycle where costs are arbitrarily set. In these situations, the risk is that the effective market value is under the purchase price.

For such uncertainties, we propose to use the principles of IFRS 13 to determine a fair value as the market value. It is not a real market price, but at least all users know what standard and method is used to arrive at a value.

IFRS 13 defines fair value as the price that would be received to sell an asset in an orderly transaction between market participants at the measurement date (an exit price). When a price for an identical asset is not observable in the market, the entity measures fair value using a valuation method that makes use of relevant observable input. In this case, the entity uses the assumptions that market participants would use when pricing the asset under current market conditions, assuming that the market participants act in their financial best interests.

4.2 Valuation influencing factors and valuation of a core

According to an accounting perspective, the basis of financial reporting is the representation of economic reality. In terms of IFRS that means insight into solvency, liquidity and profitability. The existing accounting concepts can be applied to all existing business models, including circular economy business models.

In general, two scenarios are distinguished:

- Scenario A, in which a remanufacturer has understocking, meaning the availability of cores in the warehouse is lower than the demand for remanufactured products.
- Scenario B, in which a remanufacturer has overstocking, meaning availability of cores in the warehouse is higher than the demand for remanufactured products.

The reason for the existence of these two scenarios is the movement rate. As described in chapter two, the remanufacturing process always involves a systematic leakage of cores. Cores are obtained through different sources,

such as the internal cycle consisting of core returns from customers and the external cycle consisting of core purchases from core brokers and scrap yards. The movement rate indicates the inventory turnover ratio of cores within a given period in the core warehouse.

Reasons for an overstock of cores in the warehouse can include different core availabilities over the individual product life cycle phases of a remanufactured part, seasonality of demands, or irregular returns from the market. Therefore, a high core inventory turnover ratio is important.

In *Scenario A*, there is a leakage of cores, as a certain percentage of cores does not return through the customer (internal cycle). The cores coming from the internal cycle must be valued according to the full fair market value (FMV) according to IFRS 13. So far, these cores are arbitrarily valued. According to IFRS 13, the valuation method for cores from the internal cycle [Core_{internalvalue}] is as follows: the lower cost of a comparable core [Core_{cost}] on the market or the difference between the cost of a related new product [P_{new}] and the remanufacturing cost of a core [R_{core}]:

$$\text{Core internal}_{\text{value}} = \min [\text{Core}_{\text{cost}} ; \Delta P_{\text{new}} - R_{\text{core}}]$$

Cores coming as infill [Infill core_{value}] must be valued at cost [Core_{cost}] according to IAS 2:

$$\text{Infill core}_{\text{value}} = \min [\text{Core}_{\text{cost}}]$$

In *Scenario B*, remanufacturers have an excess stock of certain cores. In this case, cores must be valued by writing-down to net realisable value [NRV] according to IAS 2. This value can be negative due to disposal costs:

$$\text{Core internal}_{\text{value}} = \text{NRV}$$

The valuation of core is likely to be driven by the current trading values of core in the free marketplace. The historical performance of the core trading both internally (core return from customers) and externally (infill through new goods and cores) will support the valuation of the core stock, particularly if there is a highly liquid market for core. Stock of core held on the balance sheet with a low rate of turnover is likely to be valued at a very low level, given the implied low liquidity in the marketplace and the linked opacity of pricing.

Whilst the accounting rules measure the value of the core at a specific date, an investor may have a different perspective, particularly regarding the future value of the core in a trading/remanufacturing environment. For an investor, the nature of core and the end use applications are critically important to the value of core. Investors are speculating on the ability of the company to derive more value from the core than that registered on the balance sheet. Such value arbitrage could come from a movement in the market price of the core or indeed through a remanufacturing process.

Within the remanufacturing process, some components can be recovered up to nearly 100%, whereas others must be completely replaced. The availability of new spare parts has a direct impact on the financial valuation of a core. The lack of new components which are needed for the remanufacturing process results in an increase of the core value.

5 Impact of valuation methods

5.1 Impact on the balance sheet

The valuation objective of accountants is to reflect the economic reality of a company. Today, in the automotive aftermarket an invoice of a remanufactured product consists of three pricing elements: (1) price of the core, (2) price of the remanufacturing activity, and (3) value of the incentive, motivating the customer to return the used part to the remanufacturer. The price of the remanufactured activity (2) is displayed as a separate item, referred to as the remanufactured product. As a common practice, the price of the core (1) and the incentive to return (3) are displayed as one item on the invoice, referred to as the surcharge (Figure 3).

Depending on the individual business model, remanufacturers set the value of the incentive according to their needs. Based on the valuation methods, explained in 4.1, we propose the financial booking should split the surcharge into two prices: the price of the core at FMV (1) and the price of the incentive (3). In this suggested scenario, the incentive (3) must be booked as a liability towards the customer. The price of the remanufacturing activity (2) and the price of the core (1) must be booked as goods out.

This approach implies that the value of the remanufactured product in the stock should consist of the value of the core (1) and the value of the remanufacturing activity (2). This will increase the total stock value of the remanufactured part.

Figure 3: Items and display formats on an invoice of a remanufactured automotive product and impact on the accounting records

Today

| | Pricing items on an invoice | Display formats on an invoice | Impact on accounting records |
|--|---------------------------------------|-------------------------------|---------------------------------------|
| | (3) value of incentive | Surcharge | Surcharge liability towards customers |
| | (1) price of core | | |
| | (2) price of remanufacturing activity | Remanufactured product | Goods out |

Suggestion

| | Pricing items on an invoice | Display formats on an invoice | Impact on accounting records |
|--|---------------------------------------|-------------------------------|---------------------------------------|
| | (3) value of incentive | Surcharge | Surcharge liability towards customers |
| | (1) price of core | Remanufactured product | Goods out |
| | (2) price of remanufacturing activity | | |

5.2 Impact on the valuation of the company

The balance sheet shows solvency and liquidity of a company, and the profit and loss account shows profitability. For a circular business, the balance sheet only shows a part of the whole picture because of the lack of consistent core valuation methods. Making a realistic valuation of the company requires looking not only at the balance sheet and the profit and loss account, but also considers the business model, the business case, and the track record in order to base the valuation on evidence of the economic reality.

As highlighted in section 5.1, the balance sheet only shows part of the value of a company. Many additional factors can influence the valuation of a company, for instance the value of a brand, dividend performance, market growth potential, and management leadership. Furthermore, for circular companies, it may be considered that they have a lower dependence on “virgin” raw material and resource price volatility, hence lowering risk and increasing resilience. Circular companies may also have more customer touchpoints, and therefore, an extended customer relationship, which may also positively impact their valuation versus linear competitors.

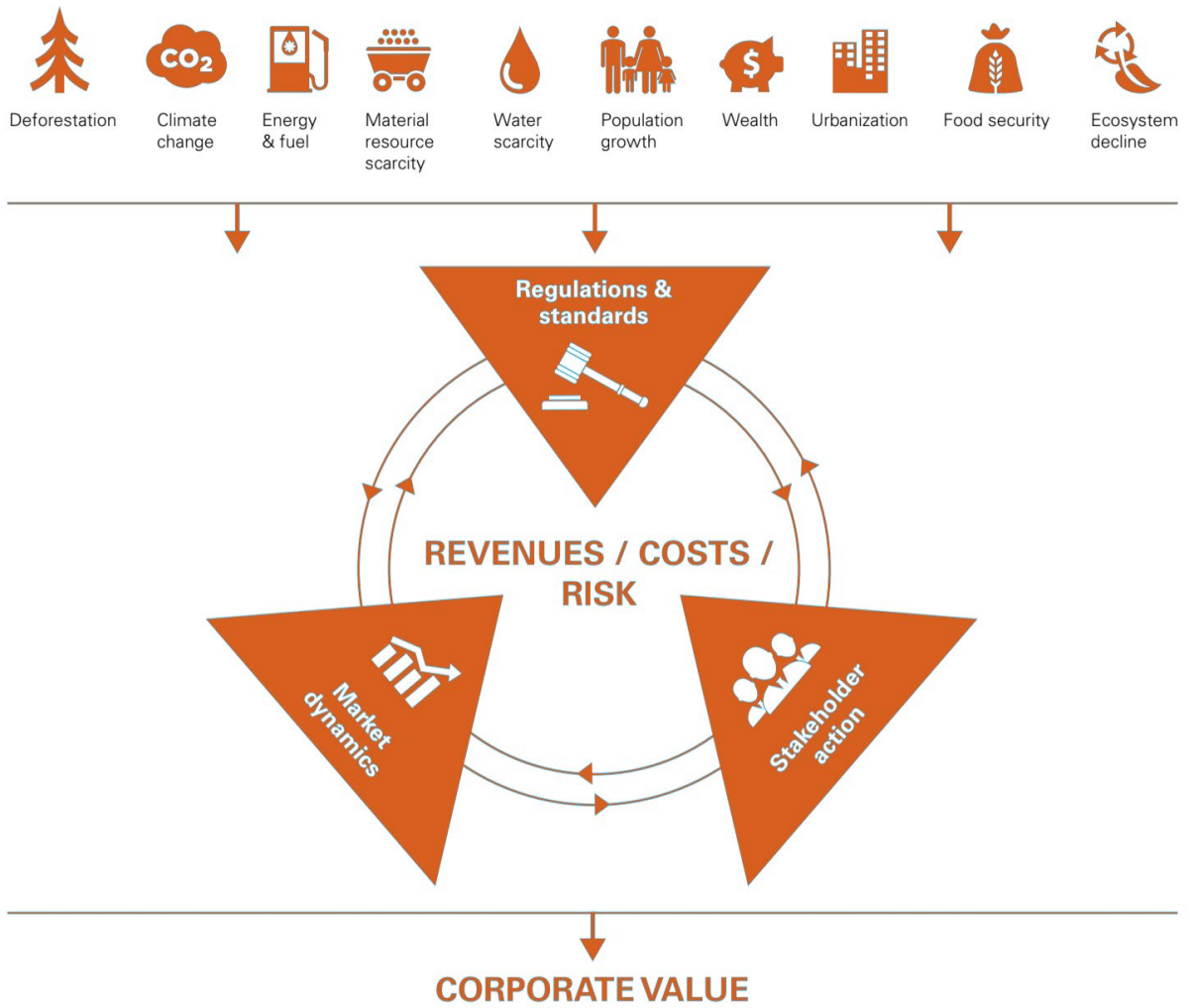
The greater the proportion of the business value that is intangible, the less reliable the balance sheet becomes as a method for valuing the business. Investors should consider valuations from a holistic perspective, meaning balance sheet, income statement, track record, and business model.

Increasing stakeholder influence and transparency have a greater impact on the organisation’s perceived performance, and therefore its market success. A company’s externalities, historically, had little or no impact on its cash flows or risk profile. For this reason, externalities have been largely excluded from the measurement of corporate value. However, as economic, social and environmental forces are increasingly transforming the operating landscape for

businesses, the disconnect between corporate and societal value creation is disappearing. For example, new regulations, growing stakeholder influence and changing market dynamics are driving the internalisation of business externalities at an increasing rate (Figure 4) (KPMG 2014, p. 18). Characteristics of a circular economy are high quality, long service life, and low consumption costs; we increasingly see a modular approach with various revitalisation phases. If all life cycle costs of using “virgin” raw materials – their impacts and ensuring risks (i.e. their externalities) – were taken into consideration, then reuse becomes a better choice. In this context, more investors will want to assess the extent to which a producer can revitalise materials, components and products, and become less dependent on “virgin” raw materials while mitigating externalities. In many cases it is not yet clear exactly how to do this. It is clear, however, that this is relevant, and that this information is necessary for creating a level playing field between linear and circular companies.

The economic reality is changing with the circular economy transition. The new real economy is no longer in line with the traditional financial economy. More than only financial reporting is required to reflect the economic reality. Circular business models offer solutions for risks that are still not sufficiently recognised. Linear companies are less willing to make their externalities and the associated risks transparent, with the result that these are still not sufficiently visible in society. We must look for a form of ‘hybrid’ accounting. Disclosure of carbon footprints are useful and offer insights of the (new) economic reality; in addition, material footprint reporting might become more common along with circular economy efforts (Giljum et al. 2016). Disclosing such externalities should now become part of every company’s value creation story.

Figure 4: Drivers for the internalisation of business externalities



Source: KPMG, *A New Vision of Value: Connecting corporate and societal value creation* (2014)

6 Conclusion and outlook

The markets for used parts are distorted. Remanufacturing companies and funding providers in the automotive aftermarket face difficulties in how to use existing accounting standards for valuing cores on balance sheets. Practical examples in the automotive sector show that businesses and investors often do not reach an agreement on the valuation of circular businesses. This limits investment by investors and access to the necessary funds for circular businesses to grow.

In this paper, a multidisciplinary expert team from the remanufacturing, reverse logistics, and investment, as well as accounting industry and circular economy experts investigated this issue from different angles, providing an approach to tackle this circular economy challenge.

We propose using an established accounting standard – the IFRS – to overcome this challenge. We describe a methodology for the valuation of used parts, based on IAS 2 and IFRS 13, including the rules of inventory valuation at FMV, which should be further discussed.

The lowest cost principle is relevant when one is uncertain whether the goods will be tradable with profit according to IAS 2. In this case, the valuation is based on the lowest value either of the purchase price or the market price. When there is no defined market value, we propose to use the principles of IFRS 13 to determine fair value as the market value. It is not a real market price, but at least all users know what standard and method is used to find the value. Once a market price is established, one can use the cost principle if there is uncertainty over the profitability of goods.

Implementing this methodology will positively impact on the balance sheet of the business and help achieve a circular economy within the automotive supply chain. We also propose to investigate comparable markets. In a wider sense, key performance indicators and reporting standards should be developed to allow investors to properly assess circular business models.

To succeed in the transition to a circular economy we need to demonstrate when circular businesses are profitable. This paper proposes to extend the use of IFRS 13 as the new accounting standard for the valuation of used materials coming from the internal return cycle in the balance sheet. This also implies that we need to develop a credit decision process that integrates the valuation approach. Last but not most important, we need new common standards for financial reporting that include both internalities and externalities.

When we only report the internalities, the linear and often short-term business models win. For investors, these appear to be the most profitable and with the lowest risk. To make new circular business models competitive, we must include all aspects of the financial activity in the accounts.

A broad dissemination of this whitepaper to various industries, such as automotive, finance, accounting, other industries, and the broad circular economy arena is necessary to further discuss this circular economy challenge.

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About the Ellen MacArthur Foundation

The Ellen MacArthur Foundation was launched in 2010 with the aim of accelerating the transition to the circular economy. Since its creation, the charity has emerged as a global thought leader, putting the circular economy on the agenda of decision-makers around the world. The charity's work focuses on seven key areas: insight and analysis; business; institutions, governments, and cities; systemic initiatives; circular design; learning; and communications.

Further information: ellenmacarthurfoundation.org | @circulareconomy

About the circular economy

The current 'take, make, waste' extractive industrial model relies on the consumption of finite resources. The circular economy offers a positive way forward by redefining growth to focus on society-wide benefits. It entails redesigning material flows and production systems to build economic, natural and social capital. Underpinned by a transition to renewable energy sources, the circular economy is built on three principles: design out waste and pollution; keep products and materials in use; and regenerate natural capital.

The circular economy is gaining attention thanks to the opportunities it offers businesses to capture new value from existing operations and resources, for example by redesigning products and business models, building new relationships with customers, and harnessing technology to increase the utilisation of assets.

About the Ellen MacArthur Foundation network

The Ellen MacArthur Foundation's Network is the transition to a circular economy. It is the decisions that are made within the organisations that we work with, and those that we don't, that will mobilise a circular economy at scale. Creating a systemic shift of this nature will take pressure from all actors: businesses, governments, educators, innovators, investors, and beyond. The Foundation works with the world's leading and most influential organisations with transformative potential, across multiple sectors and industries, to demonstrate what is possible.

Further information: [Our Network](#) | network@ellenmacarthurfoundation.org

About collaborative projects (co.projects)

Co.projects are opportunities for formal pre-competitive collaboration between members of the Ellen MacArthur Foundation network. They are driven by members, for members, and their focus can range from research initiatives to pilots and toolkits. Co.projects leverage the network with the aim of exploring opportunities and overcoming challenges commonly faced by organisations making the transition to a circular economy, and which organisations may not be able to address in isolation.