WILL YOU BE MY PARTNER?

NINE STEPS TO IDENTIFY AND ESTABLISH SUCCESSFUL COLLABORATIONS FOR A CIRCULAR ECONOMY

Illustrated with examples of circular food packaging

CIRCLE ECONOMY

COLOPHON

ACKNOWLEDGEMENTS:

Circle Economy would like to thank the authors and interviewees for their contribution to this report. Authors and interviewees have contributed to the report in their individual capacities. Their affiliations are only mentioned for identification purposes.

MAIN AUTHOR:

Joana Kleine Jäger (Circle Economy)

CONTRIBUTING AUTHORS:

Tamara Veldboer (Circle Economy), Caspar von Daniels (Circle Economy), Laxmi Haigh (Circle Economy), Jacco Verstraeten-Jochemsen (Circle Economy)

INTERVIEWEES:

Attila Turos (Pieter Pot, former Loop), Caroli Buitenhuis (Green Serendipity), Feliks Bezati (Mars Inc.), Freke van Nimwegen (Instock), Graham Houlder (CEFLEX), Hanjörg Bahmann (Weiling), Karen van de Stadt (KIDV), Laura Fernandez (Marks & Spencer), Marcel Keuenhof (KIDV), Margot Vandevoort (Willicroft), Martijn Bijmolt (Pieter Pot), Pia Schnück (PwC Germany), Roman Badie (Carrefour), Sokhna Gueye (Nestle), Stephanie Cap (former retail), Willemijn Peeters (Searious Business)

DESIGN:

Nicolas Raspail (Circle Economy), Alexandru Grigoras (Circle Economy)

Publication date: May 2020

WHO WE ARE

We work to accelerate the transition to a circular economy. As an impact organisation, we identify opportunities to turn circular economy principles into practical reality.

With nature as our mentor, we combine practical insights with scalable responses to humanity's greatest challenges.

Our vision is economic, social and environmental prosperity, without compromising the future of our planet. Our mission is to connect and empower a global community in business, cities and governments to create the conditions for systemic transformation.

THE RESEARCH TO THIS PAPER

To introduce circular products to the market, businesses require collaborative support. Therefore, this guide outlines a structured nine-step process for businesses to establish collaborative partnerships for a circular economy. Even though these steps may differ between firms, taking into account elements of importance as introduced in this guide can facilitate the creation of successful collaborations. In particular, understanding the 14 roles of importance in a circular economy can assist businesses in assessing internal capabilities and identifying tasks that require support from partners. To find the best match among potential partners, the introduced nine partner characteristics can serve as selection criteria.

The insights of this guide are based on research on the topic of collaboration for food packaging in a circular economy. It blends theoretical research with 17 qualitative expert interviews with employees from European food companies, reuse platforms, and circular packaging experts. The extensive version of the study, including its methodology and theoretical foundation, can be found in the Master's thesis of the main author with Utrecht University with the title "Joint efforts for circular food packaging. How focal firms find and set-up collaborations for reusable and recyclable food packaging".[1]

TABLE OF CONTENTS

INTRODUCTION

The circularity gap is widening and resources are increasingly scarce. Today, the global economy is only 8.6% circular. Just two years ago it was 9.1%. As consumption spirals upwards, extraction rates continue to climb, stock is being built up, and levels of end-of-use processing and cycling are low, the carrying capacity of the planet falls and sustainability suffers.[2] The circular economy presents a promising approach to replace the current linear economy - which converts natural resources via production into waste - via strategies including reducing, reusing, recycling, and recovering materials.[3,4] This approach can be a powerful means to alleviate environmental degradation and explore sustainable growth. In line with this approach, businesses have started rethinking traditional make-use-dispose business models. Through designing and testing circular business models, they do not only contribute to transforming and correcting our current linear economy but can at the same time profit from circular value drivers as outlined in the *Circular Value Driver Framework*.[5] These drivers for closing the loop include entering new markets or increasing market share, reducing costs, reducing risks and future-proofing the business, triggering innovation capacity, attracting and retaining talent, delivering greater customer value, and aligning with public expectations.

FOOD PACKAGING - A CHANGE IS NEEDED

A quick look at the way we currently package our food illustrates the need to move from our current inefficient, wasteful packaging approach to a circular one. Globally, 79% of the approximately 6,300 million tonnes of total plastic waste generated until 2015 has been landfilled or ended in the natural environment.[6] In light of increasing living standards and population growth, plastic demand can even be expected to keep growing.[7,8] While food packaging represents the largest plastic application in Europe, around 95% of its value is lost to the economy after a first-use cycle of typically less than than one year.[9,10] To address the aforementioned issues and transition the plastic packaging value chain towards a circular economy, the *New Plastics Economy*[11] (see their publications for more details on circular food packaging) prioritises three actions: (1) a fundamental re-design and innovation of packaging formats and delivery models, (2) the introduction of reusable packaging models, and (3) the improvement of the economics and quality of recycling. For all three actions, reusable and recyclable food packaging present important strategies. Likewise, the European Commision in its European Green Deal aims to "ensure that all packaging in the EU market is **reusable** or **recyclable** in an economically viable manner by 2030"[12].

Reusable packaging is designed to accomplish several uses/rotations within its lifecycle. This way, material can be saved and impacts of (packaging production, for example) processes decreased.[13,14] Thus, reusable packaging is not only key to achieve a circular economy, but equally presents untapped business potentials, through for instance, improved user experience or the establishment of brand loyalty. For retail food, reusable packaging can be integrated into e-commerce shopping platforms. As way of example, *Loop*[15] works together with major brands to deliver food in reusable packaging to your door in different countries, while *Pieter Pot*[16] does so in the Netherlands. Alongside this, local shops as well as large supermarkets increasingly install dispenser models allowing customers to fill food into reusable packaging.

Recyclable packaging aims to return resources back into the production cycle.[17] For this to work, not only the post-consumer collection, sorting, and recycling of packaging needs to be ensured, but likewise markets for recycled materials have to be financially viable.[18,13] The readiness of such required recycling systems vastly differs between geographies and packaging materials, which has to be taken into account in the design phase. If recyclable packaging is successfully recycled at the end-of-life, it can reduce the usage of fossil fuels, CO2, and plastic pollution.[19]

COLLABORATING FOR CIRCULAR FOOD PACKAGING

Major responsibility to move from a linear to a circular packaging approach, be it via reusing or recycling, lies with food companies. They are in charge of bringing the packaging into the market and thus have leverage over the key choices that inform packaging design and material sourcing. Ideally, such circular packaging considerations are embedded in circular business models. For these business models to work successfully, however, businesses are in need of symbiotic collaborations.[20] To illustrate this, you may think of waste at one place that becomes a valuable resource at another, or of local cycling practices that inform the initial design of a product.[21] Recyclable food packaging, for instance, requires food companies to design packaging with an after-use value alongside ensuring its end-of-life treatment. To do so, they need to join forces with partners such as packaging suppliers, end-consumers, waste managers, recyclers, competitors, and regulators.

As the example above shows, the list of partners needed for circular food packaging is long. The complexity, augmented by the urgency to tackle issues such as plastic pollution and climate change caused by the still growing usage of plastic packaging, makes circular food packaging a particularly interesting case. As an interviewee put it: circular packaging is "getting crazy these days". This is mirrored by an increasing number of policies and industries urging higher recycling and reusing rates as well as initiatives and commitments sprouting up. Nonetheless, innovation and improvement efforts are currently too fragmented and uncoordinated to show impact at scale.[9] Therefore, to make circular food packaging - just as any circular product - a reality, businesses have to establish win-win collaborations. Insights on how and with whom to establish such collaborations are shared in this guide.

HOW TO SET-UP COLLABORATIONS FOR A CIRCULAR ECONOMY

IN NINE STEPS

HOW TO USE THIS GUIDE

When establishing collaborations to realise circular products, businesses have to go through a number of phases. After preparing the organisation internally for the collaboration, in the second phase the right partners need to be found. With those partners, thirdly, collaborations should be established in a way that ensures future success. Overall, businesses may follow nine steps to establish collaborations in a circular economy. As indicated in the overview of the collaboration set-up steps below, this guide pays particular attention to four of those steps, namely:

- The importance of collaboration in a circular economy (step 1)
- Four collaboration types (step 2)
- 14 roles in a circular economy (step 4)
- Nine characteristics in a circular economy (step 7)

In this guide, examples of circular food packaging serve as illustrations. Taking into consideration that no business and no product is the same, some steps may be more easily accomplished by one business compared to another. Similarly, some steps may be particularly important for one but not for another business.

OVERVIEW: THE COLLABORATION SET-UP STEPS

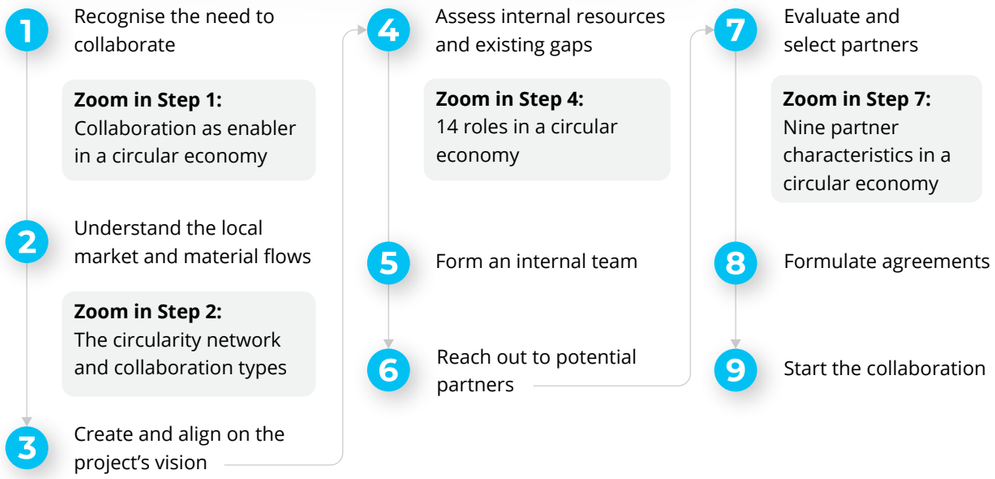

Figure 1: The collaboration set-up process in a circular economy

1 RECOGNIZE THE NEED TO COLLABORATE

Once having decided to develop circular products, as the first step, businesses need to recognise that collaboration presents a prerequisite for its realisation. This recognition is key to getting the ball rolling of preparing for, initiating, and realising a collaboration (for more details, see page 12).

Especially in the case of circular food packaging, collaboration, even between competitors, is inevitable in establishing and operating recycling and reuse systems. Here, collaborations may enable increasing volumes and sharing costs of packaging (innovations), waste management, or reuse logistics.

2 UNDERSTAND THE LOCAL MARKET AND MATERIAL FLOWS

As a next step, a business needs to develop an understanding of the local market and the flow of materials, such as existing cycling infrastructure and capacities, relevant legislation, and consumer demand (for more details, see page 13).

For circular food packaging, the flow of packaging materials on the market, local recycling capacities, current prices for recycled materials, existing reuse infrastructure, legislation on food contact materials, or usage scenarios of packaging should be understood.

3 CREATE AND ALIGN ON THE PROJECT'S VISION

Once an understanding of the local market and material flows is in place, aspired outcomes of the circular product project need to be defined. This vision should be translated into a clear strategy that is both ambitious with circular economy principles at its core, and achievable and affordable. The *seven key elements framework of the circular economy*[22] can support businesses in crafting a comprehensive circular strategy, which informs collaborative needs. While a number of motivated and engaged employees can spark ideas, these frontrunners need the support of the top management to move forward. Besides, since a new circular business model will require radical company-wide changes[23], employees of all levels, business units and countries should align on and support the vision. Here, an inspiring company culture, transparent conversations and providing employees with the possibility to influence may help.

In light of a multitude of possible circular food packaging solutions, packaging materials, formats, and collaborative initiatives, a clear strategy is needed to provide orientation, particularly in terms of which collaborations to establish. To move from a linear to a circular packaging model, importantly, mindsets need to change. As one interviewee suggested, this is not always easy as "sometimes people are educated in a way that makes it very hard for them to change".

4 ASSESS OWN RESOURCES AND EXISTING GAPS

Once a business knows where it wants to be in the future, it can assess its internal capabilities and the resources available. These can be compared to the capabilities and resources required to realise the aspired circular product vision. Thus, existing gaps can be determined, which may be fulfilled by partners. To identify tasks which can be fulfilled internally and those where collaborative support is needed, the 14 partner roles in a circular economy serve as guidance (for more details, see page 14).

Whereas food companies may be capable of fulfilling some tasks (partly) themselves, they necessarily require collaboration to realise circular food packaging. For instance, waste management asks for the involvement of several

actors, collaborations may be more efficiently orchestrated by a neutral, third party manager, or investments can be simply too high for a single business to finance.

5 FORM AN INTERNAL TEAM

For circular endeavours, businesses require skilled employees with knowledge on the circular economy, both generally and in particular regarding the product or process under examination. In larger companies, ideally, internal education programmes should aim at disseminating a basic circular economy understanding across the company. Instead of hiring experts, smaller companies may rather focus on creating circular economy expertise among their employees through self-education. Further, to establish and manage collaborations in a circular economy, employees with collaborative, management, and interpersonal skills are important. Moreover, since circular collaborations may bring uncertainties and complexities along, employees in charge need to be flexible, adaptable and capable of dealing with uncertainty.

Businesses need circular packaging experts and packaging technologists with a firm grasp of all its complexities to initiatie and scrutinise ideas on its feasibility. Alongside such experts, employees on the ground need to manage the local realisation of waste collection or reuse logistics, for example. Even if all employees should understand the overall vision of circular food packaging, one interviewee underlines that "you don't need to understand the full picture, but you need to understand how in your daily job you can contribute to that goal". Further to this, to manage circular food packaging collaborations, governance structures such as steering committees can be set up.

6 REACH OUT TO POTENTIAL PARTNERS

Following internal preparations, the next steps focus on the external world of (potential) partners. While businesses may prolong some existing relationships to benefit from their relation-specific investments and knowledge sharing routines[24], circular product realisation will nonetheless require novel partners. To get in touch with potential partners, it is recommended to use active networks and attend events such as conferences and trade shows. Initiatives, consultants, or sector organisations can serve as mediators linking various players. In particular for smaller businesses, communities of practice that can facilitate networking and knowledge exchange should be increasingly established.

To find collaborations for circular food packaging, existing initiatives can be useful. For instance, PACE (Platform for Accelerating the Circular Economy), the New Plastics Economy of the Ellen MacArthur Foundation, the Consumer Goods Forum, the Netherlands Institute for sustainable packaging (KIDV), or the Plastics Pact network with national and regional participating initiatives can contribute to the connection of different players.

7 EVALUATE AND SELECT PARTNERS

To evaluate and select the most attractive and suitable partners, open conversations and trials with potential partners can be insightful. Nine characteristics which partners (or more often the individuals in partner organisations) should ideally fulfill can serve as selection criteria. Of those criteria, five are particularly important for collaborations in a circular economy (for more details, see page 18).

Businesses should prioritise a few attractive collaborations in order to ensure their manageability. Since it might be difficult for smaller companies to immediately find partners such as packaging suppliers fulfilling all circular food packaging requirements, intermediate solutions might be required, such as more sustainable even if not yet fully recyclable packaging.

8 FORMULATE AGREEMENTS

As the last step before enacting the collaboration, partners should come to agreements, both formal (financial, confidentiality, for example) and informal (mission or composition of the collaboration, for example). As in a circular economy, collaborations may create benefits other than financial advantages; overall win-win deals for all partners need to be identified. When establishing new collaborations, particular attention should be paid to the design of contracts, risk and benefit allocation, inter-organisational management, and administration.

To realise circular food packaging, multiplayer networks are common, for which multilateral agreements need to be formulated to ensure their operating capacity. Since impacts, costs, or objectives between partners may differ, for instance when partners use different types of packaging, finding full consensus might neither always be feasible nor required. Still, baseline agreements serve as starting points for successful collaborations.

9 BEGIN THE COLLABORATION

Once a business has prepared internally for collaboration, was able to identify required and attractive partners and establish active collaborations, they can get started. Jointly they can work towards a circular product offer. How to manage those collaborations to ensure their success presents another interesting topic in itself.

1 ZOOM-IN STEP 1:

COLLABORATION AS ENABLER IN A CIRCULAR ECONOMY

Re-engineering our linear system to a resilient circular economy cannot be achieved by individual actors alone. Therefore, businesses as central actors in the economy need to work together with all stakeholders: from suppliers, customers, competitors, research organisations, regulators, waste management, to logistics.[25,26] In collaborations with mutually desired objectives, businesses can improve efficiency and effectiveness across their operations. This is due to certain characteristics of a circular economy, where for instance waste from one supply chain or business becomes resources for another one. In order to adapt their stakeholder and network engagement towards such circular objectives, initially, businesses have to recognise the enabling role of collaboration.[27] To ensure that collaboration becomes rooted within the business, ideally, it should be incorporated as a fundamental component in the general, overarching company strategy.

Whereas businesses of various sizes require collaboration to realise circular products, their leverage towards a circular economy differs. Larger businesses are not only potentially facing higher external pressure but also possess more human and financial resources to change towards circular business models. They can, for example, hire circular economy experts and be part of important working groups or consortia. However, such change may cause internal difficulties when coming across mental barriers that may be reluctant to explore novel business models, or new collaborative forms. In comparison, smaller companies may be less exposed by pressure and possess less resources to work towards circular products. Nonetheless, if smaller companies decide to realise circular products, they may be able to pursue higher circularity requirements and benefit from their agility. Besides, smaller businesses play an inevitable role in changing the system, particularly in developing innovative products and business models.

ADVANTAGES OF COLLABORATION IN A CIRCULAR ECONOMY

1. **CHANGE:** When key stakeholders align their efforts, they can commonly change an industry towards a circular economy. Only then, current and future systemic challenges can be meaningfully addressed.
2. **COMPETITIVE ADVANTAGE:** On a business level, collaboration can increase competitive advantage as critical resources may span business boundaries.[24] Particularly in a circular economy, resource sharing is key.
3. **FINANCING:** To be financially viable in a circular economy, collaboration can bring costs down when for example creating larger volumes or sharing research and development (R&D) costs.
4. **KNOWLEDGE:** Collaboration allows gathering and sharing knowledge, which is needed to execute circular business models. Businesses cannot develop or apply such knowledge in isolation.

COLLABORATION TO ENABLE CIRCULAR FOOD PACKAGING

To realise circular food packaging, coordination has to be improved and financial barriers overcome. Both can be enabled by collaboration.9,20 A recycling system requires packaging design, waste collection, sorting, recycling, and secondary material application to act in concert. A reusable packaging system can be realised in a financially viable manner when sharing capacities. Nonetheless, more than recyclable, reusable food packaging features competitive qualities: several reuse systems can co-exist and direct collaboration between food companies bypassed when reuse systems are operated by service providers.

2 ZOOM-IN STEP 2:

THE CIRCULARITY NETWORK AND COLLABORATION TYPES

When examining the market and material flows, businesses should understand the context in their location(s) of operation. Relevant legislation, cultural (consumption) habits, the distance to sourcing, and the current development stage of the circular value chain network should be understood. In this guide, the latter is referred to as a circularity network: a network of value chain players aiming at the cycling of resources - either by extending the lifespan of a product via reusing, repairing, refurbishing, remanufacturing, or repurposing; or by converting used materials via recycling into secondary materials to re-enter the value chain. Its development stage vastly impacts the efforts to be made by businesses and consequently partners needed. Based on the development stages, four types of collaborations were identified. The types differ between the number of partners, type of partners and focused effort.

FOUR COLLABORATION TYPES

1. **Vertical networks** aim to develop the circularity network with all players along the value chain, including resource extraction, processing, production, use, end-of-use stage, and resource cycling (e.g. life-time-extension via reuse or end-of-life treatment via recycling).
2. **Horizontal networks** aim to (1) develop new technologies or materials (e.g. recyclable packaging), or (2) utilise existing circularity networks (e.g. operation of a packaging reuse system) with players outside of the value chain, including competitors, governments, or knowledge institutions.
3. **One-to-one alliances** aim to improve products or processes within a circularity network with individual partners along or outside the value chain (e.g. collaboration with suppliers to improve a packaging's recyclability).
4. **Knowledge exchange** aims at an informal alignment and knowledge exchange for industry-wide learning and impact creation via strategy unification with partners along or outside the value chain (e.g. strategy alignment between brands and retailers or municipalities).

PACKAGING EXAMPLE: THE FOUR COLLABORATION TYPES EXAMINED

For a PET water bottle in Europe, recycling systems are widely established and the bottle will most likely (if collected) be recycled. Hence, a business should focus on horizontal networks and one-to-one alliances to utilise this recycling system and potentially improve the bottle's design. In comparison, for a crisps bag, a recycling system to collect, sort, and recycle the bag with a high-quality outcome still has to be developed. Therefore, a business should focus on vertical networks to contribute to the development of the recycling system (unlike deciding to rather re-design the packaging to fit existing recycling systems).

4 ZOOM-IN STEP 4:

14 ROLES IN A CIRCULAR ECONOMY

To realise circular products, either businesses themselves or partners filling the gaps of a business can fulfil 14 roles. These roles are either important in one of the three phases of starting, developing, and realising a project, in relation to the collaboration, or in regards to external stakeholders. Particularly the three roles of the realisation phase are key to put a circular product into practice. Besides, the relevance of the roles differs per business and per project and is mainly influenced by three factors:

1. **The product:** Every circular product requires different actions. Consequently, different roles and partners fulfilling them are needed. For circular food packaging for example, no product-packaging combination is the same since features such as packaging barrier properties required to protect the food will differ. Moreover, when striving towards circularity of products, some might especially need political support or support in managing collaborations. In that case, the Mediator, Knowledge Broker, and Enabler would present important roles. Other products, however, might require educational roles, performed by the Internal Educator and External Educator.
2. **The company:** A major influencing factor on roles, which external partners should fulfill, is the position of a business in the value chain. Whereas producing firms have a higher leverage on the product itself, retailers can exert power over their suppliers and are more directly in contact with customers. By examining the 14 roles, every business can identify those roles they can fulfil internally and hence those where collaborative support is needed.
3. **The circularity strategy:** To realise circular products, businesses may follow different strategies to close the cycle such as rethinking, reducing, reusing, repairing, recycling, or recovering (as outlined in the 9 R-strategy framework)[28]. Each strategy requires different roles and thus different collaborations. For reusable food packaging for example, the Use-Phase Supporter, Impact Extender, and Promoter is particularly important. For recyclable food packaging, the End-of-Life Supporter, Circularity Expert, and Financier present important roles.

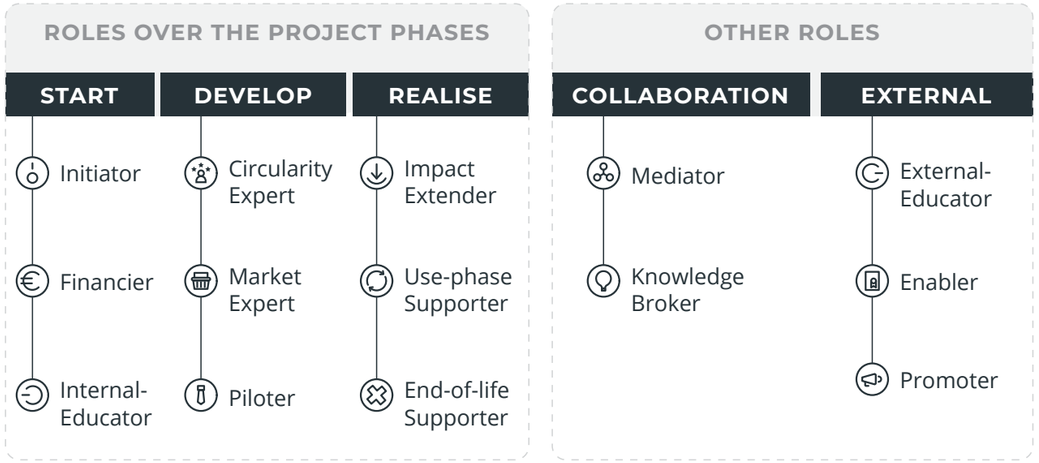

Figure 2: 14 roles in a circular economy

STARTING THE PROJECT

Initiator: The Initiator can take three forms: idea-spreading, action-oriented (i.e. leading (re-)thinking and (re-)designing, starting R&D, developing new business models), or pressure-creating (i.e. provoking and demanding change).

Often, food producers and brands as gatekeepers of the packaging on the market or reusable system providers developing innovative concepts present the action-oriented Initiators for circular food packaging. Pressure-creating Initiators, in contrast, could be NGOs/initiatives calling for action, consumers changing their consumption behaviour, retailers influencing their suppliers, or legislation via (e.g. single-use plastic) bans.

Financier: The Financier directly or indirectly enables financing of a circular product, mainly in four areas: R&D, knowledge accumulation (expert/educational support), the circularity network, and attractive markets.

Both financing of R&D and knowledge accumulation for circular food packaging is often taken over by food companies. The waste management system, however, is often financed via an Extended-Producer-Responsibility (EPR) approach [extending the responsibility of producers to the post-consumer stage and providing incentives to incorporate environmental considerations in the product design].[29] For reusable packaging, reusable system providers often take up the initial investments and create a pool of businesses. To create attractive markets (for recycled materials) and a level-playing-field for all businesses, governments may introduce taxes, subsidies, or fees.

Internal-educator: The Internal-Educator transfers and disseminates knowledge on the circular economy in businesses. Such knowledge may entail the importance and potential of circular products and the internal circular economy strategy to create expertise and enable a mindset shift.

To innovate towards circular food packaging, employees need to be educated on the topic. Whereas larger businesses can engage experts for this role holding e.g. seminars, smaller ones may need to agglomerate the knowledge independently.

DEVELOPING THE PROJECT

Circularity Expert: The Circularity Expert holds knowledge on, advises solutions for, and develops circularity networks, including e.g. the end-of-life extension or material recovery. For this, knowledge on the (technical) product level, circular economy innovations and challenges, and on local material flows are important.

For recyclable food packaging, the Circularity Expert is particularly important to enable technical improvements and enhance the alignment between packaging design and waste management. Larger businesses can have such experts in-house, whereas smaller ones often consult them externally. Experts range from recyclers and waste management organisations to packaging suppliers and consultancies.

Market Expert: The Market Expert provides knowledge, research, and advice on the market and industry context, legislation, consumer behaviour, or usage scenarios of the product.

Reusable food packaging asks businesses to identify ways to tap into new reuse business models and shifting user preferences. Importantly, businesses need to ensure the willingness of consumers to adopt to new packaging models. For such novel insights, businesses require external advice from Market Experts stemming from academics, sector organisations, consultancies, or consumers directly, for example.

Piloter: The Piloter develops and pilots both materials/technologies and circularity networks. This way, the customer experience and the circular economy performance can be enhanced. The insights and feedback generated allow for risks to be addressed and decision-making based on.

Businesses can act as Piloter themselves by conducting (small-scale) trials. For circular food packaging, however, they often participate in collaborative research programs along the supply chain, including e.g. chemical companies, recyclers, EPR organisations, and packaging suppliers. Such programs are ideally led by a neutral manager and can co-produce knowledge and learnings.

REALISING THE PROJECT

Impact Extender: The Impact Extender can be found in competitors. By following a pre-competitive approach, in a circular economy, businesses can collectively overcome obstacles, enable change, and stimulate quick learning. Such “coopetition” is often organised via platforms. In addition, consumers can act as Impact Extender when using their role model qualities to promote circular products to reach a critical mass.

When collaborating with competitors, businesses can increase volumes, reach scale, share investments, establish standardisation, and enable reinforcements via strategy alignment to realise circular food packaging. The feasibility and economic viability of a packaging reuse platform can, for example, be ensured by pooling several businesses. Consumers using such platforms as early adopters can at the same time encourage others to follow suit.

Use-phase Supporter: The Use-phase Supporter builds, operates, or utilises circularity networks extending the life-time of a product, such as via reusing, repairing, or refurbishing. This role opens up new market opportunities for businesses when following product-service-system, sharing, or product-life-extension business models.[30]

To support the use-phase of reusable food packaging, both food companies and reuse system operators can establish innovative, service-oriented reuse models, incorporating elements such as (reverse) logistics, cleaning, and refilling. Since consumers need to act as Use-phase Supporters by returning empty packaging, convenient solutions, education, and incentives need to be created. Governments may support the return of packaging by introducing a mandatory deposit.

End-of-life Supporter: The End-of-life Supporter aims to create a second life for a material at its end-of-life, including the products’ collection, (technical) treatment, and the take-up of the secondary material in the marketplace. This role is particularly relevant for circular economy strategies with shorter lifetimes where a use-phase extension is not possible, such as for recycling or repurposing. When focusing on this role, businesses can follow circular supply and resource recovery business models.[30]

To enable the end-of-life treatment of recyclable food packaging, first, consumers need to seperate and dispose of the packaging, which businesses may support. The collection and sorting is often organised via EPR schemes, with whom businesses should collaborate. Further, recyclers and chemical companies present important End-of-Life Supporters for businesses to realise recyclable food packaging. Geographical differences between the end-of-life treatment of packaging often implies increasing complexities for businesses.

COLLABORATION RELATED

Mediator: The Mediator connects actors in a circular economy to build one-to-one collaborations or networks. Businesses can reach out to potential partners themselves or utilise their existing networks. Here, formats such as conferences or working sessions are helpful. Besides, neutral partner-connecting organisations or collaboration managers can act as Mediators. This actor benefits from good networks and circular economy knowledge.

For circular food packaging, either large food companies themselves or company consortia, institutes/NGOs, consultancies, waste management organisations, or reuse service providers can typically act as a Mediator.

Knowledge Broker: The Knowledge Broker manages collaborative processes, determines topics discussed, facilitates discussions, and creates learnings and research outcomes of collaborations in a circular economy. This often neutral project manager may go hand in hand with the Mediator role and requires expertise on circular economy topics. Hence, the combination of the Knowledge Broker and the Circularity Expert is powerful.

For circular food packaging, external project managers can ease reaching collaborative goals. Often, company consortia or institutes/NGOs fulfil this role. Nonetheless, also businesses themselves need to contribute to collaborative interaction and the creation of knowledge by for instance assigning internal responsibilities and steering instances.

EXTERNALLY ORIENTED

External-Educator: The External-Educator informs and educates the public on the circular economy. Since consumers present indispensable actors in a circular economy, they need to be enabled to make informed (shopping) choices, support the lifetime extension or end-of-life treatment of products, or demand changes themselves. Besides consumers, individuals holding powerful positions, such as at government or local authority level, should also rethink the current economic approach. Such individuals can present important partners for businesses in enabling change towards a circular economy.

Consumers need to be educated on the appropriate handling of packaging. For recyclable food packaging, they need to understand the local separation and collection systems. For reusable food packaging, they might need to change their shopping behaviour and return empty packaging. Besides such practical packaging education, the topic should be discussed more holistically, starting already in school and being further driven by (public) institutes, NGOs, and academia, to ensure the dissemination of sound knowledge. Also businesses can contribute by educating via social media, in-store, or on-pack.

Enabler: The Enabler (co)creates, steers, and pushes legislation, norms, and markets towards the circular economy via political influence. Such political support is needed since neither businesses nor consumers are likely to strive towards circular products without (economic) incentives. When politics and businesses cooperate, regulations can be jointly changed to enable a circular economy, while uncertainties for businesses of future legislation can be reduced.

Businesses should collaborate with governments and public authorities, who can significantly influence circular food packaging via for example (EPR) policies, taxes, subsidies, bans, norms, infrastructure, or (quality) control. They can either directly exert political influence or join associations such as sector unions or federations, which act as Enablers. Ideally in the future, food packaging legislation should be aligned across Europe to ease the scale-uptake of circular food packaging.

Promoter: The Promoter establishes publicity and credibility by promoting circular products. For this, different communication and marketing strategies can be utilised (via social networks, campaigns, events, in-store, on the product, for example), aiming to keep or win consumers. Besides promoting the product, the circular economy story of a business may allow gaining a good sustainability reputation, particularly essential for larger businesses.

For reusable food packaging, the Promoter presents a key role. First, the current packaging system is tuned to convenient, low-cost, single-use packaging. Therefore, reusable packaging has to become accepted and ordinary (again). Second, promotion might be required to ensure the return or reuse of packaging. Businesses themselves can act as Promoter but also external partners such as marketing agencies may assist.

7 ZOOM-IN STEP 7:

NINE PARTNER CHARACTERISTICS IN A CIRCULAR ECONOMY

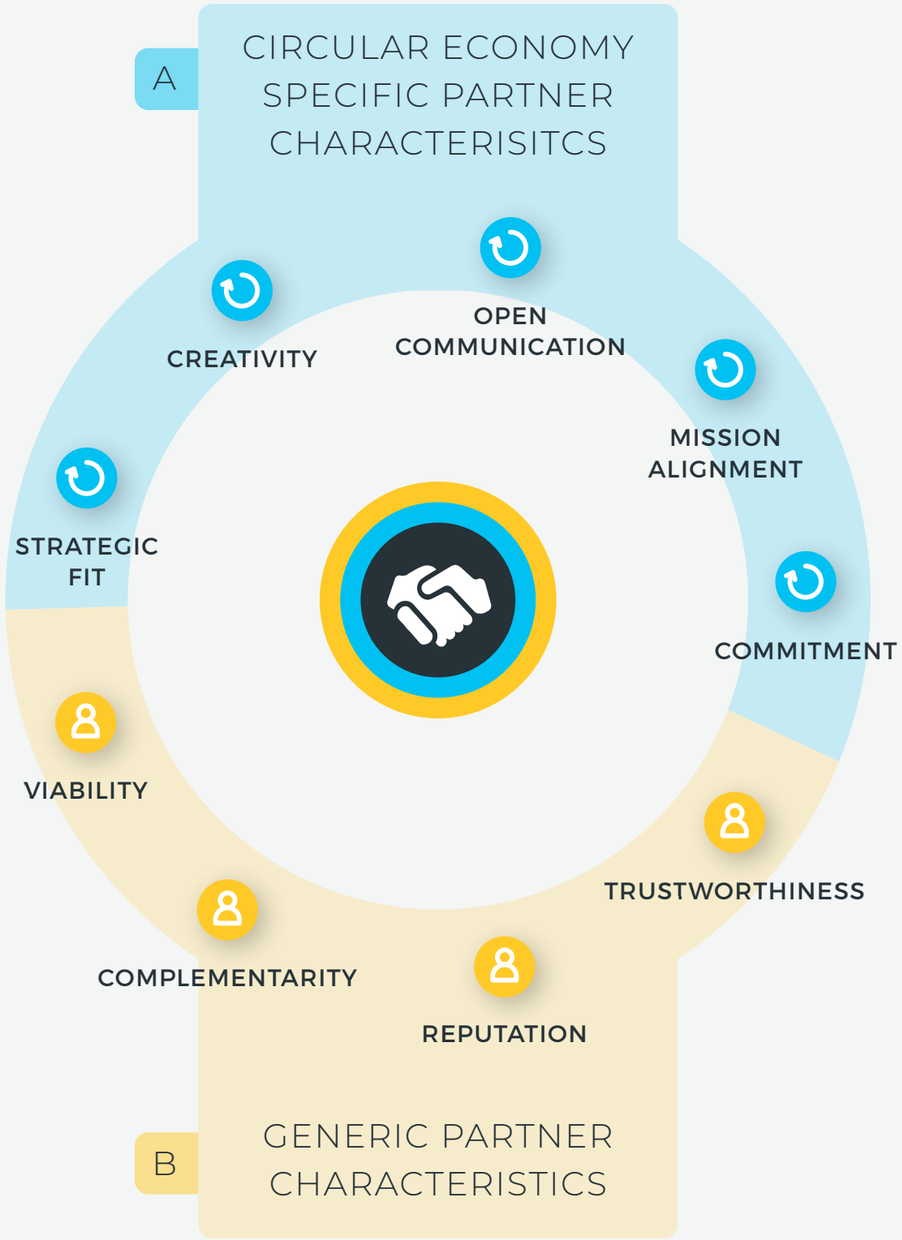

Figure 3: Nine partner characteristics in a circular economy

A. CIRCULAR ECONOMY SPECIFIC PARTNER CHARACTERISTICS

Strategic fit: To ensure a fundamental alignment in circular economy projects, partners should be strategically fitting. Namely, they should align on the circular economy strategy and vision, company culture, market, company operation (e.g. degree of flexibility required), and context (fulfilment of local requirements by the partner). In particular, a geographical fit is important. While some global key collaborations focusing on knowledge exchange may be helpful, collaborations concerned with material exchange and establishing circularity networks on the ground, require geographical proximity to enhance resource efficiency and profitability.

Creativity: To identify solutions for complex and uncertain issues in a circular economy and successfully collaborate in multiplayer networks, partners should be creative and open-minded. Especially when conceptualising novel circular business models, out-of-the-box thinking is important. At the same time, being realistic is key to identify transitional steps required on the journey towards circular products.

Open communication: Collaborative learning via open and transparent communication should be a norm in a circular economy. When actors share their knowledge and learnings, joint progress, individual business advantages, and the reduction of uncertainties can be realised. This characteristic presents a continuous reciprocal achievement to be fulfilled by all collaborating partners.

Mission alignment: Since in a circular economy value is generated via synergetic relationships with shared benefits and interests, partners should match the mission and goals of a business. Such alignment enables much-needed flexibility within innovative circular projects, potentially entailing uncertainties and difficulties. Only when moving towards common goals together, circular products can become a reality.

Commitment: Partners should be committed in terms of wanting the change and investing resources. Due to the mutual dependence and reciprocity between partners and the focus on long- instead of short-term profits, in a circular economy, committed partners are key. Whereas smaller firms can circumvent lacking resources by joining forces, larger firms possessing sufficient resources might rather be concerned with sufficient top-management commitment. More progressive organisations are often found to be more committed to realising circular goals.

B. GENERIC PARTNER CHARACTERISTICS

Financial viability: Since the circular economy not only prioritises reducing resource consumption and environmental pollution but equally financial advantages for companies, collaborations should be financially viable.[31] In particular, partners enabling economies of scale by increasing volumes or sharing costs are of interest.

Complementarity: Partners should deliver or perform what is needed to realise a circular product but cannot be fulfilled by the business itself. The 14 partner roles support businesses in identifying those gaps and thus complementarities.

Reputation: Whereas for smaller/unknown partners avoiding a negative reputation may be sufficient, larger/well-known partners can benefit from a good reputation. A few credible partners can attain the legitimacy of a business and enable networking in a circular economy.

Trustworthiness: Being able to trust a partner (or rather an individual in the partner organisation) in terms of adhering to promises and translating them into action is important - especially in a circular economy with mutual dependencies.

CONCLUSION & WAY FORWARD

Re-engineering our linear system to a circular economy cannot be achieved by individual actors alone. Therefore, businesses as central actors in our economy need to collaborate with various players. That way, they can realise circular products by jointly changing the industry towards a circular economy, enabling financial viability, gathering knowledge required, and hence improving their own competitive advantage. Examining the case of circular food packaging, it shows great potential to solve issues caused by plastic production and its after-use pollution. Since food companies introduce packaging into the market, major responsibility to move to circular food packaging lies with them. As for any circular product, those businesses can influence their overall business model as well as specifically the product design, material sourcing, and network engagement. For the latter, the food producers, brands, and retailers interviewed for this study confirmed that they certainly require collaborative support. This guide outlines how and with whom such collaborations in a circular economy should be established.

THE COLLABORATION SET-UP IN NINE STEPS

This guide introduces nine steps which businesses may follow to set-up collaborations in a circular economy. After understanding the local market and its material flows as an initial step informing all subsequent ones, businesses should prepare internally for the collaboration. More specifically, they should create and align on a circular economy vision, assess internal resources and gaps, and form a team. Based on the identified gaps, subsequently, required and attractive partners can be identified, contacted, and evaluated. Finally, collaborations with chosen partners should be established in a way ensuring their future success.

FOUR COLLABORATION TYPES

The development stage of the local circularity network influences the efforts and collaborations required by businesses to realise circular products. Based on these stages, this guide presents four collaboration types: vertical networks, horizontal networks, one-to-one alliances, and knowledge exchange.

14 ROLES

To realise circular products, either businesses themselves or partners filling the capacity and resource gaps of a business can fulfil 14 roles. Particularly the three roles of the realisation phase are key. For the other roles, some products may require the fulfilment of collaboration-managing and political roles while others of educational roles. Further, the position of a business in the value chain as well as the circularity strategy chosen influences the importance of roles.

NINE CHARACTERISTICS

When choosing partners for circular economy collaborations, businesses should evaluate nine characteristics. Four of those create a baseline, being important for any collaboration. Five characteristics, however, are found to be of particular relevance in a circular economy due to novel dynamics and complexities.

THE WAY FORWARD

Businesses are critical to realise the principles of the circular economy. In light of the urgency to move from linear to circular products, they are increasingly formulating circular economy strategies. Businesses are, however, reliant on collaborations with a range of actors. For topics such as packaging, circular collaborations are emerging. To accelerate this change, synergies via such collaborations need to increasingly materialise. To get started, businesses do not only need to understand circular economy thinking and its business models but also need to recognise the importance of collaboration. By taking into account all collaboration set-up steps, the different collaboration types, roles, and characteristics, businesses can establish successful collaborations towards circular products. The management of those often complex multiplayer collaborations presents another topic to be explored.

Alongside businesses, we should keep in mind the importance of other players in a circular economy, such as governments, public authorities, waste managers, civil society, expert organisations, or academia. In the spirit of true collaboration, a sustainable future will become reality if we work together across artificial boundaries.

REFERENCES

1. Kleine Jäger, J. (2020). Joint efforts for circular food packaging. How focal firms find and set-up collaborations for reusable and recyclable food packaging. Master's Thesis. Utrecht University. Retrieved from: https://dspace.library.uu.nl/bitstream/handle/1874/395706/Joana%20Kleine%20Jaeger,%20Master%20Thesis%20(public).pdf?sequence=1

2. Circle Economy (2020). The Circularity Gap Report 2020. Retrieved from: https://www.circularity-gap.world

3. Murray, A., Skene, K., & Haynes, K. (2017). The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context. Journal of Business Ethics, 140(3), 369–380.

4. Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. Resources, Conservation and Recycling, 127, 221–232.

5. PACE (2019). Circular Value Creation. Lessons from the Capital Equipment Coalition. Retrieved from: https://pacecircular.org/sites/default/files/2020-01/CEC%20Circular%20Value%20Creation.pdf

6. Geyer, R., Jambeck, J. R., Law, K. L. (2017). Production, use, and fate of all plastics ever made. Science Advances 3(7) .

7. European Commission (EC) (2018). A European Strategy for Plastics in a Circular Economy. Retrieved from: https://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy-brochure.pdf

8. Barnes, D. K. A., Galgani, F., Thompson, R. C., & Barlaz, M. (2009). Accumulation and fragmentation of plastic debris in global environments. Philosophical Transactions of the Royal Society B: Biological Sciences, 364(1526), 1985–1998.

9. World Economic Forum (WEF), Ellen MacArthur Foundation (EMF), McKinsey & Company (2016). The New Plastics Economy - Rethinking the future of plastics. Retrieved from: http://www.ellenmacarthurfoundation.org/publications

10. PlasticsEurope (2018). Plastics - the Facts 2018. An analysis of European plastics production, demand and waste data. Retrieved from: https://www.plasticseurope.org/application/files/6315/4510/9658/Plastics_the_facts_2018_AF_web.pdf

11. EMF (Ellen MacArthur Foundation) (2017). The New Plastics Economy. Rethinking the future of plastics & catalysing action. Retrieved from: https://www.ellenmacarthurfoundation.org/assets/downloads/publications/NPEC-Hybrid_English_22-11-17_Digital.pdf

12. European Commision (2019). The European Green Deal. COM(2019) 640 final. https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf

13. Ameripen (American Institute for Packaging and the Environment) (2018). Packaging Materials Management Definitions: A Review of Varying Global Standards. Guidance Document. Retrieved from: https://cdn.ymaws.com/www.ameripen.org/resource/resmgr/pdfs/AMERIPEN-Report-RecyclingDef.pdf

14. Rigamonti, L., Biganzoli, L., & Grosso, M. (2019). Packaging re-use: a starting point for its quantification. Journal of Material Cycles and Waste Management, 21(1), 35–43.

15. Loop Store (2020). Retrieved from: https://loopstore.com/

16. Pieter Pot (2020). Retrieved from: https://www.pieter-pot.nl/?lang=en

17. Kazulytė, I. (2019). Packaging recycling and using of recycled raw materials in the production of packages, with an emphasis on hazardous chemical substances. Environmental Research, Engineering and Management, 74(4).

18. EMF (Ellen MacArthur Foundation) (2018). New Plastics Economy Global Commitment, p.12. Retrieved from: https://www.ellenmacarthurfoundation.org/assets/downloads/Global-Commitment-Document-to-download-on-website-2.pdf

19. Hopewell, J., Dvorak, R., & Kosior, E. (2009). Plastics recycling: challenges and opportunities. Philosophical Transactions of the Royal Society B: Biological Sciences, 364(1526), 2115–2126.

20. Gong, Y., Putnam, E., You, W., & Zhao, C. (2019). Investigation into circular economy of plastics: The case of the UK fast moving consumer goods industry. Journal of Cleaner Production.

21. Lee, P., Sims, E., Bertham, O., Symington, H., Bell, N., Pfaltzgraff, L., Sjögren, P., Wilts, H., O'Brien, M. (2017). Towards a circular economy - waste management in the EU: study. EPRS (European Parliament Research Service), STOA (Scientific Foresight Unit). Retrieved from: http://www.europarl.europa.eu/RegData/etudes/STUD/2017/581913/EPRS_STU(2017)581913_EN.pdf

22. Circle Economy (n.d.). Making sense of the circular economy: the 7 key elements. Retrieved from: https://www.circle-economy.com/circular-economy/7-key-elements

23. Lahti, T., Wincent, J., & Parida, V. (2018). A Definition and Theoretical Review of the Circular Economy, Value Creation, and Sustainable Business Models: Where Are We Now and Where Should Research Move in the Future? Sustainability, 10(8), 2799.

24. Dyer, J. H., Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage, Academy of Management Review, 23, 660–679.

25. De Angelis, R., Howard, M., & Miemczyk, J. (2018). Supply chain management and the circular economy: towards the circular supply chain. Production Planning & Control, 29(6), 425–437.

26. Farooque, M., Zhang, A., Thürer, M., Qu, T., & Huisingh, D. (2019). Circular supply chain management: A definition and structured literature review. Journal of Cleaner Production, 228, 882–900.

27. Brown, P., Bocken, N., & Balkenende, R. (2018). Towards Understanding Collaboration Within Circular Business Models. In L. Moratis, F. Melissen, & S. O. Idowu (Eds.), Sustainable Business Models, 169–201.

28. Potting, J., Hekkert, M., Worrell, E. & Hanemaaijer A. (2016). Circular Economy: Measuring innovation in product chains. The Hague: PBL Netherlands Environmental Assessment Agency. Retrieved from: https://www.pbl.nl/sites/default/files/downloads/pbl-2016-circular-economy-measuring-innovation-in-product-chains-2544.pdf

29. Rubio, S., Ramos, T. R. P., Leitão, M. M. R., & Barbosa-Povoa, A. P. (2019). Effectiveness of extended producer responsibility policies implementation: The case of Portuguese and Spanish packaging waste systems. Journal of Cleaner Production, 210, 217–230.

30. OECD (2018). Business Models for the Circular Economy: Opportunities and Challenges from a Policy Perspective. Paris: OECD Publishing. Retrieved from: https://www.oecd.org/environment/waste/policy-highlights-business-models-for-the-circular-economy.pdf

31. Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? Journal of Cleaner Production, 143, 757–768.

CIRCLE ECONOMY

www.circle-economy.com