VALORISING RESIDUAL RESOURCES

Mitigating food waste - how cooperatives can boost the circular economy

Koninklijke Nederlandse Beroepsorganisatie van Accountants
NBA

INVESTNL

CIRCLE ECONOMY

A white paper of Coalition Circular Accounting

KEY TAKEAWAYS

- **There is no ‘waste’**: Often, potential resources are considered waste too early. Different value chains can uncover and utilise the remaining hidden value. This also requires the use of new terminology; we have to change our mindset from disposing of waste to valorising residual resources.

- **A new role for the cooperative**: Cooperatives have the ability to integrate more stakeholders in the value chain, creating benefits for all its members and the environment. This enables sharing risks and rewards for a common circular goal, in this case it’s mitigating food waste.

- **Circular value chain director**: It’s necessary to create a new role in the economy to connect and involve more stakeholders to create circular business models and support new value chains.

- **What gets valued, gets managed**: The current financial accounting conventions and standards are not able to reflect the added sustainability and societal value of circular businesses. Residual resources do have financial value, so they should be accounted for on the balance sheet. Accounting in financial terms becomes real when circular markets become mature. This value would enable financiers and controllers to steer on these numbers as an integral part of the value proposition.

- **Being circular in a linear world**: Circular business models must fit within current legal and financial rule sets. In order to support circular businesses, we have to be smart in using and combining the existing linear frameworks with circular ones.

CONTENT

1 - INTRODUCTION

The World Bank predicts that global waste generation will rise more than 70% by 2050, resulting in 3.4 billion tonnes of waste.[1] According to the Circularity Gap Report 2020, only 8.6% of this is cycled back into the economy.[2] Mitigating waste is not only important from a sustainability point of view, but is at the core of providing new business opportunities in the circular economy. Businesses are incentivised to optimise resource use and minimise waste generation from a cost and capacity perspective. However, many producers face the problem that residuals are generated in the form of side products or cut-off trimmings from production processes. Although producers reuse part of these residuals in their own processes, a proportion are unavoidable and are at risk of becoming waste when the companies' initial value chain has no use for it. The circular economy opens up a new arsenal of potential applications for these residual resources.

Circular businesses typically employ strategies that aim to extend the lifespan of products and materials for as long as possible, at their highest value. The Value Hill framework (Figure one) illustrates strategies that can retain the value of a product. The further down the hill, the more value is lost. Businesses that are able to direct their resources to higher value products imply a better valorisation of these resources.

Businesses on the frontier of the circular economy are often confronted with the challenge of operating within the linear economy, ascribing to its legal, financial and accounting rules and regulations. In overcoming these challenges, circular business models have to operate within existing rule sets while embarking on new ways of doing business, measuring performance (ecological, social, financial) and attracting funding.

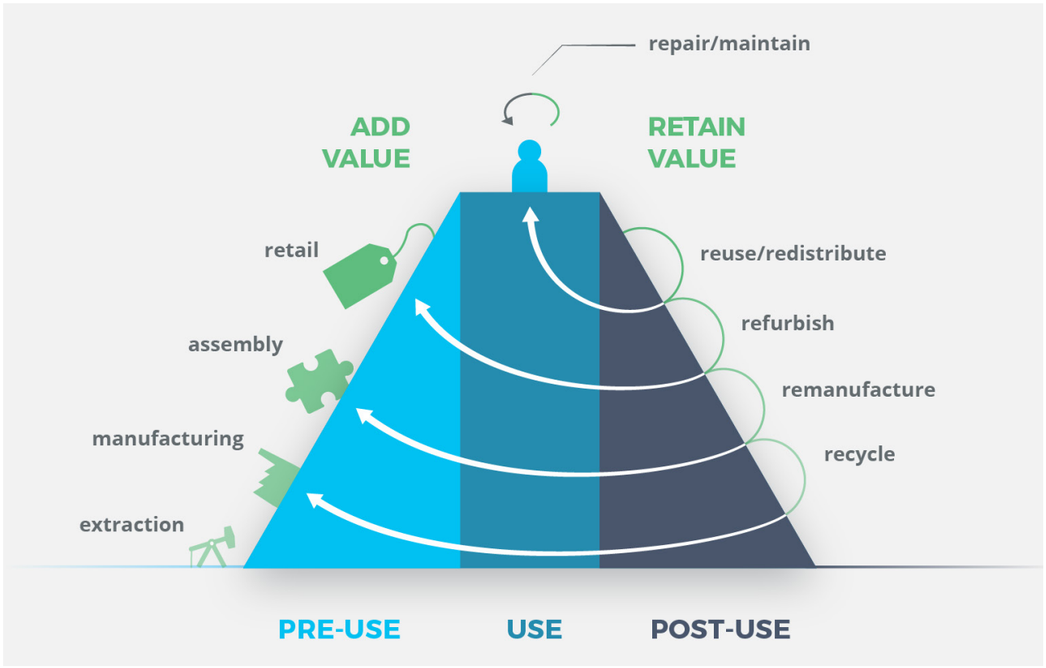


Figure 1: The Value Hill. Adapted from Achterberg, Hinfelaar & Bocken. (2016)

REVIVAL OF THE COOPERATIVE

Businesses are experimenting with several organisational forms for structuring their business case. IntelligentFood—the business case that was the focal point of this trajectory—is set up as a cooperative structure, with the goal of incentivising all members to mitigate food waste by collectively valorising residual food resources. Historically, cooperatives have been formed by organisations that want to collaborate on a similar product, i.e. horizontal integration of different parties with a similar business model that cooperate to strengthen their position. This cooperative structure turns stakeholders into shareholders—in fact, they become more than just shareholders. Members directly contribute to the success of the cooperative by joining the decision making process and providing resources and knowledge. This engages various organisations from producers and distributors to logistics providers and logo designers around a product line. Profits are shared between all members, following a distribution key. The cooperative structure grows in importance as it facilitates new ways of creating and maintaining resources' value.

HOW TO READ THIS WHITE PAPER

This white paper is the result of a trajectory organised by the Coalition Circular Accounting (CCA), a multidisciplinary coalition with the goal of identifying and overcoming accounting-related challenges that hinder the transition to the circular economy (see colophon for additional information on the CCA). The CCA has worked on the business case of IntelligentFood to bring challenges at hand to the surface and to provide a toolbox that enables similar businesses to navigate challenges, speeding up the circular economy transition.

This white paper elaborates on the potential of the cooperative structure for the purpose of circularity, as well as on accounting challenges concerning valorising residual resources. The case serves as an example, and the respective paragraphs are marked with a cookie pictogram throughout the white paper.

This white paper is structured as follows: cooperatives as a tool for the circular transition (2.), the valuation of residual resources from an accounting perspective (3.) and the reoccurring challenge of financing circular business models (4.). Conclusions are provided at the end (5.).

INTELLIGENTFOOD—THE BUSINESS CASE

Waste no more - Mission & Vision

IntelligentFood is a startup that aims to mitigate food waste, thereby contributing to Sustainable Development Goal 12.3, 'halve per capita global food waste' by 2030.[3] IntelligentFood provides an attractive alternative for food companies that have residual food resources due to surpluses and leftovers in the production process. IntelligentFood owns no production facilities, employs no chefs and has no logistic capacities. Its primary role is to develop new food concepts that use the residual food and connect different external parties, from resource input to final product sales on its platform—the IntelligentFood cooperative.The cooperative is supported by an online platform, Agnes, that helps manage, control and orchestrate the entire process. Members can contribute either with labour (members A), cash (members B) or in-kind (members C), and all members share the profits, following a distribution key.

Mitigating food waste

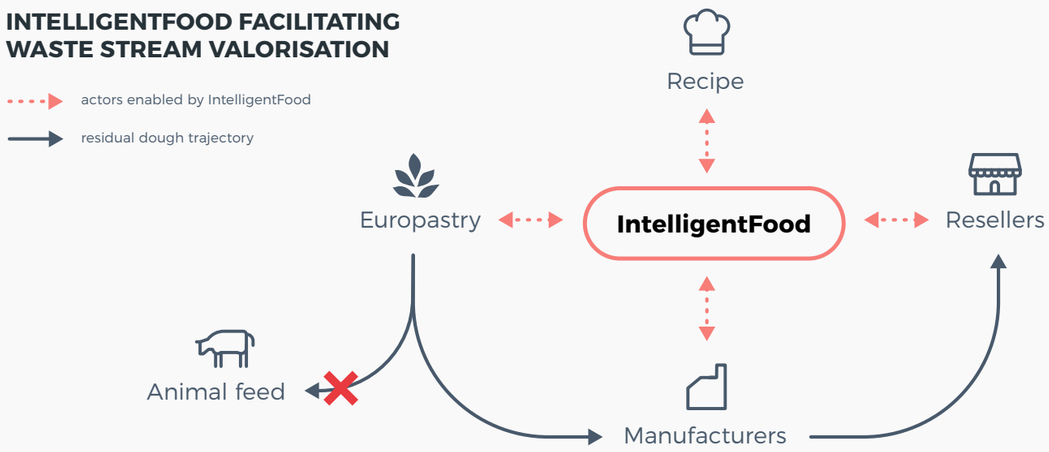
Annually, 88 million tonnes of food are wasted in the EU alone.[4] Even in highly optimised value chains, some surplus streams cannot be avoided entirely. Food is special in that it decays quickly, which limits the possibilities for a 'second-hand' market. Occasionally it is possible to use other distribution channels such as animal feed, or in the last instance bio-energy, but this therefore is a loss in value of the resource compared to the initial distribution channel (see Figure one).

How does it work?

IntelligentFood is in contact with a number of food companies that are keen on making better use of their residual resources. In this business case, we focused on the production of biscuits using residual dough. IntelligentFood valorises the surplus of frozen dough generated by producer Europastry by producing biscuits with this dough. The starting point for this business case is the production process of Europastry, in which less than 0.5% (for example, trimming edges) of dough cannot be reworked into Europastry products. This residual dough is currently sold to animal feed producers. While it is laudable that the dough is not considered waste and disposed of, the quality of the dough remains high enough for human consumption. IntelligentFood saw the opportunity to avoid the downcycling of the residual dough and instead produce biscuits. Figure two illustrates the flow of the dough, the production process and the facilitating role of IntelligentFood Cooperative.

After identifying residual resources, IntelligentFood develops recipes together with partners in an open innovation setting. IntelligentFood gathered different professionals that were willing to contribute to the overall goal of reducing food waste. Producers were approached that could process the dough into biscuits, and Europastry arranged the logistics and storage of biscuits. Moreover, they distribute part of the biscuits via their network. The remainder of the biscuits are forwarded to resellers directly.

Figure 2: Residual dough & cookie production process



2 - COOPERATIVES AS A TOOL FOR THE CIRCULAR TRANSITION

COOPERATIVES FOR THE CIRCULAR ECONOMY

A cooperative is an organisational structure in which all members receive a share of the profits and can vote on the future of the organisation. A membership in the cooperative therefore creates an incentive, as it is rewarded with a certain percentage of profit share, while the liability remains limited. The cooperative also allows 'shares' to be reallocated quickly, which guarantees flexibility when dealing with multiple partners, such as new residual resource providers. The terms of entry and exit can be managed with the membership agreement. All members have voting rights.

The cooperative organisational form can be used to create a business model for its members around circular goals: such as using residual resources in new products. The cooperative is able to connect different parties and production resources and to align interests. This way, win-win situations can be created for all members. On one hand, they contribute positively to the circular economy, and on the other, when the cooperative generates a profit, they will receive a profit share for the products that they helped to produce and sell.

The general set-up of cooperatives can vary. Historically, cooperatives often aimed to cooperate horizontally, meaning that partners entered on equal terms to share infrastructure, for example expensive machinery, to create a similar product, for example tomatoes. The cooperative structure presented by IntelligentFood is new in the sense that it aims at vertically integrating stakeholders along the value chain. It involves several kinds of membership groups with different tasks, activities, voting rights and profit entitlements.

THE CIRCULAR VALUE CHAIN DIRECTOR

The circular economy requires new approaches to guarantee that as many resources as possible remain in the loop and lose no value in the process, as in the case of the linear economy's 'take-make-waste' approach. This is a challenging task, as identifying residual resources and finding alternative ways to use them requires a lot of dedication and knowledge about the streams. Therefore, it is necessary to instate a director able to find new parties to join forces, working towards a common goal and creating new links between parties that can collaborate to valorise residual resources in new value chains.

The responsibilities of a value chain director are diverse: besides identifying residual resource streams and finding alternative ways to use them, it is also necessary to finance and market the idea, persuade potential partners and ensure the overall management of the process runs smoothly. The cooperative as an organisational model is the optimal platform for this. It demands a certain dedication from its members, sharing the risks and guaranteeing a certain longevity. By vertically integrating the value chain, the cooperative can orchestrate the process.

This business case has a cooperative, IntelligentFood, that acts as a value chain director and provides a platform for cooperation and distributing profits. It is a new type of vertical organisation that adds to and characterises the versatility of the circular economy. The role of the value chain director is to connect the dots, resources and production capacity in an array of new products and orchestrate processes from product development to production and distribution.

WHAT IS A COOPERATIVE?

A cooperative is an organisational structure characterised by its members. Parties join as a member so together they can strengthen their position and work towards a common goal. Cooperatives have several advantages over other organisational structures, such as its own legal entity person (meaning that members are not personally liable themselves), they are considered highly democratic (as all members have voting rights and can thus influence decision-making) and they can provide economic stability (since the organisation continues its business even if members terminate their membership).[5]

Cooperatives are set up with a specific goal. A well-known example from the Netherlands is dairy cooperative FrieslandCampina U.A., which aims to provide price stability and guarantee sales for dairy suppliers.[6] Some cooperatives focus on specific social goals, aptly named social cooperatives: strengthening farmers' positions to protect them against exploitation for example.[7]

INTELLIGENTFOOD'S COOPERATIVE MODEL

IntelligentFood's cooperative model also includes a foundation which receives 10% of the profit before taxes. The main purpose of the foundation is to use this profit share to compensate for the carbon footprint of the cooperative's value chain. Moreover, IntelligentFood has set up a limited company (LTD) that functions as a financial vehicle.

The main rationale behind setting up a cooperative is to integrate all partners by making them members, so they can profit together and work towards the common goal of mitigating food waste. At the same time, none of the services or goods the members provide are paid in cash, but rather added to a current account in the Agnes platform. The current account balance and profit share are disbursed annually.

Profit distribution

IntelligentFood decided that when all services and costs are subtracted from the revenue, the remaining profit is taxed and afterwards distributed to the different member groups of the cooperative. There are three member groups in the case of IntelligentFood, which are legally described in the membership agreement and the certificate of incorporation:

Members A: 10% Employees of the cooperative

Members B: 50% Cash investors—in this case it is only the IntelligentFood LTD (BV). The LTD has two functions. First, it is the seed capital provider, which raises external funds. Second, it is the vehicle when external goods or services have to be paid in short notice that are not brought in as in-kind contributions.

Members C: 40% In-kind contributions. This concerns companies that join the cooperative and provide in-kind resources (for example, europastry, manufacturers, logistics companies, IT-services or chefs (see Figure three).

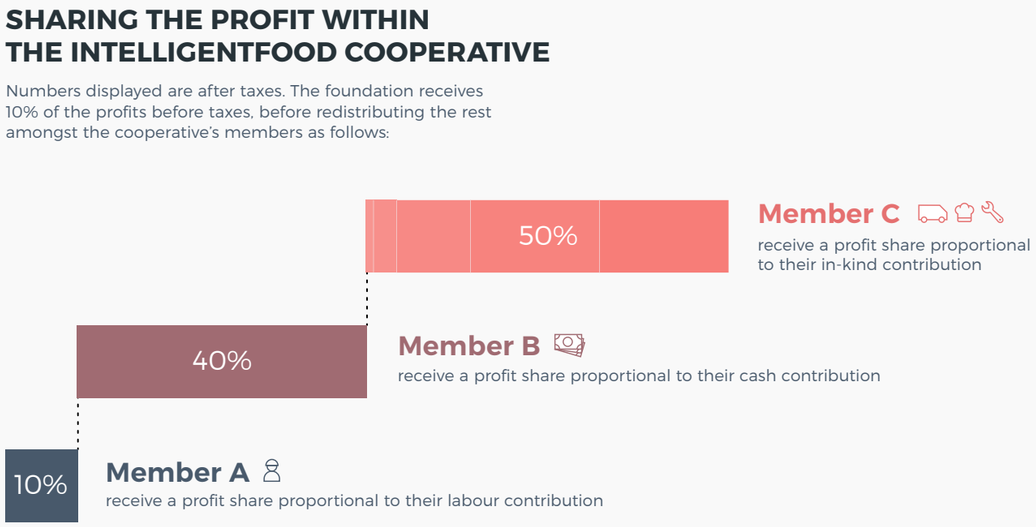
The role of in-kind contributors (members C)

All resources of members of group C include a profit margin and will be paid annually. After these costs have been settled, the profit will be distributed. This creates a certain risk for the members, since they will have to wait for the payment until the settlement of the annual figures. Although these members have to wait before being paid for their resources, they do receive a share of the profits and contribute to the mission of reducing food waste.

Profit distribution key

The profit distribution key within group C is based on the value of their goods or services. It has been agreed that all the services and goods provided include a profit margin, which requires a certain level of trust that IntelligentFood, as facilitator, has to create. It also brings up the question of how to value the residual resources as their value determines the percentage of profit Europastry will receive. This will be further discussed in Chapter three.

Figure 3: IntelligentFood cooperative structure & profit distribution



3 - VALUING RESIDUAL RESOURCES

MARKET VALUE

'Value is in the eye of the beholder.' The value of products and materials is determined by the markets for these respective products and materials. These markets can function optimally if there is a balance between—and a substantial amount of—supply and demand. Let's take the example of apples. We may assume that there is always a supply of and a demand for apples. Moreover, as apples are a well known fruit,the supply and demand is substantial. If there is a poor harvest, the demand will outweigh the supply and the apples will become expensive; and vice versa, if an extraordinary number of apples are harvested, this will outweigh demand and apple prices will drop. These basics of the market can work well for established markets.[9] Residual resources are leftovers from the production process:they have no value for the producer, unless they can be put to use elsewhere. They can, for instance, be sold to another party that can use these resources and is willing to pay for them, in which case this price becomes the new market value. In our waste valorisation case, however, we are discussing a product for which there is only a market for a product of lower value available: animal feed. IntelligentFood's biscuits are able to achieve a higher value on the value hill (Figure one) and create a new market for the residual resources.

A FAIR PRICE FOR RESIDUAL RESOURCES

The cooperative model proposed in this paper is characterised by a profit sharing mechanism in which the members add value in-kind, and only at the end of the year it becomes clear what profit has been made and how this profit will be distributed among the members. The distribution key is based on the relative value added by all members of the product line (as described in the box 'IntelligentFood Cooperative Model'). This begs the question, what is the relative value of the residual dough that is used? What is known is the price of the virgin resource stream (for example, the stream used in the primary production process, in this case the high quality dough produced by Europastry) and the minimum price of the residual resource (for example, the price when sold to a low value user, in this case the animal feed sector). In practical terms IntelligentFood and Europastry have to agree upon a reasonable price, resulting in a profitable business case (in other words, lower than the usual dough price) and incentivising all stakeholders (by raising the price above what would be charged for animal feed). Since the price of the virgin dough and the value of the animal feed are far apart, a moral question arises: What is a fair price for this residual resource? One could argue that a reasonable purchase price would be higher than the price of animal feed, otherwise there is no incentive for Europastry to participate in the cooperative. How much higher this price should be remains undecided.

REASONABLE, FAIR OR JUST?

Whether the price of a product or service is reasonable, fair or just is a centuries-old discussion. The concept of a just price has been debated at length and stretches back to the Middle Ages. Since then, the thinking has focused on four concepts of what is supposed to constitute a just price:[10]

1. To compensate for loss;
2. To allow for need (or desire) to be met;
3. To provide for just valuation;
4. To restrict abuses in exchange.

The first concept is the same as our current concept of cost price: the producer should be compensated for materials, time, transport and the like.

The second concept is more difficult because it tries to deal with a price setting below cost price, because the buyer is unable to pay the cost price. Or, alternatively, if the product is desired by a number of people, they may be willing to pay an exorbitant price. In the case of 'just' valuation, concept three, the price is even more difficult to assess, because it is unknown what the value is and whether this value is just. Consider paintings by Van Gogh or Picasso, or the price of a football player. People can agree that they consider the value fair or just, but if the consequence is that a museum cannot buy the painting, the end result can be perceived as unjust or unfair.

In the Middle Ages, people were most concerned with the final concept. In that time getting a monetary return on investment was prohibited. 'Usury', as it was called, was forbidden by the church.

The discussion on what is a fair or just price has not changed fundamentally, although economic thinking about fair pricing has been exiled to the ethical side of economics. In accounting and general economics, it is the market—supply and demand—that sets the price and that is considered to be amoral[11] and objective. Depending on how many suppliers there are in a market, it is either the suppliers who receive a higher margin or the consumers a lower price. Unfortunately, when there are too few suppliers in the market, they tend to form cartels or collude with each other; this phenomenon was already recognised by Adam Smith in the 18th century and has led to anti-trust legislation worldwide. In recent years, the economic debate has concentrated on the 'right price' which aims to account for externalities; costs that are paid by society, but should be included in the cost price.

DETERMINING ACCOUNTING VALUE— CONTINGENT ASSET OR PROPER ESTIMATE?

In order to resolve the pricing dilemma of the dough in our business case, a reasonable or fair price could be the production cost of the dough (cost price). The producer is compensated for the effort of making the dough:[12] this would be the value that is entered into the opening balance sheet. At the end of the year, the value of the dough can be determined based on the sales (selling price of the biscuits and handling cost). Essentially,the value of the dough can be determined as the (net realisable) market value, which is expected to be higher than the cost price of the dough and higher than the selling price in the case of animal feed usage. The cooperative is then able to determine the value of the upcycling business case of the residual resources, which is a bonus for research into circular business models. Currently this is unsure, as there is no mature market for this kind of residual dough application.

In the current uncertain circumstances, the dough is to be presented as a so-called contingent asset: an asset that brings potential economic benefit dependent on future events that cannot be controlled (fully) by the company. Not knowing for certain whether these gains will materialise (as is the case when estimating a net realisable value), or being able to determine their precise economic value, means these assets cannot be recorded on the balance sheet.[13] Since this has implications for the representation of the company, and its attractiveness for investors (see Chapter five) it can function as a temporary solution when a value estimate would be too vague.

The problem of valuation of the dough is to be solved by a more mature market for these upcycled residual resources; this would allow a better estimate of the dough's value based on the then-existing selling prices for the dough as an ingredient. In this case, we could argue there is one, because other parties are prepared to offer a price for the dough as animal feed. We could use that price as a proper estimate, meaning that we also avoid a situation where the dough producer would be tempted to sell it to the animal feed company. We could even argue that a higher price would be reasonable, as the dough will be used in a production process where value is added; however, this could be an incentive for the pastry company to create more waste, despite companies commonly aiming to minimize waste. This is especially conventional when no residual resource markets exist (see the box 'Valuing the Dough').

We have identified four options to account for the dough, as it changes from a low-value resource for animal feed to a high-value ingredient for the production of biscuits:

1. Production cost of the dough (cost price of the virgin dough);
2. Selling price of the dough for animal feed application; this may be used as a bottom purchase price. Once this business model of upcycling dough is scaled up it will expectedly result in a higher price to set the incentives correctly;
3. Contingent asset, because of the potential economic benefit (or loss) that depends on future events, such as the success of the cookies and the cooperative;
4. Future mature market, once this business model of upcycling dough is scaled up (price as a result of supply and demand).

In this specific business case the solution is the contingent asset, as there is no mature market yet. In this early phase of the initiative it gives the optimal flexibility for the valuation because of the interdependence between Europastry and IntelligentFood. The cooperative business model can link the final price of the dough to a percentage of the financial result that is in turn shared with the relevant stakeholders/business partners.

The choice of the valuation method depends on the business model and existence of mature secondary markets. How and when a proper acknowledgement of circular residual resources (in case residuals of one production process are being used in another production process) would be made transparent depends also on the mindset and attitude from regulators and standards setters. There are some hopeful signs:in September 2020, the IFRS Foundation published its Consultation Paper on Sustainability Reporting which aims to draw more attention towards non-financial factors. The new standards should make other capitals (such as human or natural) more transparent.[14] Further insight in multiple value creation contributes to the development of circular business models, as then linear business models must also make their (lack of) value creation more transparent.

VALUING THE DOUGH: HOW TO GET A PROPER ESTIMATE FOR RESIDUAL RESOURCES?

Incentivise Europastry

In IntelligentFood's cooperative set-up, the dough's value determines the profit-share of Europasty as it is their contribution in-kind. When the dough is valued too low, Europastry might be disincentivised to join the cooperative, as its profit share would decline as well. Europastry currently sells the residual dough to an animal feed producer. If the dough was ascribed a higher value and a higher price was offered for the residual resource, Europastry would most likely choose this distribution channel, which would lead to a loss of value on the value hill (Figure one).

If the dough was valued too high, Europastry might be disincentivised to optimise their resource streams and create more residual resources. In this business case it turned out not to be a problem, since Europastry appreciates the non-financial factors and positive impact on the environment and sees the additional financial profit only as the icing on the cake.

Present residual dough on balance sheet

IntelligentFood's business model generates a new distribution channel which creates, or maintains, a net realisable value of the dough, which would be the basis to determine the purchase value to appear on the balance sheet. To do so, accountants need a proper estimate to prevent the residual resources from becoming a 'contingent asset' which should be avoided in order to represent the real value of the business. There is an upper and a lower threshold for determining a proper estimate.

Acquiring the dough at a too high price could raise the costs for IntelligentFood to an extent that the business model is not profitable anymore.[15] Therefore, the break-even point is the upper threshold on the long term.

The lower threshold for IntelligentFood's business model to take off is determined by the alternative distribution channel mentioned earlier: the price the animal feed producer pays for the residual resource.

Finding the right balance between these thresholds remains a challenge due to the absence of a mature market for one of these options, and also since the positive 'sustainability' impact that is created by retaining the value of the dough cannot be sufficiently quantified or acknowledged yet. However, making this value explicit and coming up with a proper estimate to assess the cost of the residual resource for recognition in the balance sheet would enable financiers and controllers to support circular business models.

4 - CHALLENGES OF FINANCING CIRCULAR BUSINESSES IN A LINEAR MODEL

A CIRCULAR BUSINESS PERSPECTIVE

The circular economy is still in its infancy—but nonetheless, an increasing number of businesses have started to apply circular principles to their business models. Examples of circular principles are: designing for longevity and disassembly, refurbishing products and valorising resources that would otherwise end up as waste or would be downcycled into lower value products . Creating a circular business case is challenging. Circular businesses have to compete with companies that remain unpunished for pollution, CO2 emissions or waste: the playing field is not level. Moreover, circular businesses are enhanced by a broader and longer-term perspective for financial, ecological and societal benefits to prevail. In the meantime, transition costs (for example, the costs of inventing and structuring new products and services) are high and unevenly distributed. This way the linear economy can continue to privatise profits, while environmental costs are socialised. The circular frontrunners bear the costs whereas the laggers can wait until the new ways of doing business are crystallised and de-risked.

FINANCIAL ASSESSMENT OF CIRCULAR BUSINESS MODELS

The financial landscape is characterised by a broad range of financiers, ranging from informal funders (family, friends, fanatics) to crowdfunding and venture capital to bank financing and public equity. Which form of finance to attract depends on the type of business activities, as well as the track record. A more mature business that develops circular activities on the side has a different risk profile than a start-up that wants to launch a completely new circular business model. The first can show a track record and can rely on its main activities while experimenting with circular concepts; this business can, therefore, likely attract financial capital more easily than the start-up, which entails high risk.

Businesses can use the following checklist when preparing to attract funding. This checklist was created with the help of banks, and therefore has a debt finance perspective. In the case of attracting growth funding (equity) this checklist remains valid, although the focus will be more explicitly on the growth potential of the business.

1. Trustworthiness—How trustworthy is the business/product/technique (if any)? What is the track record of the founders, and do they have the right expertise and competencies to get the job done?
2. Cash generation potential—How high is the cash generation potential? What is the expected revenue? What is the profit-margin,Return onInvestment, et cetera?
3. Capital—What capital is supporting the business? What capital has been put in by founders/members? Is there additional capital that may be invested when needed? Are there underlying assets such as inventory, machines or buildings, intellectual property or cash?
4. Securities—What are the securities? Are there real assets (for example, buildings), underlying contracts, a lock-in strategy for important suppliers and customers? Is there a broad stakeholder base? What can be liquified in case of a default?

The metaphor of a table was used to emphasise that not all four 'legs' have to be perfect, but the table should remain standing steadily. While both linear and circular companies should follow this checklist they may differ vastly in how they build the legs. In the linear economy, assets are often the main security behind an investment. In the case presented, however, the cooperative does not own any assets. Instead, its partners (mostly LTD companies) own assets, but these are not always part of the cooperative. In such a case, securities are not derived from real assets, and a financier looks at whether there is a proven demand in the market (buying customers,existing contracts, Letters-of-Intent, et cetera). Securities are a means for a financier to fall back on when the business goes awry. If there are no assets to mortgage, a financier will at least look for more security in back-to-back contracts where the responsibilities and risks regarding the production of products are allocated contractually.

One value is not taken into account in the checklist: impact value. Therefore, we propose to add impact value as a 5th element in this checklist. This enables scoring businesses on their impact, hence weighing business value creation (i.e. positive outcome) or value erosion (i.e. negative outcome).

KEEPING THE MEMBERS ALIGNED

A central challenge for cooperatives is aligning different members to guarantee the longevity of the business models. This has immediate implications for financiers and investors, as disagreement between members can be an additional risk and harm to the business.

The certificate of incorporation and the membership agreement are the two central documents and most important tools that can control this. By ruling on the voting rights, entry and exit conditions and assigning responsibilities and liabilities, they can ensure externals - such as investors- the proper organisation and longevity of the business.

ALIGNING THE MEMBERS OF INTELLIGENTFOOD COOPERATIVE

In IntelligentFood's business case, potential risks surround the longevity of the business model, because the marketed products change depending on the residual resource stream. This means that new members can join the cooperative, creating uncertainty for the business flow. From the accounting perspective, this leads to challenges as well. Certain depreciable assets, such as a website or a recipe, remain in the cooperative longer compared to other services that are one-off or recurring. The solution to this is to make sure that the depreciation is aligned with the duration of the respective project (here, the biscuits).

5 - CONCLUSIONS

An increasing number of businesses are reshaping the linear 'take-make-waste' economy into a circular economy. These circular businesses typically employ strategies that aim to extend the lifespan of products and materials for as long as possible, at their highest value. Moreover, nothing is wasted and resources serve as inputs for creating new products. In contrast to this ideal, the reality shows that many businesses are experimenting and even struggling to implement circular economy principles in their business models.

Businesses on the frontier of the circular economy have to develop new ways of operating, while performing within existing and constraining legal, financial and accounting rulesets. The Coalition Circular Accounting aims to identify and overcome accounting-related challenges that hinder the transition to the circular economy by offering practical solutions. This white paper revolved around the example of IntelligentFood, a cooperative with the goal of mitigating food waste. It elaborated on the potential of the cooperative structure for the purpose of circularity, and on accounting challenges concerning valorising residual resources.

KEY TAKEAWAYS

In this trajectory, the Coalition Circular accounting was able to gather relevant findings that will be of importance for new and comparable circular business models and the circular transition.

First and foremost, we have to change our mindset and embrace the hidden value of resources that are considered waste too early in their lifecycle. The negative terminology—'waste'—disincentivizes innovative approaches to maintain the value of the resources. Therefore, we suggest using the term residual resources.

We rediscovered the potential of cooperatives as an organisational model for the circular economy. Acting circular means involving more environmental factors, which can be ensured by including more stakeholders in the decision making process. The cooperative is the vehicle for doing this within the linear economy, through sharing rewards and risks while contributing to circular goals like the mitigation of food waste. It became clear that the complexities behind correcting the market failure of residual resources not being used require a circular value chain director that is able to manage the new value chains and processes—for which the cooperative can provide the right set-up.

From an accounting perspective it became clear once again that what gets valued, gets managed. The current financial accounting conventions and standards are not able to reflect the added sustainability- and societal value of circular businesses. The business case proved that residual resources can have financial value, so they should be accounted for on the balance sheet. Accounting, in financial terms, becomes real when circular markets become mature. This value would enable financiers and controllers to steer on these numbers as an integral part of the value proposition.

Finally, we pinpointed the paradox of valuation theory versus market value. When the value of a residual resource cannot be estimated properly due to uncertainties, it becomes a contingent asset. In order to put the value of a residual resource on the balance sheet, parties have to agree on a price. The solution of the contingent asset is currently typical for this business case because of the cooperative model. Other options for valuing a residual resource could be: (1) using the cost price of a resource as a proper estimate or—in this case—(2) use the price of another secondary market as the market price. However, these options do not reflect the upscaled application of the product. With the contingent asset, the value is determined at the end of the book year and the real economic value can be determined and accounted for, which then in turn also allows for a fair judgement on what percentage of the profit the residual resource provider receives.

For the financial assessment of businesses a checklist was provided that funders use for due diligence. This checklist consists of (1) trustworthiness, (2) cash generation potential, (3) capital and (4) securities.

As long as standards and regulations are based on the incentives of the linear economy, circular business models need help and guidance to develop their business case while fitting within the current legal and financial rule sets. In order to support the circular transition, we have to be smart in using and combining the existing linear frameworks with circular ones. For now, we must try to be circular in a linear world, while sketching the contours of a circular economy and the new rule set it needs in order to flourish.

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11. This reasoning stems from the mainstream market theory. Whether markets should and can be moral or amoral is up for debate. This discussion is out of scope for this white paper.
12. Excluding potential sales costs such as marketing.
13. “Contingent assets should not be recognised - but should be disclosed where an inflow of economic benefits is probable. When the realisation of income is virtually certain, then the related asset is not a contingent asset and its recognition is appropriate. [IAS 37.31-35].”
14. See for the consultation paper of the IFRS Foundation: https://www.ifrs.org/projects/work-plan/sustainability-reporting/comment-letters-projects/consultation-paper-and-comment-letters/
15. However, if the business case is not profitable then the net realisable value of the inventory will lower the cost, meaning that the inventory would be recognised at net realisable value rather than cost.

COLOPHON

We are very thankful for the valuable contribution of all members of the Coalition Circular Accounting and their organisations. Their expertise, motivation and collaborative spirit resulted in a tangible and transferable outcome, accessible to all.

PROJECT LEADS

Aglaia Fischer & Marvin Nusseck (Circle Economy)

MEMBERS OF THE COALITION CIRCULAR ACCOUNTING - VALORISING RESIDUAL RESOURCES

Junion Hanenberg (IntelligentFood); Raymond Klaasing (Europastry); Eelco Storre (Alfa Accountants en Adviseurs); David van Lynden (Rabobank); Mark Swiebel (ABN AMRO); Werner Runge (Allen & Overy); Arnoud Walrecht, Jeroen van Muiswinkel (KPMG); Tamsin Higgins Moore (PwC); Michel Scholten (Impact Economy Foundation); Diane Zandee (Nyenrode Business University); Marleen Janssen Groesbeek (Avans University of Applied Sciences, Sustainable Finance Lab); Guy de Sevaux (Invest-NL); Paul Hurks, Lucas Geusebroek (NBA); Aglaia Fischer, Marvin Nusseck, Tamar Kaptein (Circle Economy)

EDITORS

Aglaia Fischer, Marvin Nusseck, Hilde Sijbring, Laxmi Adrianna Haigh, Ana Birliga Sutherland (Circle Economy), Marleen Janssen Groesbeek (Avans University of Applied Sciences)

DESIGN

Nicolas Raspail (Circle Economy)

COMMUNICATION

Melanie Wijnands (Circle Economy)

Lukas Burgering (NBA)

CONTACT

For more information, please contact Aglaia Fischer
aglaia@circle-economy.com

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PARTICIPANTS

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, Rabobank, KPMG, PwC, Allen & Overy, 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 policy makers.

CCA trajectory

This is the third in a series of four cases with focus on different CE/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: cooperative platforms for the circular economy
4. Impact and financial reporting - planned for 2021

The trajectory will conclude with a final overview paper - planned for 2021.