

Investing in the loop: managing linear- and circular business models simultaneously

An exploratory research for providing insights in managing a CBM and linear BM within a focal firm, as seen from an ambidexterity perspective.

Master Thesis Innovation & Entrepreneurship

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Preface

Over a year ago, I started the process of writing the master thesis that currently lies in front of you. When in December 2015 the time came to start orientating on potential master thesis subjects, the projects on sustainability management directly caught my eye. Major social and economic relevance combined with an exciting dose of mysticism that (in my opinion) surrounds these issues managed to draw my interest more and more over the last few years. But when I started my bachelors' in business administration over 5 years ago, learning about the important role of businesses in the ecological and social wellbeing of our planet was not one of my main motivations. The nuanced emphasis on sustainability in the bachelors' curriculum and even more in the masters' curriculum educated me on the way organizations will do business in the next decades. I am therefore pleased and grateful to have had the possibility to make an effort for contribution to a (slightly) more sustainable society. The research process opened my eyes, and it will definitely be of influence on the way I will define my future professional career.

The process of writing a master thesis proved to be a bit of a bumpy road. In the beginning, finding an actual research focus within a certain theoretical gap proved to be challenging. After switching from a focus on new New Business Models to Circular Business Models, pieces of the theoretical puzzle started to fall in place. But as summer holidays were already started, putting the research set up into practice by visiting respondent organizations became a time consuming operation. After putting in persistent work over the last few months, a final result was put together. Specifically, I would like to thank my supervisor Prof. Dr. Jan Jonker for his sharp feedback and sticking with me throughout the whole length of the research process. Also, I would like to thank Prof. Dr. Hans van Kranenburg as a second examiner, and Ivo Kothman for helping me in finding respondent organizations. I would also like to thank family members, friends, and fellow students who helped or supported me in some way or another, without you this would not have been possible.

I hope that reading this research will be enjoyable and will trigger enthusiasm about the management of Circular Business Models in current society and economy!

Summary

Due to multiple environmental and social crises that derive from a linear produce-consume economy, a transition towards a more sustainable economy has to be made. As part of this transition, the emergence of newly found circular business models (CBMs) initiates the circular economy. CBMs are systems of activities close their material resource loops within their own organization or in cooperation with others, and therefore work according circular business modes, or value cycles. But for a transition towards a leading circular economy to kick-start, established organizations have to start embracing CBMs. The most risk-averse way of doing this is exploring a CBM while exploiting a trusted linear BM. A dual BM situation arises, where both differentiate from each other on essential traits and formulated strategic goals. Knowing their differences, how can both receive balanced, appropriate management efforts? An ambidexterity perspective is chosen to approach the management of exploring a CBM while exploiting a linear BM. In order to create an explorative view in this matter, the following research question is created: *How can organizations manage the balancing efforts for exploring a Circular BM while exploiting a linear BM within the same organization?*

The content-focused cruxes between linear BMs and CBMs show this research will be about how organizations try to achieve balanced management in the simultaneous achievement of very different strategic goals within very different BMs. Ambidexterity management literature shows to be applicable in a dual BM context, as the management of conflicting strategic goals pop up in the management of dual BMs.

After reviewing literature on BMs and ambidexterity management in dual BM situations, an interview guide is developed accordingly. After retrieving qualitative data, insights on how 10 different organizations currently deal with managing a CBM next to a linear BM in the same organization are retrieved from the field. Results show that the external organizational context (in the form of a linear macro-economic perspective in society) appears to be decisive for the way that balancing efforts for both BM types are managed.

Samenvatting

Verschillende maatschappelijke en ecologische crises ontstaan aan de hand van de huidige lineaire produceer-consumeer economie op wereldwijde schaal. Een transitie naar een meer duurzame economie moet daarom gemaakt worden. Als onderdeel van deze transitie initieert de opkomst van circulaire business modellen (CBMs) een circulaire economie. CBMs zijn systemen van onderling gelinkte activiteiten die zelfstandig of in samenwerking materialen zo vaak mogelijk hergebruiken en daarmee zichzelf organiseren in een waarde-cirkel. Maar wil er daadwerkelijk een transitie naar een circulaire economie van de grond komen, dan zullen bestaande organisaties moeten gaan werken aan de hand van CBMs. De meest risicomijdende manier om dit te doen is door een CBM te exploreren (wat kunnen we hiermee in de toekomst?), en door een lineair business model te exploiteren (wat kunnen we er op dit moment uithalen?). Een situatie waarin verschillende typen business modellen tegelijkertijd moeten worden aangestuurd ontstaat. Beide modeltypen verschillen vaak essentieel van elkaar op de manier waarop ze waarde creëren voor de organisatie, op welke maatschappelijke vlakken ze waarde creëren. Rekening houdend met deze verschillen, hoe wordt in de praktijk een gebalanceerde management aanpak voor beide business modellen worden ingedeeld? Een ‘*ambidexterity*’-perspectief wordt ingenomen om te kijken naar hoe het exploreren van een CBM en het exploiteren van een lineair BM gebalanceerd kan worden op managementniveau. De volgende onderzoeksvraag is opgezet om een exploratieve inkijk in de kwestie te geven: *Hoe vinden organisaties de managementbalans tussen het exploreren van een Circulair BM en het exploiteren van een lineair BM?*

De inhoudelijke verschillen en twistpunten tussen CBMs en lineaire BMs laten zien dat dit onderzoek gaat over de manier waarop organisaties balans proberen te vinden in het behalen van tegenstrijdige strategische doelen tegelijkertijd. Literatuur over ‘*ambidexterity management*’ blijkt bruikbaar te zijn als perspectief op hoe deze duale management situatie kan worden aangepakt, omdat tegenstrijdige strategische doelen zich praktiseren in de uitvoer van business modellen. Na het operationaliseren van een theorie over business modellen en ‘*ambidexterity management*’, geven kwalitatieve data een inzicht in de manier waarop 10 verschillende organisaties omgaan met het tegelijkertijd managen van een CBM en een lineair BM. Resultaten laten zien dat de externe context van de organisatie (in de vorm van een lineair macro-economisch perspectief in de huidige samenleving) van invloed is op de manier waarop balans tussen inspanning voor beide BM-types wordt gemanaged.

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1. Introduction

Due to multiple environmental and social crises that derive from a linear produce-consume economy, a transition towards a more sustainable economy has to be made. As part of this transition, the emergence of small circular business models (CBMs) initiated the circular economy. These initiatives close their material resource loops within their own organization or in cooperation with others. They therefore work according circular business modes, or value cycles. But for a transition towards a leading circular economy to kick-start, established organizations have to start embracing CBMs. The most risk-averse way of doing this is exploring a CBM while exploiting a trusted linear BM. A dual BM situation arises, which gives direction to the search for finding an appropriate management strategy. An ambidexterity perspective is chosen to approach the management of exploring a CBM while exploiting a linear BM. This research that tries to provide insights in ways that organizations design their internal and external contexts to successfully balance exploration within a circular BM and exploitation within a linear BM.

1.1. Transition towards circularity

Back in the 80's, the first research on ecology in relation to our economic activities showed that the way our current economy takes advantage of our natural resources, contributes to the worsening state of the environment. Brundtland (1987) and (Pearce, Markandya, & Barbier, 1989) are examples. They found that within our economic system, there is almost no space for social and ecological related values in assessing the success of our economy. The problems that derive from the overcharge on our natural resources express themselves into several humanitarian and environmental crises, such as food, water, mobility and health crises as well as energy and climate crises (Grin, Rotmans, Schot, Geels, & Loorbach, 2010). Up until this day, this literature proves to be still very relevant. Above described problems grew only larger and are now perceived as one of the main threats to the long term survival of planet Earth. Among many others, Jonker (2012), Preston (2012) and Murray et al. (2015) propose a transition in the direction of a circular economy. A circular economy is defined as “an industrial economy that is restorative by intention” aiming to “enable effective flows of materials, energy, labor and information so that natural and social capital can be rebuilt” (EMF, 2013, p. 26).

Since the 2000's, leading institutions as well as most organizations slowly start to understand that a transition towards a more sustainable economy has to be made in order to make the space for ecological and social values. Organizations start to adopt climate conscious strategies in order to reduce their ecological impact and create better social and environmental circumstances (Cronin et al., 2011). Involvement of stakeholders' interests in meeting obligations beyond an economic perspective of profit maximization grows and the involvement in corporate social responsibility has become a norm for companies to be taken seriously in current society (Lee, 2008; Ferrell et al. 2010; Mitchell et al. 1997). Along the slow emergence of a new rationale on sustainability is the new consumer interest in circular initiatives. In 2013, this led up to a circular business potential of €30 billion worldwide every year (McKinsey in EMF, 2013). When trying to capture this new pool of potential value, organizations need to involve in circularity themselves and participate in the creation of a circular economy. As this concerns finding new ways of creating, delivering and capturing value for customers, a business model perspective can be taken on the matter. In general, business models (BMs from now on) entail certain ways of value creation, value delivery, and value capturing activities (Ricart & Casadesus-Masanell, 2010). Involving in circularity from a BM perspective is about creating, delivering and capturing value with and within closed material loops (Mentink, 2014). 'Closed material loop' means that material resources are reused again, either as bulk material, as product or as product component. These BMs are called Circular Business Models (CBMs from now on). Organizations that allocate their value creation, delivery and capturing activities in ways that entail the principles of the circular economy drive the transition towards a circular economy (Wijnands, 2015). So in order to start a transition towards a circular economy and keep it moving, organizations have to start disposing their polluting linear BMs and start involving in CBMs. But what makes a CBM so different from a conventional, linear BM that collectively choosing CBMs over linear BMs can cause an economic transition?

A CBM differs from a conventional, linear BM in the sense that waste of used products or services functions as new system input for a CBM while a linear BM does not re-use waste of used products or services as new input (Mentink, 2014). But what does that actually mean? What characteristic or attribute gives a CBM the ability to re-use its waste? In order to achieve better understanding of the difference between a CBM and a conventional, linear BM, the ways of how both BMs go about in their value creating, delivering and capturing processes has to be investigated. The activity system perspective on BMs by Zott & Amit

(2010) can assist here, as this perspective can help to open the black box of a BM in general. Zott & Amit (2010) define BMs as activity systems that consist of several independent but interlinked activities. These independent activities are linked into a value chain according to unique design parameters and design themes. These parameters give meaning to the whole by conducting and linking each activity in the value chain. For example, this means that deciding to produce plastic drinking cups (design theme) results in a value chain where plastic (material input) is heated, shaped, cooled and sanded (individual value chain activities) in the organization-specific way of using machinery (design parameters) that creates the unique drinking cup that was designed beforehand.

According to the activity system perspective, a conventional BM selling products in a conventional economy is regarded as a linear value chain: material resources function as input of the value chain, the produced product or service embodies the output. Linearity causes big accumulation of material waste and stress on exhaustible resources, as material input is used only once and then regarded and stored as waste (Ellen McArthur Foundation, 2014). This problem is addressed by a CBM when it fully or partly re-uses the 'waste' of the used product or product components as new input for the system. This means that the back-end of the value chain is connected to its front-end, creating a circle when visualizing the BM. Regarding this notion and the distinction between a linear and a circular value chain, a conventional BM can be seen as an unclosed **value chain** of individual but interlinked activities, whereas a CBM can be seen as a closed **value cycle** of individual but interlinked activities. But as mentioned by Jonker (2013), creating a circular economy consisting of organizations performing CBMs is also about connecting organizations within closed material loops. Also, cooperating in finding new bottom-up circular business opportunities and setting new economic and ecological standards is part of creating a circular economy. This means that a circular economy is a system of interlinked activities where multiple organizations cooperate to connect output to input and close material loops, and conjointly create a mindset to do so in the future. In that sense, each CBM of each organization in the loop has its own task in forming and closing it, keeping created value re-usable. Groups of organizations that conjointly create and close material loops do therefore not only work for value capturing, but also for value maintenance and cooperate in growing the circular economy. But as the overly large part of established organizations in our global economy are linear, an actual transition towards an a more circular economy receives more substance when:

- New and established organizations start to see what economic and environmental gains circular value cycles can provide, from where BMs organized as value cycles gain in popularity and are installed in organizations.
- New and established organizations start to see what economic and environmental damage linear value chains do to our planet, from where value chain-organized BMs lose popularity and are abandoned by organizations.

Only when the above described situations can become reality, a transition towards a circular economy can kick-start. It thereby sufficiently diminishes the exhaustion of natural resources and provides new market opportunities. In the following, there will be an elaboration on the BM possibilities that organizations can pursue to contribute to the transition towards a circular economy.

1.2. Managing dual BMs

As seen in the above, the transition towards a circular economy is desperately needed to relieve stress on the natural resources of our planet. Only then big societal and environmental crises can be dodged in the future (Grin, Rotmans, Schot, Geels, & Loorbach, 2010). CBMs in the form of value cycles are found to be possible solutions on a micro-economic level. Jonker (2012; 2014) addresses the early CBMs as bottom-up citizen initiatives, and defines them as new collaborations and exchange of information between citizens, from where small circular BMs emerged. This indicates that CBMs are mainly investigated in the context of new organizations that started working with CBMs from scratch. In the previous, it was reasoned that our global economy is still overly based on linear principles. Large numbers of established organizations from all over the world should therefore adopt circular ways of working for a circular economy to kick-start. From a BM point of view, there are two options in solving this problem:

1. *An alteration of the current BM towards circularity:* This implies BM innovation, and in particular BM revision: the replacement of an existing BM by a new one (Cavalcante, 2011).
2. *Implementing a CBM into the organization, while maintaining the original linear BM:* The organization conducts a value cycle next to a value chain in the form of differentiated BMs. Here occurs a dual BM situation to be managed within the focal organization (Markides, 2013).

Choosing the second option would possibly reduce risk of investment when transitioning from linearity to circularity. Implementation can be conducted and tested gradually instead of putting all money on the new 'circular' horse. The consequence here is that the organization needs to take time and money to explore the CBM in order to get familiar, while keeping income steady by exploiting the familiar linear BM. Next to this, an organization emerges which on the one hand aims to create ecological value for the planet while maintaining their linear, exhausting ways of working. This creates a situation where a focal organization needs to manage two distinctive sorts BMs simultaneously, while opposing each other in their strategic goals (Markides & Charitou, 2004). The management of two distinctive BM modes can be seen as a dual business model situation. A dual business model situation (a dual BM situation from now on) can result in possible conflict, mismanagement and degrading value of the existing (linear) activities, making the organizations in question less financially stable (Markides & Charitou, 2004). But how can the management of a dual BM situation be approached, when strategic goals of both BMs are in conflict? Somewhat more recent strategic management literature also addresses the duality of activities concerning conflicting strategic goals within one focal organization as **ambidexterity management** (Gassmann et al., 2016; Spieth et al., 2016). Ambidexterity is achieved when the efforts for mainly exploration and exploitation are balanced, from where potential conflict between the two sets of activities is avoided.

But for organizations to achieve ambidexterity in a dual BM situation within a circular versus linear context, they should properly know how to do this in order to avoid mismanagement and degrading value of both BMs. Ambidexterity literature offers ways to tackle this problem, but not within the circular versus linear BM context presented in the previous sections (Markides & Charitou, 2004; Markides, 2013; Winterhalter et al., 2015). In order to provide first insights, management approaches of organizations that currently deal with the above described dual BM situation will be examined. An exploratory research is set up. This leads to the following research question:

How can organizations manage the balancing efforts for exploring a Circular BM while exploiting a linear BM within the same organization?

The most straight-forward way of answering the research question is analyzing organizations that already adopted a CBM and manage it next to a linear BM. First insights in

current management approaches can open the door for future research on managing a CBM and a linear BM simultaneously. Future normative research on this matter could then start providing possible handlebars in successfully managing a CBM next to a linear BM. Involving in circularity on a BM level could become a lot less risky and a lot more attractive for established organizations. But first, literature reviews on linear BMs, CBMs and how ambidexterity management can be useful in dual BM situations should be discussed, creating foundations for an actual research method. The following sub-questions are formulated to help in empirically exploring ways to manage a CBM next to a linear BM as seen from an ambidexterity perspective:

- What are differences between conventional, linear BMs and CBMs?
- What is organizational ambidexterity and how can it be managed within a dual BM context?
- How can the management of balancing efforts for organizational ambidexterity be explored in practice?

This research will not be about the characteristics of circular BMs and linear BMs, the distinction between both BMs, what implications conducting both BMs has for society, and other subjects that explicitly address the operation of both types of BMs as a tool. This research is more about seeing a dual BM situation as a situation of opposing strategic goals that are practiced through exploration and exploitation activities. Markides & Charitou (2004) and Markides (2013) show that ambidexterity literature can be used as a perspective to find ways for successful management of dual BM situations. But research for managing dual BMs from an ambidexterity management perspective is still in its infancy (Winterhalter et al., 2015). Therefore, a qualitative approach will be taken in answering the research question.

In the previous, the economic need for transitioning towards a circular economy is shown. Existing organizations can contribute to this transition by involving in CBMs and conduct them next to their conventional linear BM. This gives the situation of managing two BMs within one organization. Ambidexterity literature can provide support in finding ways to successfully manage the balancing efforts for dual BMs. In the following, there will be an elaboration on what BMs are, what CBMs are, and how ambidexterity literature can provide answers in finding ways to manage a CBM next to a linear BM.

2. What are the differences between conventional, linear BMs and Circular BMs?

In this chapter, there will be elaborations on several different approaches towards BMs. It is shown that most BM definitions come together on the points of setting a core logic and strategic choices for creating and capturing value in a value network. An activity system perspective on BMs is furthermore adopted to address the difference between a CBM and linear BM. Finally, the principles of CBMs and their relation to a creating a circular economy is discussed.

2.1. What are Business Models?

Nearly every organization nowadays is known with the concept of a BM and what it is used for (Shafer et al., 2005). These organizations in overall know that BMs define the way that value is created, delivered and captured for themselves (Zott & Amit, 2010; Ricart & Casadesus-Masanell, 2010). Still, many executives of these organizations remain confused about how the actual value is created and make them unable to define how money for the company is made. For example, 70 executives from 40 companies were interviewed about the core logic within their organization for creating and capturing value: the basis of a BM. 62% could not clearly define how their company made money (Linder & Cantrell, 2000). A reason for this could be that a BM can be viewed from many different perspectives, each taking different business disciplines, components and issues within organizations into account. Due to these different perspectives on BMs, an overarching definition which is accepted by all different business disciplines is hard to formulate. In an attempt to create a definition that is widely accepted among business disciplines, Shafer et al. (2005) found 42 BM components divided over 12 original BM definitions. After the different components were placed in related groups based on their underlying similarity, 4 main categories of BM components were formulated. These summarizing component categories were **strategic choices**, **creating value**, **capturing value**, and the **value network**. While taking simplicity and integration of earlier research into account, a new definition of a BM, derived from twelve earlier definitions, was formulated.

Shafer et al. (2005) defined a BM as a representation of a firm's underlying core logic and strategic choices for creating and capturing value within a value network. The *core logic* is about articulating the key assumptions made within the organization that help to keep

strategic choices consistent and in line with each other. Next to that, the BM practically reflects the *strategic choices* that have been made in order to create value. Value creation can be seen as turning technological input into economic output (Chesbrough & Rosenbloom, 2002). The competencies of the organization cause a product or service to be created along a line of activities that eventually can be sold to customers. *Value creation* is successful when organizations differentiate themselves from their competition in the way they create value. They can differentiate themselves by developing unique core competencies and capabilities that are different from their competitors', thereby putting them in favorable market positions. Examples of these competencies and capabilities can be the unique way of performing activities for customers, unique ways of combining work processes (creating synergies, economies of scope, economies of scale, etc.) or unique ways of capturing the created value. As the main goal of most organizations is to make money, they become viable at the point that they have found a way to create- and capture value and ultimately create profit for themselves. This way of value creation and value capturing is, however, partly defined by the different groups of stakeholders involved with the organization (Shafer et al., 2005). These groups of stakeholders, together with the organization in question, create the *value network*. The value network includes suppliers, partners, distributors, customers and other parties that extend or deliver the resources owned by the organization (Hamel & Ruben, 2000). The unique relationships with these stakeholders define the role of the organization within its value network as these influence the way value is created and/or captured. The value network is therefore an important component of the BM of the organization.

Furthermore, Shafer et al. (2005) mention that a strategy and a BM are not the same thing: strategy concerns making decisions regarding plans for the future, seeing patterns in decisions over time, decisions regarding positioning products within markets and decisions regarding the conceptualization of the organization. As seen in the above, a BM is the facilitation of these choices in practice; "they facilitate the analysis, testing, and validation of the cause-and-effect relationships that flow from the strategic choices that have been made" (Shafer et al., 2005, p.203). Also in more recent work, the facilitation role that BM have for strategy is found. Dahan et al.(2010) consider a BM to be a guideline for the practical implementation of strategies. A BM practices the operational imperatives of a certain strategy. This can take place in the form of a certain business design or certain business process within the organization. The BM therefore is a connecting piece between planning the future (strategy) and actual operations (process management). As shown in the above, organizations

can also consider more than one BM at the same time. Each BM represents a different set of strategic choices that defines the way that BM creates its value (Markides, 2006). Basically, the appearance of a linear BM next to a CBM can therefore be seen as the two practical embodiments of two different sets of strategic choices operating within one organization. A CBM is derived from a strategy towards the re-usage of material input which leads to a BM in the form of a value cycle, whereas a linear BM is derived from a strategy towards single use of material input which leads to a BM in the form of a value chain.

Baden-Füller and Mangemantin (2013) identify BMs from a more hands-on, activity-focused perspective. They consider BMs as cognitive instruments that can provide configurations of cause-effect relationships and thereby taking stakeholders outside the organizational boundaries into account. They consider BMs as entities that consist of 4 main elements: *identifying customers* (the number of separate customer groups); *customer engagement* (or the customer proposition: adding value by solving specific customer problems or offering one-size-fits-all solutions); *monetization* (how is the money raised? Defining methods for collecting revenues and setting prices); and *value chain and linkages* (how are domains integrated and linked?). In defining these elements, certain activities are addressed to each element. Each of these elements have a significant role in the value creation- and value capturing process. The unique composition of links between the elements and content of the elements complete these processes and therefore define the BM. This typology shows how different BMs can be applied to one particular group of customers or one particular product or service. A product or service can be presented to a group of customers by offering one-size-fits-all solutions or adjusting each product to the unique needs and wants of individual customers and thereby differentiate on the way value is created. Linking this to managing dual BMs in one organization, it could (in theory) be possible to deliver one product to one group of customers while offering two solutions simultaneously in doing this. These offerings would differentiate on the consideration of value chain and linkages; one product that is created along a value chain and the other is created along a value cycle. An example on differentiation regarding customer engagement is the way that Miele is putting washing machines in the market by offering two product solutions: selling single washing machines for a fixed price on the one hand and renting out washing machines through its Bundle-concept, maximizing the lifespan of washing machines). The management of two product solutions within one organization can be considered from a dual BM perspective as both solutions create and capture value in two different ways. This makes it possible to

assume that Miele deals with managing the balancing efforts between exploring a new circular concept in the form of renting our washing machines while exploiting a trusted way of value creation by selling washing machines. It is hard to speculate on the way that Miele manages the balancing efforts for exploration and exploitation within different BMs. As ambidexterity literature addresses this problem, there will be an elaboration on possible insights in ways of management further on.

2.1.1 A system of interlinked activities

Another approach to BMs that considers separate activities in the organization to have a unique role in the process of value creation and value capturing is the activity system perspective on BMs formulated by Zott & Amit (2010). It is about the system of activities performed by the single organization as well as by third parties (partners, suppliers, customers) as part of the organizations' BM. The perspective implicates that a BM can be seen as a system of separate activities which are linked to each other as a value chain. An activity can be defined as the usage of human, physical and/or capital resources in fulfilling a particular role in the process of creating value for the organization itself and for other parties involved (the single organization, end customers, vendors, etc.). The organizations thereby fulfill customer needs while generating a profit for the organization and its partners. Stakeholders within and across organizational boundaries are considered. An activity system is thus a set of interdependent organizational activities centered on a single organization, including the activities conducted by the organization and all its stakeholders (Zott & Amit, 2010). The shape and design of both the organizational activities and the links between them (transactions) characterize the system as a whole and define the essence of the particular BM. The bargaining power determines how much value the BM can create at its best. It determines the 'size of the value pie'. What value actually is captured depends on the revenue model. The revenue model defines in what way a BM enables generation of revenues (Zott & Amit, 2010).

What the system of interlinked activities actually looks like is first determined by the **design elements** (content, structure and governance) that describe an activity system's architecture. This architecture consists of the choices made regarding what activities to involve in (content), defining how the activities are linked (structure), and deciding who performs them (governance). This lay-out of activity parameters shows who the suppliers, partners, customers and competitors of the organization are and often need to be managed

simultaneously. The interdependencies between each group of stakeholders regarding the activities of the focal organization create networks around it. The architecture furthermore captures how the single organization is embedded in these multiple networks of suppliers, partners and customers. It defines what markets to involve in, what customers to focus on and in what way to do this. Second, the **design themes** influence the determination of the links between the activities and therefore describe the sources of value creation within the system. The design themes are configurations of the design elements, what means that they give meaning and direction to the connection between the design elements and arrange them into a unique activity system. The actual design themes are *novelty*, *lock-in*, *complementarities* and *efficiency*. *Novelty* is about finding new activities to involve in, about finding new ways to link these activities, about deciding who should conduct these activities and thereby creating innovation within the activity system. *Lock-in* refers to the degree to which an organization is able to keep stakeholders attracted to the organization as BM participants. The degree to which lock-in of stakeholders is presents can depend on switching costs in time or money, and network externalities such as the size of the stakeholder base. For instance, the rather high average amount of time invested in the personalization of Facebook-profiles by its users will make it less likely that they will switch to similar social media profile providers. Switching costs in time are perceived too high by users: users stick with Facebook and are therefore 'locked-in'. *Complementarities* refer to extra value creation that is created by grouping matching activities in comparison to running them separately (Teece, 2000). Example is the bundling of deposit activities from customers and the lending activities to customers. *Efficiency* is achieved when transaction costs can be diminished by the design of the activity system. This can be done by streamlining, standardizing and skipping certain activities and the links between them. Low-budget airline providers do this by dropping activities like seat assignment and on-board catering and involving in standardized check-ins to streamline the activity system. According to Zott & Amit (2010) an activity system design basically describes how firms do business, and captures the essence of the BM.

In this research, the activity system perspective will be used as the main perspective on BMs for a number of reasons:

- Literature on BMs supports the perspective of seeing BMs as activity systems. Zott & Amit (2010) mention that their earlier work is a foundation for the activity system perspective as they defined a BM as the content, structure, and governance of

transactions designed as to create value through the exploitation of business opportunities (Zott & Amit, 2001). As seen earlier, transactions link activities with each other and are inherent to each other when seen within value chains (Williamson, 1983; Zott & Amit, 2010). The activity system perspective basically gives a template of how a firm conducts business and how it creates value and delivers it to internal and external stakeholders. It thereby addresses the essence of BMs.

- The activity system perspective implies independent activities that can be considered on multiple aggregation levels. They can be considered in high levels of aggregation as whole business functions or domains (Stigler, 1951) and can be considered in high levels of decomposition as sub-activities that can be delineated at second, third and fourth level activities (Davenport, 2005). By distinguishing independent value creating activities within value chains on the one hand and value cycles on the other hand, it would be possible to appoint the activities that determine whether a BM is a value cycle or value chain and in what way is it explored or exploited.

2.1.2. Putting things in perspective

Seeing BMs as systems of interlinked activities will guide in finding deeper meaning of ways that companies use to involve in circularity on a BM level. But is the above presented framework that Zott & Amit (2010) offer enough to show organizations in detail how they need to design new BMs within organizations? How should design themes and design parameters be set up from scratch when the possibility of capturing a possible new business opportunity (read: circular business initiatives) comes forward? As supported by DaSilva & Trkman (2014), the activity system perspective on BMs does not offer a clear view on how to implement an entire new system of activities, which activities to set up first, and how to mutually align these newly created activities for it to be a success. However, this research aims to present existing cases of BMs with certain activity systems already in place. In the light of this research, an activity system perspective on BMs is appropriate.

In the previous, it was found that defining in what way a company makes their money is harder than it looks. In order to frame the way value is created for a company, it was found that addressing customer needs within a chain of interlinked activities that receive meaning by design elements and themes is a proper way of seeing BMs. Regarding this BM perspective, the notions that are made so far are:

- For a transition towards a circular economy to kick-start and to grow overall consciousness of circularity, organizations need to create value for itself and external stakeholders by adopting closed value chains, or value cycles.
- By connecting the output and input of a value chain through waste collecting activities, material resources are can be re-used and value cycles are born. They can do this by setting up a new BM that takes on this job, while maintaining their trusted, linear one. Miele is an example of a company putting the described dual BM situation in practice.
- In answering what are BMs in general, a first step is taken in finding distinguishing characteristics between conventional, linear BMs and CBMs. When this distinction is more clear, their manifestation in an ambidexterity management situation can be addressed.

In the following, there will be an elaboration on what BMs are from a circular perspective, how they can be viewed from a activity system perspective and how they differentiate from conventional linear BMs regarding an activity system perspective.

2.2. What are Circular BMs?

As is presented in the introduction of this research, the use of exhaustible resources in fuelling our economy ultimately starts to stress the boundaries of what our planet is able to offer us, natural resource-wise (Brand, 2012). The world is currently using the equivalent of 1.5 planets to support human activities (WWF, 2012). As seen in the previous, the embodiment of the stress that is laid upon exhaustible resources are businesses that conduct production processes along value chains in linear BMs. Linear BMs ask for a structural input of new material resources that allow them to function. In order to turn the exhaustion of resources around, a transition towards an overall sustainable economy has to be made (Olshoorn & Wiczorek, 2006). This transition implies a fundamental shift in the purpose that organizations have in our society and how they interact with one another on an economic, social and environmental level. A building block of this sustainable economy is the circular economy, consisting of business initiatives that close material resource loops within their organization or in a network of organizations (Jonker, 2013). These organizations work according BMs that support the total or partial closing of material resource loops. These BMs are called Circular Business Models (CBMs).

A CBM is defined as the rationale of how an organization creates, delivers and captures value with and within closed material loops (Mentink, 2014). By conducting closed resource material loops CBMs maintain used materials within the economic system. By closing material loops themselves or participating in a material loop of multiple organizations, re-use of product or production waste is possible. It is important for the survival of the circular economy as a system of multiple circular business initiatives that production processes make use of materials that can be recycled at all times. If this is not the case and materials are too difficult to recycle, material loops cannot be closed. It thereby undermines the whole purpose and existence of a circular economy where organizations recycle on their own or in a network. But what does closing a material resource loop imply? According to Mentink (2014), the process of participating in a circular economy also comes with applying systems thinking in your own business strategy. Seeing the supply chain of your own organization in connection to others makes sure all links cooperate well in closing the loop in question. Being aware of your supply chain as a system also comes with building resilience within the loop. Building resilience in the form of back up processes or the creation of multiple routes within a loop brings possibilities to recover from disturbances, making the loop more viable over time (EMF, 2013). In order to give material loops more substance within a circular economy, organizations also have to work towards adopting renewable energy sources instead of non-renewable energy sources such as fossil fuels (Kleijn, 2012). Material loops can use any form of energy to close a loop and non-renewable energy sources leave natural footprints (Kleijn, 2012). Organizations contributing to a circular economy by conducting CBMs should therefore be critical on the type of energy they use to close their loop when having the objective of contributing to a more sustainable economy.

2.2.1 CBM hierarchies

As seen in the section 2.1., recognition of multiple groups of stakeholders is important for operating the BM successfully. The focused customer base is one of the most important groups to keep in mind (Baden-Füller & Mangemantin, 2013). According to Planing (2015), a big shift in customer behavior is needed for the development of a circular economy. As the ownership of products is the most important way of managing product use in a linear economy, BMs in a linear economy work accordingly. By allowing for product access instead of product ownership, efficiency of resources and capacity utilization rises. BMs that address this principle are access-orientated BMs (Sempels, 2014). In line lie the performance orientated BMs, which work according activities that take a step further than providing access

to products and rather want to have a certain performance done. An example is drilling a whole in the wall to position a book shelf (Barontini et al., 2013) Taking another step, there are result-oriented BMs that focus on the desired outcome of certain activities (positioning a book shelf) (Sempels, 2014). To certain degrees, these types of BMs contribute to more efficient resource and product use, which can be seen as the inner circle of a circular economy (Planing, 2015). Creating an overall circular economy is about recovering flows of material into loops, as well as energy recovery in an increasing international supply chain where multiple organizations cooperate in closing material loops (Jonker, 2013). A truly circular

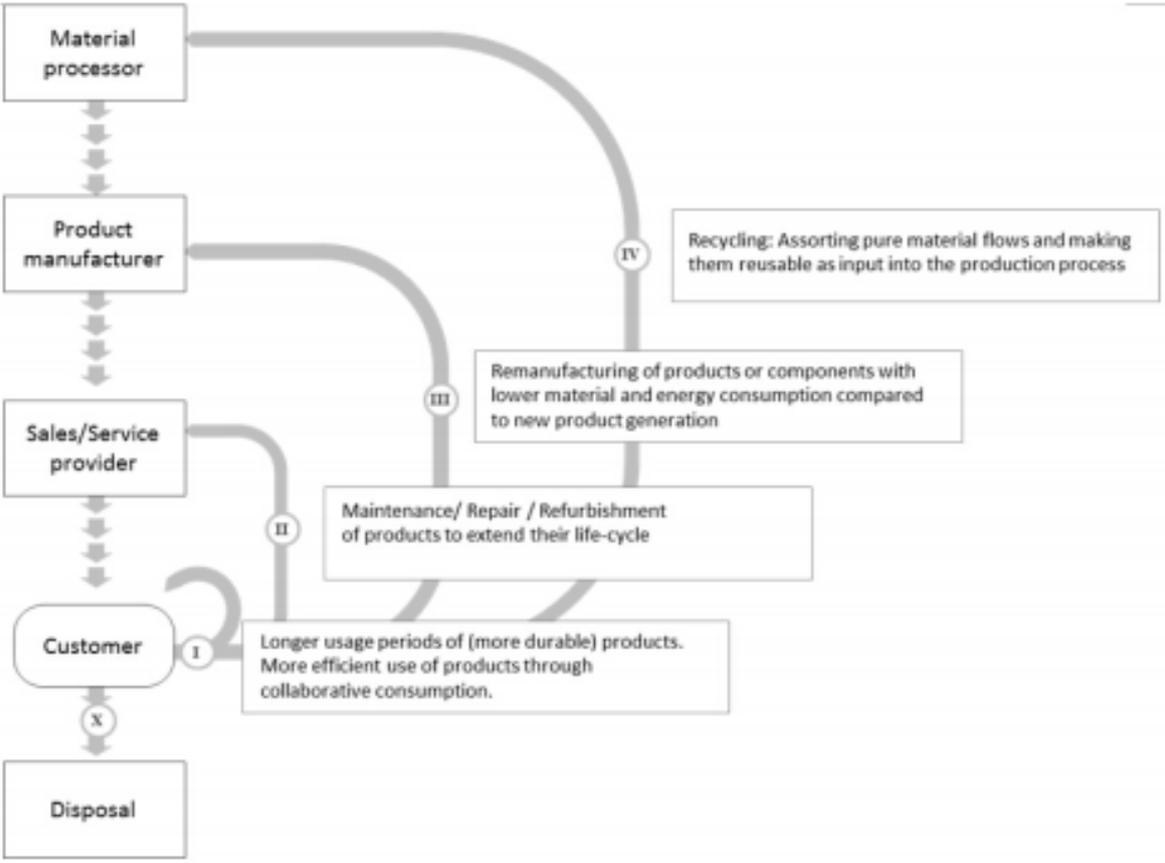


Figure 1. Hierarchical CBM System. Source: Retrieved from Planing, 2014 and Ellen McArthur Foundation, 2014. Originally developed by Stahel and Reday-Mulvey, 1981

BM therefore needs to “facilitate a system of actors, such as suppliers at various levels, recycling and returning facilitators, local authorities and many others” (Planing, 2015, p.4) . Originally created by Stahel and Reday-Mulvey in 1981 and proposed by the Ellen MacArthur Foundation (2014), is a hierarchical system of BMs that displays all facets of a circular economy from a BM perspective. Figure 1 provides the visual representation of this

BM system. The small inner circle shows more efficient use of resources and the product lifetime expansion, for instance by developing more durable goods and sharing product use. The next wider circle represents value creation through expanding the product life-cycle by refurbishment, maintenance, and next life-sales. The next circle is about value creation through remanufacturing by lower energy and material usage. The last and biggest circle states the re-use of pure material flows. This new form of recycling requires products which are built with only pure and recyclable materials and can therefore be recycled to its full potential (as opposed to single products, which are hybrids of different inseparable materials). This representation of the circular economy in terms of BM possibilities can function as a framework for finding and exploring circular BM opportunities.

2.2.2. CBMs in practice

What we have seen so far is that an activity system perspective on BMs implies that a BM can be seen as a value chain of interlinked activities that creates, delivers and captures value (Zott & Amit, 2010; Mentink, 2014). Each independent value chain activity thus has its own role in the value chain, or BM. In that sense, a linear BM does not have the capacity to re-use product waste or product components as input for its system. For this reason, the BM is organized as a value chain and not as a cycle; the connection between independent activities stops at the point where products are consumed, making it impossible to re-use created value on a material level. This problem is overcome by conducting a circular BM, which can be seen as a value cycle of independent interlinked activities from an activity system perspective. The activity of consuming the product (the end of a value chain) is linked to the input of material resources (the beginning of the value chain), making it a value cycle as created material value is re-used as input for the activity system. Closing a material resource loop involves some five to six economic activities, which includes several stages of production, the consumer, and one or more recovery activities. As activities can be regarded on multiple aggregation levels (Davenport, 2005), this can increase to tens or hundreds of activities when regarded in high levels of decomposition. To successfully close the value cycle, the cycle has to be viewed as a whole to make sure all activities are in place and are linked correctly. Understanding the whole value cycle requires understanding the parts – the individual companies – and their relations, but also the internal and external stakeholders of every company. Regarding the whole, the parts and the relations all together is the essence of systems thinking (Meadows & Wright, 2008).

Diving a little deeper into the characteristics of a material resource cycle, it is important to note that 100% linear BMs do not exist and that 100% circular BMs do not exist either. Elaborating on the former, one would think that producing a sandwich which is consumed as a whole would be a fully linear process. But when the consumer uses the toilet afterwards, the nutrients in the recycled water are put back into nature, making it possible to grow new crops and ultimately reproduce the sandwich that was consumed in the first place (Valstar, 2013). Elaborating on the latter, closing a material resource loop means that there have to be zero losses of technical material. This means that every lost bit of material should be recollected after the production process and re-used, which is nearly impossible to organize in the techno-cycles that structure most production systems (Lee et al., 2012). Also, a fully closed material loop means that these loops are endless, but many technical materials can only be reused or recycled a number of times (Bathias, 1999). Furthermore, energy-efficiency technology is not at a sufficient level yet to drive high energy consuming recycling processes while incorporating the re-usage of that same consumed energy (Kleijn, 2012). Regarding the argumentations above, it follows that implementing a CBM into an organization is not about becoming fully circular, but about becoming more circular.

But is closing material resource loops everything to a circular economy? UNEP (2010) states that creating a circular economy is also about working towards balance between economic and ecological values in society. This requires starting debates in society on circular imperatives, and possibly discuss why customers should choose (in some cases more expensive) circular alternatives over linear product or service solutions. Examples are emphasizing protection of the environment and spreading consciousness about the importance of efficient use material and low energy usage. Also Jonker (2013) interprets a circular economy as something more than just closing material resource loops. According to him a circular economy is also about connecting value chain partners in ways that is beneficial for both parties, helping each other in finding ways to involve in new circular practices or enhance existing circular practices. This means that people come together on a basis of mutual beliefs about focusing on other values than financial ones and the willpower to do things differently. In cooperation, they start to create bottom-up initiatives while finding new business opportunities that contribute to an overall sustainable economy (the WEconomy). A circular economy is however not always aiming for sustainable development.

A circular economy is definitely linked to decreasing environmental impact, as Bastein et al. (2013) state that a circular economy has the goals to fight the exhaustion of natural resources, phasing out of waste, greenhouse gas emissions and hazardous substances; and make a complete transition to renewable and sustainable energy supplies. But looking at EMF's (2013) elaboration on a circular economy, not any norms or requirements to follow up on these goals were formulated. Also social issues such as equality, fairness or health in society were not connected to a circular economy in EMF's 2013 report. Kok et al. (2013) provides possible insight in this notion by stating that circular products should not be put in the market as sustainable or green products, but as products with "other" advantages (p. 22). This can be connected to different actors all willing to implement a circular economy, but have reasons and underlying interests. It can therefore be said that a circular economy is not fully focused on sustainable development as presented by EMF (2013). But looking at the overall debate of what a circular economy actually is, neither of these interpretations is wrong or right. It is more important to note that all interpretations underscore the importance of growing a circular economy by setting up CBMs.

Being aware of what conducting CBMs in practice means regarding their internal characteristics is one thing. But what about seeing them in relation to their external environment? The first important notion to make is newly found circular BMs most often find themselves in opposing socio-economic regimes that come with vested (linear) interests and resistance to change (Geels, 2002). Second, one has to take increased capital risks into account. In the case of access-oriented BMs, the organization stores its capital in products that are mainly in the hands of users, leading to higher damage risks. Third, legislation procedures for CBMs are hardly set up (Zuidema, 2013). What happens when a single user within a customer group fails to pay its monthly fees for rented solar panels which are installed on the roof of the apartment building? Is it fair to the rest of the customer group (who pay their fees) to remove the solar panels? Fourth, collaboration with other organizations will increase in a circular economy. To what extent should contracts be set up to guarantee compliance of agreed deals, and to what extent should mutual trust be part of the collaboration to maintain flexible, dodge frustrations and keep transaction costs low? (Berglund & Sandström, 2013). Keeping these potential pitfalls in mind could help in creating a more realistic view on CBMs in relation to the current (linear) economy and society.

2.3. Setting CBMs and linear BMs side by side

In the previous, CBMs and linear BMs are explained regarding their origin in literature and practice, what they are and how they can be used. The concept of a CBM is introduced as a value cycle, opposing a conventional linear BM as a value chain. Linear value chains stress natural resources as materials are used once and are then regarded as waste, while value cycles re-use waste reduce stress on natural resources. This means that we can approach both types of BMs as activity systems which consist of interlinked activities. When putting CBMs and linear BMs side by side, there are dozens of possible perspectives in assessing the differences between the two. This research describes the situation where both BM-types exist next to each other in a single organization, making differences between the two very visible. In managing both simultaneously, is it important to know how each BM-type practically presents itself in the organization to grasp possible interferences. As CBMs facilitate product use rather than product ownership (Sempels, 2014; Planing, 2015), they can be seen as service providers while linear BMs can be seen as product sellers (Joustra et al. 2013). Mentink (2014) created a table of differences between CBMs as service providers and linear BMs as product sellers. The table is shown in figure 2.

BM pillar	Selling products (usually less circular)	Providing services (usually more circular)
What? – the offer	Products.	Services.
	Cheap, quick, easy, dump.	Cheap, quick, easy, reuse or recycle.
	Volume-based.	Performance-based, performance indicators.
How – activities, processes, resources, capabilities	Take, make, waste.	Take, make, remake
	KPIs on production of units (make more = sell more; volume based).	KPIs on performance and service efficiency
	Limited role and influence of customer.	Customers become partners.
	End-of-pipe waste treatment solutions.	Setup of reverse logistics
	Supply chain management several tiers up (and maybe down)	Supply chain management of the whole system
Why? – revenue model	Pay per product.	Pay per use or performance (hours, km, sheets, etc.)
	Make more = sell more.	Make better = sell/gain more
	Negative value creation at some stages (material with negative value → waste)	Positive value creation at all stages needed (possibly redistribution of revenues required)
	Responsibility stops after point of sale	Shared responsibility throughout the chain
Who? – customer segments and interface	Transfer ownership.	Access over ownership.
	Products aren't taken back, especially after warranty.	Product take back or service/performance provision.
	One size fits all	More intense customer relationship (unique customer profile, customization, co-creation)

Figure 2: Practical differences between selling products in linear BMs and providing services in CBMs. Source: retrieved from Mentink (2014): Circular BM Innovation.

- The way that value is proposed to be created in both BM-types (the ‘What?’-question) is mainly focused on selling as much products as possible in our current economy (Sempels, 2014). Within CBMs, this would mean that sold and used products should

be bought back from customers in order to close the material resource loops. Joustra et al.(2013) propose to make product sale a service within in CBMs, and thereby create reverse logistics systems to smoothen the return process.

- Changing activities, processes, resources and capabilities (the ‘How-question’) means that servicized products within CBMs have to be made differently (with recycled materials), in different processes (manufacturing plants that re-use material), using different resources (recyclates) and requiring different capabilities. This is also about being able to assess the ongoing recycling process in the appropriate way, like defining KPI-use for the new circular BM activities. (Mentink, 2014; Joustra & Schuurman, 2014). Also, customer influence is way higher in CBMs than in linear BMs. Customers are partners in closing material resource loops while single sale limits customer influence and fosters distance.
- When comparing the revenue models, CBM revenue models seem a lot harder to set up and manage, as financial structures of the organization have to be altered when a new CBM is set up. As revenue is gained over a longer period of time in comparison to single sales, the capital requirement for services is higher at the beginning (Sempels, 2014). When providing products as a service, they cannot be sold per unit and must be charged according to use (based on kilometers, time).
- When asking who, or what customer segments to focus on when managing a CBM next to a linear BM, it is important to note that circular products or services each address different markets in different development stages. Within our traditional economy, people might be used to buying products and transferring ownership. But circular products or services imply new marketing activities to create and educate new markets (Sempels, 2014). Selling services and performances in CBMs requires deeper customer insights and stronger customer relationships than in single product sale through linear BMs (Joustra et al., 2013).

2.3.1. Putting things in perspective

By elaborating on Figure 2, it becomes clear how linear BMs and CBMs differ from one another when seeing them as models that sell products versus models that provide services. This gives insight in what BM-facets have to be managed when exploring CBMs and exploiting linear BMs. It is now clear that both BM-types imply very different strategic goals

when regarding: what to put in the market? how to organize processes, recourses and capabilities? how to acquire revenue? and what customer segments to focus on?

A foundation to decompose the researched BM types within the organizations that are addressed in this research is found, in that sense. The decompositions of the above presented BM pillars will be based on the design themes and design elements of each BM, as defined by Zott & Amit (2010). Decomposing each BM on a level of interlinked activities will make it possible to see in detail what each BM pillar (as presented in figure 2) actually entails in practice. So, how are certain organizations for instance performance based but also volume based? How do these organizations create partnerships with customers but also keep others distant? How do these organizations manage pay per product and pay per use simultaneously? How are different markets penetrated simultaneously? From there, management needs and wants can be found for each BM, coming together in an organization-specific way of managing the dual BM situation. Therefore, the particular BMs within the researched organizations are differentiated and analyzed based on the activity system perspective on BMs by Zott & Amit (2010). This is visually shown in figure 3 where an operationalization of the activity system theory is created (next page).

<i>Variable</i>		<i>Dimensions</i>	<i>Indicators</i>
BMs	Circular BM as an activity system (Zott & Amit, 2010)	Design elements	Content
			Structure
			Governance
		Design themes	Novelty
			Lock-in
	Complementaries		
	Linear BM as an activity system (Zott & Amit, 2010).	Design elements	Content
			Structure
			Governance
		Design themes	Novelty
Lock-in			
Complementaries			
			Efficiency

Figure 3: Operationalizing BMs

Summarizing this chapter, both the characteristics of a linear BM and a CBM are addressed.

The notions made so far regarding CBMs and linear BMs are:

- It was shown that creating a circular economy by setting up CBMs is not always focused on creating sustainability.
- Stating the differences showed how both BM-types can play roles in decision making regarding ambidexterity management situations. The content-focused cruxes between linear BMs and CBMs show that ambidexterity management within the context of this research will be about how organizations try to achieve balanced management in the simultaneous achievement of very different strategic goals within very different BMs.

In the following, the concept of organizational ambidexterity as within one organization is explained and applied in a dual BM context. How can ambidexterity literature provide handlebars in managing dual BMs in a focal organization

3. What is organizational ambidexterity and how can it be managed within a dual BM context?

In this chapter, the concept of organizational ambidexterity is explained and how it can be applied within a dual BM context. The tensions deriving from opposing strategic goals

connected to exploration activities and exploitation activities make managing these activities harder than it might seem. Contextual ambidexterity offers a way to balance exploration and exploitation activities that is organization-specific, as it adapts the management of these activities to the context of the organization.

3.1. Finding a balance

The lifespan of an organization depends multiple internal and external factors (Stubbart & Knight, 2006). More than 25 years ago, it was found that one of the most important determinants in long run survival of organizations is the ability to conduct both exploitation and exploration activities (March, 1991). Exploiting is the ability of the firm to yield profit from existing and trusted market positions and assets. Exploration is the involvement and investments in new technologies and new market opportunities. When exploration and exploitation are conducted and managed within the same organization, these activities can be seen as practical embodiments of the organization maintaining variety in their innovation strategies (O'Reilly & Tushman, 2004). In practice this means that in order to stay viable, organizations need to structurally conduct incremental innovations to its existing products or services in order to maintain sufficient value creation for customers and other stakeholders. They thereby exploit their current value creating activities and competencies. But when yields from these activities plumb or do not show sufficient growth, the organization needs to explore new value creating activities to make up for these setbacks. By conducting both exploitation and exploration activities, the organization can keep exploiting trusted value creation processes while it explores new and unfamiliar ones. As we have seen in the previous, this research deals with finding ways to manage conflicting strategic goals that are organized in dual BMs and have an exploration versus exploitation origin. This situation is approached within a circular versus linear BM context. But to what extent can a dual BM situation within a linear versus circular context be approached as a confliction of strategic goals? And if so, how can this approach provide guidance towards finding ways of managing dual BMs?

Throughout history, literature on BM management formed two main solutions on the question of how to manage dual BMs within one organization. The first solution is spatial separation, which states that each BM needs to be stored in a separate organizational unit in order to avoid potential conflict between the two when conducting them simultaneously. One

of the first insights in spatial separation was presented by Bower & Christensen, (1995) and Tushman & O'Reilly (1996). But the discussion about spatial separation as an option for organizing BMs is still present in current literature (Khanagha & Volberda, 2014; Tarhini et al., 2015; Savic, 2016). Possible conflict could be lowered performance of the focal organization, as opposing strategic goals could impede the performance of both BMs. But by organizing both BMs in separate structures, possible synergies are neglected (Day et al., 2001). O'Reilly & Tushman (2004) came up with a way to benefit from potential synergies. They stated that installing integrating systems between the separate BMs and putting them under the supervision of one management team could turn potential synergies into actual synergies. The new challenge of managing dual BMs simultaneously while being partly integrated created several dualities to deal with regarding strategic goals. These dualities concerned exploration versus exploitation, integration versus responsiveness, low cost versus differentiation, and efficiency versus flexibility (Gulati and Puranam, 2009). According to Markides (2013) the simultaneous management of these dualities is an ambidexterity issue.

3.1.1. Ambidexterity as a solution

Ambidexterity management is managing the duality of conflicting sets of activities within one focal firm such as exploration and exploitation activities simultaneously (O'Reilly & Tushman, 2004). Markides (2013) stated: "Managing two conflicting BMs is but one more of these dualities a firm must face. As a result, the ambidexterity literature can guide the discussion on how to do this" (p.315). Moreover, applying ambidexterity to a BM context still sounds farfetched, as still little research was done to link the two concepts (Harren, 2012). But the notion by Markides (2013) appeared to be supported by earlier work from O'Reilly & Tushman (2011). They found that the ability to allocate resources in such ways that new market opportunities can be seized and developed while also further optimizing existing competencies, an organization is able to conduct both exploitation activities and exploration activities simultaneously (O'Reilly & Tushman, 2011). Following up on this, Winterhalter et al. (2015) once more connected the concepts dual BM situations and conflicting strategic goals. They showed that a possible solution to deal with trading off conflicting strategic goals in the sense of exploration versus exploitation is to store them within separate BMs (Winterhalter et al., 2015). But spatial separation is not the only way to manage conflicting BMs.

Temporal separation of conflicting sets of activities (such as exploration and exploitation) is about conducting them at different points in time (Nickerson and Zenger, 2002). As temporal separation is mainly focused on decentralizing or centralizing sets of activities over time (Puranam et al. 2006), it is applicable in a dual BM context. A CBM could be decentralized at first, but centralized later (following an integration strategy) or the other way around (following a separation strategy). By using this management strategy, the time of exploring a CBM or exploiting a linear BM can be chosen according desired timeframes. But why choose switching between timeframes of emphasizing one or the other when spatial separation makes simultaneous conduction of both BMs possible? According to Harren (2012), the answer to this question depends on the circumstances that the organizations is in. Harren (2012) found that most of time temporal separation is the best way to go, but spatial separation is best when there are big changes in the environment of the organization, a lot of interdependencies between the two BMs undergoes frequent or big changes, visibility of interdependencies between the two BMs is high, decisions between the two units are aligned, and the two BMs are weakly linked. But is it always required to choose between some form of separation when managing conflicting strategic goals within a dual BM situation? According to Markides (2013), literature on contextual ambidexterity opens doors for stepping away from temporal or spatial separation. It provides handlebars for organizations to manage dual BM situations according their internal and external firm-specific characteristics.

As shown in the above, spatial and temporal, and managing separation are found to be ways for managing conflicting strategic goals on an organizational design level. For example, Raisch and Tushman (2013) found that organizations created new business by initially employing structural (simultaneously managing spatially separated units of exploration and exploitation) ambidexterity and switched to integrated designs when the exploratory unit achieved political and economic legitimacy. Also, Jansen, Andriopoulos, and Tushman (2013) in a study on organizational design development over time found that the highest performing firms set up exploration and exploitation via structural ambidexterity, switched to contextual ambidexterity, and switched back to structural ambidexterity over time. But this research distinguishes from the normative and focuses on describing management approaches. An organization-specific approach in the form of contextual ambidexterity can possibly assist in assessing management approaches for efforts for in a CBM and a linear BM without the proclaimed necessity of separation.

3.2. Contextual ambidexterity

As seen in the previous, both of the solutions for managing conflicting strategic goals as stored within two BMs focus on separation as the leading perspective. It focuses on finding balancing efforts for exploration and exploitation as stationed in identified sub-units that are separated in space or time. Taking a step back, what about considering the organization as a whole to conduct exploration and exploitation activities? This could lead to a more sustainable way of balancing conflicting strategic goals. Contextual ambidexterity could offer such a management approach. It considers the organization as a whole in conducting both exploration and exploitation instead of independent structures that conduct one or the other (Gibson & Birkinshaw, 2004). Gibson & Birkinshaw (2004) argue that it is way more practical to consider ambidexterity as expressed in specific actions of individuals throughout the organization. They note that individuals deal with trade-offs according conflicting activities all the time in their day to day work: Spend time on exploring new ways of doing things or spend time on working according known processes? When separating exploration and exploitation activities, employees only receive incentives for conducting one or the other. When contextually managing conflicting activities, employees are allowed to use their own judgments in dividing their time over exploration and exploitation activities as they receive incentives for both. This offers more flexibility in balancing the efforts for ambidextrous activities (Gibson & Birkinshaw, 2004). So, contextual ambidexterity is about creating the appropriate context within and beyond the organization to support employees in achieving balance when conducting conflicting activities. The context of the organization is regarded as the culture, values, structure, processes, and incentives of the organization (Gibson and Birkinshaw, 2004). The concept has its roots in system dynamics, which says that if we want to change behaviors in a system, we must first change the underlying structure of the system (Forrester, 1968). So, if we want people to display ambidextrous behaviors in an organization, we must first create the appropriate organizational context for such behaviors to emerge (Markides, 2013).

Translating this to a dual BM context, there has to be the consideration of what organizational context has to be put in place in order to support employees in finding balance between working on conflicting sets of activities. So, the organization has to design a context that fosters the possibilities for finding a balance, without structurally or temporally separating the BMs. When working in the right context, the organization can keep the BMs

apart enough so that they do not impede each other but close enough to exploit synergies between the two (Gulati & Garino, 2000). In overall, it is the trick to find the organization-specific meanings of these context components in order to achieve the balance between both BMs. Translating this to a circular versus linear BM situation, the context of the organization determines the way that the balance between efforts for a linear and a circular BMs is achieved. In doing so, employees of the organization use their own judgment in combining and aligning linear and circular activities.

In managing this firm-specific context, O'Reilly and Tushman (2011) offer a set of handlebars in finding the right organizational context to balance exploration and exploitation activities. They offer conditions that have to be present in the context of organizations to successfully manage exploration activities and exploitation activities, so that new opportunities and threats can be dealt with while maintaining management of familiar opportunities and threats. They therefore state that ambidexterity is more likely to be successfully managed in the presence of the following 5 conditions:

- A compelling strategic intent that intellectually justifies the importance of both exploration and exploitation.
- An articulation of a common vision and values that provide for a common identity across the exploitative and exploratory units.
- A senior team that explicitly owns the unit's strategy of exploration and exploitation and the strategy is communicated relentlessly.
- Separate but aligned organizational architectures (BMs, structure, incentives, metrics, and cultures) for the exploratory and exploitative units and targeted integration at both senior and tactical levels to properly leverage organizational assets.
- The ability of the senior leadership to tolerate and resolve the tensions arising from separate alignments.

But when putting this situation into practice, what would an organization specific context mean in a real life business situation? How would this context for example react to discontinuous or disruptive change? Developing a CBM while having a traditional, linear business history could be such an example. By introducing radical new ways of creating value, either by radical new products, processes or collaborations, new markets can be entered

or created. First movers that manage to innovate the system have the benefit of changing the rules of the game in their favor (Jonker, 2013). But where would the necessary knowledge and skills about creating radically new (circular) products or services be retrieved from? As proposed by Kauppila (2010), a limitation of contextual ambidexterity is that there are no thoughts included about how an organization can conduct radical exploration and exploitation. It is not made clear where the skills and knowledge to exploit the specific forthcoming (circular) business opportunities come from, or how they should be obtained and designed in absence. Also, the actual process of how the organization is able to exploit existing value creation activities while radically exploring in contextual ambidexterity is not (yet) researched (Gupta et al. 2006). However, regarding the skills and knowledge to explore and exploit, the main goal of this research is to find management approaches in balancing the efforts for both. It is not about how general knowledge and skills about exploration and exploitation were obtained in the first place and should be given place within the organizational design in order to create an optimal balance between efforts in both. As dual BM situations in a linear versus circular context are almost absent in literature, exploring new found cases should go prior to defining how this dilemma should be managed best. More practically, it is about the question how to manage the use of knowledge and skills that enable exploring and exploiting, which lead to multiple ways of value creation as stored in separate BMs. It thereby tries to provide a descriptive view on dual BM situations in a linear versus circular context, not normative.

3.2.1. Putting things in perspective

It is now clear that in order to manage exploration and exploitation activities successfully, the above proposed conditions within the context of the organizations should be present according to O'Reilly & Tushman (2011). Knowing what 'successful' contextual ambidexterity requires makes it possible to use these conditions as handlebars in creating an image of the contexts of each researched organization. More practically said, the goal is to find out what each organizations' context looks like by using the above conditions as handlebars in researching. This will make it possible to evaluate the way that each organization currently manages their dual BM situation, taking the organizational context of each organization into account. From there, perceived successful (To what extend is current dual BM management effective?) and less successful approaches (To what extend is improvement needed?) to balancing dual BMs as performed by the researched organizations

can be obtained and analyzed. Summarizing, using contextual ambidexterity as a foundation for finding ways of managing a CBM next to a linear BM is first about finding out what the organizational contexts look like (according the conditions proposed by O’Reilly & Tushman (2011)). Furthermore, it is about valuating the current and desired future status of management within the dual BM situation. This leads to the following operationalization figure:

<i>Variable</i>	<i>Dimensions</i>	<i>Indicators</i>
Ambidexterity	Evaluating balance between efforts for CBM and linear BM	Desired balance between efforts for both BMs
		Actual balance between efforts for both BMs
	Organizational Context	Toleration and resolving of tensions
		Strategic intent and communication
		Common vision and values
		Senior team owning exploration vs. exploitation strategy
		Leveraging organizational assets

Figure 4: Operationalizing Contextual Ambidexterity

In the previous sections of this chapter, the notions made so far on ambidexterity management in the light of this research are:

- It was found that achieving ambidexterity is about finding balance in efforts for exploration and exploitation activities which are led by opposing strategic goals (O’Reilly & Tushman, 2004).
- Ambidexterity management literature can be applied in a dual BM context, as the management of conflicting strategic goals pop up in the management of dual BMs (Markides, 2013).

- Contextual ambidexterity proposes a way to avoid potential conflict between opposing sets of activities, as it states that the organization-specific context enables individuals within the organization to use their own judgment combining and aligning exploration and exploitation activities (Gibson & Birkinshaw, 2004).
- Contextual ambidexterity shows that there is no need for actual separation of a CBM and a linear BM, as long as the organization-specific context allows it.

The literature review containing the last two chapters elaborates on the main variables in this research. The first section shows what BMs are in general, what CBMs are and how they differ from conventional BMs regarding their contribution to a circular economy, and how BMs can be seen as systems of interlinked individual activities. The second section explains what ambidexterity is, where it comes from, and how it can be applied within a dual BM situation. What we can take from these two sections is:

- Contextual ambidexterity is chosen as a starting point for empirically investigating real life dual BM cases in a circular versus linear context.
- In creating theoretical foundations that can guide the creation of a research method, it is found that the activity system perspective on BMs provides a foundation for decomposing BMs and thereby differentiating a CBM from a linear BM.
- Using contextual ambidexterity as a foundation for finding ways of managing a CBM next to a linear BM is first about finding out what the organizational contexts look like (according the conditions proposed by O'Reilly & Tushman (2011)). Second, it is about valuating the management of the dual BM situation. A first step in the direction of empirically testing ambidexterity management within real life CBM versus linear dual BM situations is set in that sense, as foundations are laid down for defining an actual research method.

The next chapter will elaborate on this issue. From there, the gap of practical information that is still required to answer the research question can be provided.

4. How can the management of balancing efforts for organizational ambidexterity be explored in practice?

In order assess the ways that organizations manage their balancing efforts for exploring one BM while exploiting another, an appropriate way of indicating these management approaches has to be created. In this chapter, there will be discussion on how to create an interview guide

that is able to explore ambidexterity management in a dual BM situation.. The solidness of the interview guide will be discussed by going through the research design, research methods, the sample selection, the gathering of the data, and eventually the data analysis. To close it off, the research ethics, limitations, validity and reliability are debated.

4.1. Research Design

This research is focused on finding ways for organizations to manage conflicting BMs in a circular versus linear context. The goal is to give insights in how multiple organizations manage the balancing efforts within a dual BM situation. In order to reach this goal, the following research question is formulated:

How can organizations manage the balancing efforts for exploring a Circular BM while exploiting a linear BM within the same organization?

Previous chapters determined what theoretical handlebars can be provided in approaching dual BM management as an ambidexterity challenge. Sub-questions 1 (*What are differences between conventional linear BMs and Circular BMs?*) and 2 (*What is organizational ambidexterity and how can it be managed within a dual BM context?*) helped providing these insights. By taking contextual ambidexterity as a base for investigating dual BM situations empirically, a first step in the direction of providing insights in dual BMs as seen from an ambidexterity perspective was taken. In this chapter, a practical way of exploring ambidexterity management is determined and developed into a ready-to-use interview guide. Using the interview guide in practice will make exploration of how organizations manage their balancing efforts for a circular and a linear BM in practice possible. From here, an appropriate answer to the research question can be formulated. But what will this interview guide look like and how will it be used? This question will be answered in the following sections, elaborating on sub question 3 (*How can the management of balancing efforts for ambidexterity be explored within organizations?*). By viewing how organizations of different shapes and sizes deal with dual BM situations in a circular versus linear BM context, the strong and weak points from their management approaches can be derived. Broad tendencies can be derived when present, from where an overall conclusion and answer to the main research question can be formulated.

4.2. Research Methods

Circular BMs are relatively new subjects of scientific research (Jonker, 2012). In order to come to a fitting research type, underlying philosophical motives lead up to a certain type of research methodology (Verschuren & Doorewaard, 2007). The philosophy splits up between ontology and epistemology. Ontology is about the essence of 'being' and knowledge about self-existence. In doing scientific research, measurement of the reality is made possible. There are two different views on ontology. On the one hand, constructivism is about the assumption that there is no single truth and things emerge and exist as meaning is given to it by us humans (Gunder & Hillier, 2009). In that sense, multiple relations and perspectives on reality are possible. On the other hand, positivism is based on a single truth perspective and things exist as we observe them, defining the meaning of reality (Verschuren & Doorewaard, 2007). For scientific research, the epistemological position is needed because it defines what knowledge is. Interpretative epistemology can be an interesting philosophical starting point for this research. According to this perspective, knowledge does not relate to finding facts or a single truth, instead it is about beliefs that give access to reality. Knowledge emerges because people give meaning to things (Kumar, 1999). In this research it is about the way in which multiple organizations manage the balancing efforts for linear and circular value creating activities simultaneously. Regarding this notion, constructivism and an interpretative epistemology perspective is taken. As was made clear in the theoretical framework of last chapters, there is no one way of 'successfully' managing these efforts as contexts of organizations and perceptions of successful balancing efforts can vary. From here, a qualitative research strategy is taken.

Qualitative research works from a holistic approach in which a certain phenomenon is examined as a whole (Vennix, 2010). In addition to the research philosophy, there are other arguments that legitimize the choice for a qualitative research strategy instead of a quantitative strategy. The objective is to gain in-depth insights, instead of a generalization of the outcomes to a larger 'population'. So, a qualitative research strategy suits this research best. This implicates that collecting in-depth information about the subject in order to create a well substantiated image is preferable, and a qualitative research is the best fitting research type (Boeije & Hart, 2005). To go back to the basics, qualitative research is focused on non-numerical data where quantitative research is focused on numerical data (Babbie, 2013). As seen in the previous, this research will address a number of businesses that conduct a circular

BM next to a linear BM. What is ought to find out is how these organizations manage their dual BM situations within their own internal and external context. Combining the in-depth investigation of independent business cases with the objective of finding out *how* a certain phenomenon is managed within these business cases shows that the methodology of a case study will fit best with the above. Yin (1994, p.10) describes the case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and the context are not clear evident”. As the way that each business deals with dual BM situation within their own organizational context is unknown on beforehand, this can be addressed at best by a multiple case study-research design. The fact that each organization operates within their own context also implies that has to be studied in that same real-life context, limiting researchers’ control over the outcome of the case study. The fact that different cases are researched also comes with the notion that it is hard to justify possible generality between the researched cases. The generality between the cases is unknown as extrapolating the findings of one case to the other cannot be done on a formal basis (Clifford, French and Valentin, 2010). But as this research uses a multiple case study design, comparisons and sometimes even analytical generalizations (generalizing results to a broader theory) over multiple cases are possible (Yin, 2003).

4.3. Sample Selection

The research sample of business cases consists of 10 businesses that are involved in a dual BM-type situation, and within a circular versus linear context in particular. This means that researched organizations on the one hand conduct one or more CBMs and on the other hand conduct one or more linear BMs. As stated in the introduction of this research, this research is about seeing a dual BM situation as a management situation of differentiated business model modes with opposing strategic intents and set ups. It is therefore not directly about the number of BMs present in the organization, more about whether there is a certain diversification on present BM-modes and presence of opposing strategic goals as stored in these different BM-modes. The sample is composed by addressing the sample of previous research about CBMs. This previous research is a pilot research on CBMs, conducted conjointly by the Nijmegen School of Management and Saxion University of Applied Sciences. In this pilot, over 300 companies conducting one or multiple CBMs from the Benelux were selected and filled in a questionnaire about circularity within their company. From those 300, about 250 contacts were interviewed about their involvement in and contribution to the Circular Economy. About

50 selected companies remained un-interviewed while already having agreed on participating in an interview on Circular BMs. As this research also addresses CBMs within organizations, it comes to mind to assess the possibilities for deriving a new research sample out the 50 untouched organizations. After assessing each of these organizations on whether they find themselves in a dual BM situation within a circular versus linear context, 10 companies from the Benelux are selected that therefore fit the profile of this research. Regarding this notion, a non-probability sampling method is used to select 10 companies for a new research sample. Purposive sampling is used here, as the sample is composed based on knowledge of the population, elements of the population and purpose of the study (Babbie, 2013). Case selection also has a large influence on the generalizability of the research. Qualitative research is often hard to generalize, as the number of selected cases is, as is also the case in this research, too low to say something meaningful about all possible phenomena in the Benelux. But as said earlier, one of the most important objectives of this research is to provide new exploratory insights in organizations that are in a circular versus linear dual BM situation. Other organizations can possibly benefit by comparing their own dual BM situation with the derived results learn from these cases to their desired extent.

4.4. Data Gathering

As elaborated on in the above, a qualitative research design is chosen for several clarified reasons. In order to find the actual management approaches of each company in the research sample, in-depth interviews will be best suited. By using in-depth interviews, it will be possible to obtain insights in ways of thinking and find possible drivers behind the trade-offs that each particular organization makes in managing their balancing efforts. Also, sources of inspiration for particular choices being made, challenges and barriers in finding the targeted trade-off between the CBM and linear BM are possible to address by using in-depth interviews. Looking at the used interview set up, semi-structured interviews are used in data collection. Semi-structured interviews have the main advantage that follow-up questions can be asked if necessary. Important to note is here is that 'semi-structured' is interpreted as the design of a fixed interview guide on the one hand but with room to ask follow-up questions. This means that within each interview a fixed set of questions are asked but possible follow-up question are occasionally asked to clarify lines of reasoning. Every interview covers the unique story or perspective on the efforts for balancing linear and circular value creating activities and the underlying motives of the interviewee. But using semi-structured interviews

means that awareness of your role as a researcher and sharpness are needed. The interviewer should also be able to intervene when the interviewee wanders away from the asked questions. Therefore, the norms, values, visions and perspectives of both the researcher and the respondent had an influence on the gained results. Each of the 10 respondents, coming from 10 different organizations, are interviewed once due to limited time construal. In most cases, a face-to-face structured interview setup is used. In 3 cases the interview was conducted via telephone/Skype, as limited time construal on the side of the respondent offered no other way. The questions are derived from the operationalization schemes in chapter 2 and chapter 3. The indicators resemble the different dimensions from both ambidexterity management and BMs as activity systems. For each indicator a research question is formulated according to its resembled content. The motivations by choices for certain indicators are explained in chapter 2 and chapter 3. The interview guide can be found in Appendix B. Important to note when reviewing the interview guide is that each question contains a small sub-section in italic. These sections aimed to make possible clarification of the interview question possible, if the situation occurred that the respondent did not directly understand the primary formulation of the question.

The respondents were mostly owners, managing directors, or other managers involved in general management. These respondents are chosen as chances are high that these positions imply 'helicopter' views over the present value creation processes within the researched organizations. The interviews started by introducing questions about the respondents themselves and their function within the company. From here, questions about values, visions, value creation and the presence of circularity and linearity within the organization are asked. Its goal is to reveal the distinction between types of value creation that the organization might conduct. After the certain ways of value creation through CBMs and linear BMs are discussed, the particular ways of managing the strategic goals for both BM-types are evaluated. In this way, the specific strategic goals for each BM are revealed and can be linked to earlier named organizational values and visions. After pointing out strategic goals for both BMs, their management dynamics in the form of possible strategic interferences between the two could be discussed and evaluated. This hopefully leads to the targeted information that is necessary for answering the main research question.

4.5. Data-analysis and Coding

After collecting the data, it is very important that the acquired output is analysed in the right way. First, the individual analysis of each business case has to be conducted. Interviews are manually transformed into verbatim transcripts, which in turn are manually analyzed as the small size of the research sample allows for this. As certain ways of management are researched, grounded theory can be used as a base for an analyzation tool. Grounded theory (Corbin & Straus, 1998) can create explanations about concerns that appear in the researched environments. From there, it can be found how these concerns are dealt with by the researched entity. Grounded theory enables to seek out and conceptualize social patterns and structures through the process of constant comparison. So by using grounded theory as a research method-starting point, a first step towards possible comparison of cases is taken. But before comparison is possible, valid and usable answers given by respondents in the interviews need to be derived. Coding can be seen as a bridge building activity between data collection and data-analysis. Coding makes it possible to substantially and effectively derive the core message from an interview and its underlying assumptions made by the researcher (Saldana, 2013). While coding, consistency is one of the most important things to keep in mind. As addressed by Creswell (2007), every researcher has to deal with subjectivity within their own environment. Experiences and preoccupations from the past will always cause some form of subjectivity in assessing research results. It is up to the researcher to minimize the effect it has on their assessment performance. A first thing that can be done to minimize these effects is by structuring the coding process. A code book can help in structuring, as it creates an overview of all used codes in every interview. The actual codebook can be found back in Appendix C. In the codebook, all used deductive, inductive codes and their forthcoming interpretations are presented. The deductive codes are derived from the several concepts, dimensions and indicators that can be found in the operationalization schemes in chapter 2 and chapter 3. These concepts, dimensions, and indicators are subtracted from the explained theories used in this research. The method of deriving is also explained in chapter 2 and chapter 3. Inductive codes are used for obtaining useful information that did not directly link to the deductive codes. Deductive codes were only used when the information was useful for answering the research questions. Furthermore, categorization was used to summarize and point out certain phenomena and connections between single codes. Appendix A presents a summarizing scheme of all interview results. Within the scheme, the most (perceived) leading quote from each given answer to each interview question is presented for each respondent

organization. All quotes are denoted by a categorization. This categorization is formulated by combining the actual code that is given to the quote, its' connection to other codes and forthcoming perceived meaning that the quote has in the larger context of this research. After coding and categorizing the most leading quotes of each interview, it is possible to use the categorizations in finding correspondences between the researched organizations. When similar categorizations regarding a certain interview question pop up for significant parts of the researched organizations, broad tendencies in all given answers to each interview question can be derived. After analysing categorizations and defining the broad tendencies in the research data, it will be possible to present how each operationalized theory (as presented in chapter 3) manifests itself in the practice of managing dual BM's in a linear versus circular context. The found broad tendencies are then interpreted and possibly linked into a substantiated presentation of the research results. Chapter 5 of this research will elaborate on this. From there, an answer to the main research question can be formulated in chapter 6. Because this part of the research relates to the outlining of the context, additional analysis techniques were not necessary to use.

4.6. Trustworthiness

As Mason (2002) recalls, the trustworthiness of a research depends on its generalizability, its validity and its reliability. Generalizability of the research is already discussed in paragraph 3 of this chapter. In order to secure the quality of this research, also validity and reliability need to be explained and applied to the context of this research. This is presented in the following sections.

4.6.1. Validity

Validity is about to what extent an empirical measurement reflects the real meaning of a concept under consideration (Babbie, 2013). Does the researcher actually measures what he says he measures? Validity is therefore strongly influenced by the conceptualization and operationalization of the researched constructs (Mason, 2002). On the one hand, the projected research design is kept in mind during the operationalization of the core constructs and while collecting data. But on the other hand, conducting the research design proves to be an iterative process that is constantly adjusted by experiencing deviations from the research design in practice. Being open about adjusting your research design by practical experiences rises the validity of your research (Creswell, 2007). While collecting data, an iterative approach is

adopted by reflecting on each interview right after and processing new found insights in the interview guide of the next planned interview.

4.6.2. Reliability

Reliability addresses the question whether a research technique would yield the same results after exact repetition (Babbie, 2013). Research is always in some way influenced by the acts of the researcher. Because of this research having a qualitative approach, the risk of the researcher directly influencing the results of the research is much higher than is the case with quantitative research (Vennix, 2010). Interpretation of textual content is highly present in this research, making it clear that possible external factors influencing the textual interpretation of the researcher need to be diminished. But still, standardization can only be achieved to a certain extend. As addressed in paragraph 4.5, possible measures are taken to secure the standardization of the research method (by using code books, operationalization schemes, and a fixed interview guide). Furthermore, it is important to limit the researchers' subjectivity while conducting research which is influenced by perceptions, biases and experiences (Baxter & Eyles, 1997). Researchers' subjectivity can influence the results presented at 4 specific moments in the research process (Yanow, 2006). The first moment of possible influence by subjectivity is the interaction between the respondent and the researcher during data collection. Here, it is important for the researcher to let the respondent do the speaking and only guide them when the respondent deviates too much from the targeted interview subject. Second, interpreting the collected data while coding and analyzing the interview transcripts allows for the researchers' subjectivity to influence data analyzation. This can be dealt with reflecting on the coding process afterwards, possibly in cooperation with a supervisor or research partner. Third and fourth, working with a supervisor or partner can also secure reliability in interpreting the codes, writing the eventual analysis and reading the final research report.

4.7. Research Ethics

In collaboration with Ivo Kothman from the Saxion University of Applied Sciences and Jan Jonker from the Radboud University (who is also supervising this master thesis project) I am allowed to access contacts and approach the remaining companies of the database connected to the BMCE Pilot research for Circular BMs. The content of the cases that is retrieved from the database is limited to their answers given on the questionnaire connected to the BMCE

Pilot and the contact information of the firms involved. Names of employees or stakeholders and shareholders will be remained confidential. For the sake and the coherence of firms that participated in this research, all these firms will receive the presented results. Furthermore, this research will help to spread the word about the importance of circular initiatives as a part of the Circular Economy for the sustainability of our economy and environment.

4.8. Putting things in perspective

In this chapter, the actual design of this whole research is laid down. A qualitative multiple case study is chosen as best fitting research method. Furthermore, a sample of 10 organizations that manage a dual BM situation in a linear versus circular context is selected. Things to keep in mind when empirically gathering the data, and the way of analyzing gathered data are discussed. To close it off, the research ethics, limitations, validity and reliability of the developed interview guide are explained. The yield of taking all these small but important steps led towards the substantiated creation of a practical guideline to give insights in dual BM management approaches. In the following, the results of using the interview guide in practice are presented and explained.

5. Research results and analysis

The previous chapter explained how the targeted research proposal can be conducted in practice. In the following, the results of conducting the research proposal in practice are presented by examining ambidexterity management and BMs as systems of activities

according their operationalized theories. To start this chapter off, a short recap of what theories were discussed and how they are operationalized is shown. Then, broad tendencies regarding business models as systems of activities and ambidexterity management within the 10 dual BM cases will be presented. The broad tendencies are found by analyzing data through coding leading quotes and categorizing them (see chapter 3). A clear view on what the operationalized theories actually look like in practice will be derived. From there, the broad tendencies in the found results will be interpreted within a larger (societal and economical) context in order to create further understanding. In chapter 6, it will be explained what the interpretations of the research results mean for proving an answer to the main research question.

5.1. Presenting the results

During the process of data collection, 10 organizations explain the way that they manage the balancing efforts for a dual BM situation in a linear versus circular context on the basis of a semi-structured interview. As discussed in chapter 4, the answers of each respondent organization to each of the 12 main interview questions are presented by displaying leading quotes and their categorizations. Appendix A presents six tables which display the most leading quotes and their categorizations for each given answer by each organization. By interpreting and linking categorizations for each organization separately, a storyline for each organization emerges. The storyline aims to present the organizations' overall emphasis regarding their management approach in balancing dual business models and what each organizations' motives are for adopting their particular management approach. The storylines for each organizations can be found in Appendix E. But in order to formulate an answer to the main research question, it is necessary to see how the organizations behave in relation to one another. Therefore, storylines have to be compared. Finding corresponding categorizations when analyzing the answers to each interview question cross-organizationally makes it possible to compare organizations and find broad tendencies in the given answers. After defining broad tendencies in all given answers to each interview question, it will be possible to present how each operationalized theory (as presented in chapter 3) practically manifests itself within the 10 organizations that manage dual BM's in a linear versus circular context. From there, interpreting theories in practice within a larger societal and economic context can serve as a basis for providing an answer to the main research question. The analyses of the

research results regarding both operationalized theories are systematically presented according to the following questions:

- How is the theory operationalized?
- What broad tendencies among all 10 organizations can be empirically derived from conducting interviews that are based on the operationalized theories?
- What quotes are most defining for these broad tendencies?
- What do these broad tendencies teach us about the operationalized theories?
- What do these broad tendencies mean for what is contemplated to be answered in this research?

By answering these questions for each explained theory, it will hopefully become clear how ambidexterity management and BMs as activity systems practically manifest themselves within each organization, and what that means for the way that they manage the balancing efforts for both CBMs and linear BMs.

5.2. BMs as activity systems

In chapter 2, it was shown that an activity system perspective on business models (Zott & Amit, 2010) can be taken to differentiate between linear BMs and CBMs. The activity system perspective defines BMs as systems of interlinked activities that can be linked into value chains. What the system of interlinked activities actually looks like is first determined by the **design elements** (content, structure and governance) that describe an activity system's architecture. Second, the **design themes** (novelty, lock-in, complementaries, and efficiency) influence the determination of the links between the activities and therefore describe the sources of value creation within the system. The design themes are configurations of the design elements, which means they give meaning and direction to the connection between the design elements and arrange them into a unique activity system. In the following scheme (figure 5), the ways that CBMs and linear BMs are organized in practice according to design themes and design elements are clarified. The scheme displays business models as activity systems through its dimensions, indicators, significant clusters of categorizations, and the number of researched organizations that comply to each significant cluster. The clusters and their names are based on collective nouns that aim to cover certain groups of similar categorizations. Appendix C will elaborate on what exact categorizations comply to each cluster. All categorizations can be found in Appendix A. In the sections following after, clusters will be interpreted and explained with the help of signatory quotes.

Theory	Dimensions	Indicators	Significant clusters of categorizations	Number of organizations supporting significant categorization cluster
<i>BMs as activity systems (Zott & Amit, 2010).</i>	Design Elements	Content	‘Recycling practices’	4
			‘Product development/ sales’	4
			‘Delivering service’	2
		Structure	‘Linear BM’s enabling CBM emergence’	8
			‘Linearity dismissed’	2
		Governance	‘Board management’	7
	‘Single leader management’		3	
	Design Themes	Novelty	‘Multiple value creation in CBM’	7
			‘Single value creation in CBM’	3
		Lock-in	‘Differentiated lock-in strategy’ (for linear BMs vs. CBMs)	3
			‘Linear BMs organized internally ‘(when present)’	7
		Complementaries	‘BMs organized in relation’	4
			‘BMs organized separately’	6
		Efficiency	‘Exploring multiple value creation in single BM’	7
			‘Exploiting single value creation in single BM’	3

Figure 5: Summarizing BMs as activity systems (Zott & Amit, 2010) in practice.

5.2.1. Design Elements

To start off with the business model *content*, it can be said that the organizations in overall involve in very different sorts of activities to create financial and ecological value for themselves and for society. The industries that the organizations are in vary (among others, see appendix A and E) from furniture production (Herso) to manufacturing of liquid cleaning products (Werner & Mertz) and to recycling of used plastic (van Werven BV). The industries define the BM activities that each organization is in, and therefore define the content of both CBMs and linear BMs. Within all organizations, the content of the CBMs is related to the content of the linear BMs. This means that linear BMs and CBMs are active in the same market (where the CBM provides a circular alternative for the linear BM), or that the content

produced by linear BM or CBM is adjusted to the other BM-type in place. For instance, Revamo developed laser cladding as a new circular alternative for linear flame spraying: "Laser cladding enables us to revise engine parts much easier, with less energy input and no new metal use. But the biggest advantage could be that laser cladding enables to transform used engine parts into new parts. No new production is needed in most cases". Furthermore, van Werven BV supports its main CBM with smaller linear BM's as a result of their BM efficiencies and values towards ecology: "Were in some sort of 'forced' linearity at the moment, but in order to make it work we better make sure that the linear processes support our recycling activities as good as possible".

Regarding the *structures* of both CBMs and linear BMs, it is notable that in most organizations linear BMs are already in place and that investments are made to grow CBMs. This also means that most linear BMs support the CBMs in creating financial and ecological value simultaneously. This can be seen as a consequence of a lack of circular support options: "If you want to work according circular processes, energy is needed to keep operations running. That energy is used only once, which is of course not in line with our ecological strategic intent"(van Werven BV). At PrintAgora, linear product use is necessary to enable conduction of the CBM, which eventually has a minimizing influence on the size of needed new material input. "We still buy new paint from our supplier of course, even though we now use less paint because of the grapheme (CBM product)". This could mean that linear processes supporting circular processes does not directly have to implicate that the organization is dominantly circular, but that it can also be a step in making the organization more circular: "Well, the graphene fosters sustainability in itself as well. Because what graphene does is making the product you mix it with less dense in use. In that way, I now use a lot less paint while printing then before using graphene" (PrintAgora).

The *governance* (who performs what BM activities?) of CBMs and linear BMs are found to be differentiated in some organizations. Paragraph 2.2., states that organizations can close material loops by themselves or by participating in a material loop of multiple organizations. While almost all organizations deal with governing their linear BMs internally, CBMs are sometimes found to governed in cooperation with external stakeholders. According to Herso, cooperating in CBMs enables better value creation possibilities then conducting linear BMs internally: "You're only using your forces when working together in circularity. When your communicating with a customer without interference of a wholesaler, you get really different models than people are used to. And once you try it, you think twice about going back to linearity". This can also refer to the lock-in strategies that the organization

conducts. But closing CBMs in cooperation with other organizations comes with external responsibilities towards partners but also internal ones towards employees. In most organizations, the role of the Board is considered very important in monitoring these responsibilities: "When you decide to take a turn towards sustainability, it is the boards' job to monitor it" (Timmerhuis Groep). Others are led by a single leader, optionally as a result of their (small) size.

5.2.2. Design Themes

Novelty is about finding new BM activities to involve in, about finding new ways to link these activities, and about deciding who should conduct these activities. Innovation within the activity system is thereby achieved. All researched organizations work on BM novelty by exploring new BM activities to involve in to differentiate from linear ways of working. Some organizations are more successful than others in this quest, some are in further development stages than others. In the case of Herso, initial CBM development proves to be successful in creating financial and ecological value simultaneously, from where new CBM-ideas are amplified. "I'm working on ideas for marble, for copper, we have a floor-line now, the first 300 window frames and 100 doors are finished. It is running like crazy". Other organizations have more difficulties making CBM's viable, as discrepancies arise on the importance of new circular activities compared to trusted linear activities: "We have some companies that have more difficulties incorporating sustainable or circular practices into their organization. They don't really see the benefits. But that is also because you are dealing with really old companies who are also really receptive to change" (Mondial Movers).

Lock-in refers to the degree to which an organization is able to keep stakeholders, such as partners, customers, and suppliers attracted to the organization as BM participants. When comparing how the organizations manage their lock-in strategies for their linear BMs and their CBMs, it is noticeable that within a few organizations linear BM lock-in is mainly achieved through offering tangible benefits over competitors, such as offering low prices. Achieving lock-in within CBMs is found to be mainly focused on creating networks of tight relationships and a mutual mindset. "How does this benefit society? How does this influence our neighbors, our customers, our partners? In that sense, we are actually looking at how far our sphere of influence reaches. And that is what becomes more and more important for us" (Mondial Movers). "We think that re-usage and environmental awareness should be available

for everybody. The Weggeefwinkel connects, which is its main power within the Zeist-community" (Weggeefwinkel Zeist).

Complementarities refer to extra value that is created by grouping matching activities in comparison to running them separately. As mentioned before, some organizations run their CBMs and possible linear BMs completely separate. Others connect them to one another in a support-receive relationship. Not all organizations organize unit-wise, but what is universal in all organizations is that CBMs and linear BMs are defined as sole entities: "A unit structure offers possibilities to focus on certain things, I guess. You do this and I do this" (Timmerhuis Groep).

According to Zott & Amit (2010), *efficiency* is achieved when transaction costs can be diminished by the design of the activity system. This can be done by streamlining, standardizing and skipping certain activities and the links between them. While exploring CBMs, streamlining is achieved on a value creation level as storing financial and ecological value creation in one BM (CBM) is explored. It is thereby related to the domain of indicator *novelty*. "By conducting laser cladding, we try to circulate as much as possible and thereby contribute to the environment. That is why we want to get rid of flame spraying eventually" (Revamo BV).

5.2.3. Putting things in perspective

In the previous sections, the ways in which the BM design themes and BM design elements give meaning to linear BMs and CBMs as systems of interlinked activities is discussed. Within the design elements of all organizations, cooperation with stakeholders in governing CBMs and (mutual) relatedness in BM structures and contents are found. Regarding the design themes, all researched organizations pursue novelty by exploring CBMs but vary in the development stage of exploration. Stakeholders are sometimes found to be locked into CBMs by sharing mutual beliefs on ecological wellbeing instead of financial benefits within linear BMs. Considering linear BMs and CBMs as sole activity systems, complementarities are created by considering them as differentiated entities. Efficiency appears to be achieved by streamlining BMs alongside their capacity to explore multiple value creation within CBMs, as linear BMs are unable to do so. Reviewing the above, it can be said that CBMs and linear BMs manifest themselves as essentially different systems of activities in all researched organizations. In the following, what contextual ambidexterity management means in practice

is explained, and what that means for the way that they manage the balancing efforts for both CBMs and linear BMs is discussed.

5.3. Ambidexterity Management

Chapter 3 shows that using contextual ambidexterity as a foundation for finding ways of managing a CBM and a linear BM simultaneously is first about defining the organizational context. Second, it is about valuating the management approach of the dual BM situation where a balance between efforts in both BM-types is ought to be found. Contextual ambidexterity is operationalized according its' proposed conditions (O'Reilly & Tushman, 2011), by the actual state of the management approach in place (to what extend is current dual BM management effective?) and by the desired state of the management approach in place (to what extend is improvement needed?). The following scheme (figure 6) displays the operationalization of contextual ambidexterity as proposed O'Reilly & Tushman (2011). Just as in section 5.2., the scheme displays the theory through its dimensions, indicators, significant clusters of categorizations, and the number of researched organizations that comply to each significant cluster. The clusters and their names are based on collective nouns that aim to cover certain groups of similar categorizations. Appendix C will elaborate on what exact categorizations comply to each clusters. All categorizations can be found in Appendix A. In the sections following after, results will be interpreted and explained with the help of signatory quotes.

Theory	Dimensions	Indicators	Significant clusters of categorizations	Number of supporting organizations
<i>Contextual Ambidexterity (O'Reilly & Tushman, 2011.</i>	Evaluating balance between efforts for CBM and linear BM	Desired balance between efforts for both BMs	'Balanced norms and values on linearity and circularity'	9
		Actual balance between efforts for both BMs	'Unbalance between CBM and linear BM investments'	8
	Organizational Context	Strategic intent	'Pursuing investment efficiency'	10
			'Financial value creation over ecological value creation'	9
		Common future visions and	'Fostering ecological awareness'	5

		values	‘Fostering care for stakeholders’	3
		Senior management	‘Supervising strategic goal achievement’	10
		Leverage of assets	‘Multiple value creation as a condition for CBM investments’	9
		Resolving tensions	‘Facing external tensions’	6
			‘Facing internal tensions’	3
			Gradual growth in CBM investments	9

Figure 6: Summarizing contextual ambidexterity (O’Reilly & Tushman, 2011) in practice.

To start with assessing the presence of conditions for fostering contextual ambidexterity in the researched organizations, the *strategic intent* of linear BMs in all organizations are found to be focused on single, financial value creation. CBMs’ strategic intents within the organizations are found to be focused on fostering multiple value creation in an efficient way. Creating efficiency is most often done by combining ecological and financial value creation within one BM. As financial and ecological imperatives can be pursued simultaneously, efficiencies in BM investments are created on a strategic level when exploring CBMs. This leads to exploring CBMs being preferred over exploiting linear BMs: "We have the luck that there is a large demand for our circular services. So we work on the environment while making money. It goes hand-in-hand, in that sense" (van Werven BV). However, almost all organizations (in exception of Weggeefwinkel Zeist, see appendix A) work according the overall strategic intent to create financial value for the organization in the first place and create ecological value for the environment in the second place. Dekker Duurzaam: "I really like the fact that we are doing something for mother nature, but the main prospect of our business is creating a model that delivers us more money than we put into it".

The *common future visions and values* of most organizations are found to be based on new found ecological awareness, from where management develops visions and practical implications on how to benefit the planet and future generations. Herso mentions: "14 years ago, things got off the ground. Like I said, I don't buy new wood anymore. Which sounds really weird, of course. I got laughed at at a FSC-meeting".

Regarding the *senior management team* that manages the balancing efforts for both BM-types, all organizations are found to have a board installed that supervises the management of both all BMs in place. The size and responsibilities of these boards vary, but

the main imperative in all of them is to support strategic goal achievement for both BM-types in all organizations: "Well, me as a CEO, and with my team, I could say that I have an helicopter view over the entire organization" (Revamo BV).

In the previous, the strategic intents of most organizations were found to be focused on financial value creation in the first place, and ecological value creation in the second place. Regarding *leveraging organizational assets*, when financial and ecological value can be created simultaneously organizations rather leverage their assets towards CBM exploration instead of linear BM exploitation. "By conducting laser cladding (*circular practice*) we try to circulate as much as possible and thereby contribute to the environment. That is why we want to get rid of flame spraying (*linear practice*) eventually" (Revamo BV). But when the CBMs are unable to create financial value next to ecological value, investments in CBMs are kept on a down-low as they lead to degrading financial value within the particular organization: "When the demand for an old model rises and creates revenue again, all the ideas for new models are thrown in the bin. That is also what I see within Hexta, because the company is doing great when we assess it in traditional economic standards" (Hexta BV).

The *tensions* that derive from finding a balance between efforts for linear BMs and CBMs in most organizations appear to be originated in the external environment of the organization, rather than within the organizational boundaries. According to 9 out of 10 researched organizations, the notion that they value financial value creation over ecological value creation is possibly a result of a dominant linear macro-economic perspective within society. Regardless whether the tensions manifest themselves in- or outside organizational boundaries: "We have been spending 17 years and 800,000 euro's on lawsuits to get up 4 windmills. They are still not there". "That says something about the way we are organized in the Netherlands, which is still overly linear" (van Werven BV).

The organizations try to *resolve* these 'organization versus society'- type of tensions in different ways. In overall, the strategic goals for both CBMs and linear BMs are focused on declining efforts in linear BMs and growing efforts in CBMs. "It will still take another 15 years to make actual changes towards circularity in old-fashioned companies. So the only thing you can do is start something yourself that really distinguishes from the traditional industry" (Herso).

The *actual balances* between management efforts for both linear BMs and CBMs are unbalances in most cases, as CBMs or linear BMs are preferred to the extent to which they create financial value: "And that appears to be unreachable for a small company like ours.

First, money is needed. And in that sense, it gives you new insights about our industry, which is clearly still all about the money. For us that is just impossible to dodge''(PrintAgora).

However, all organizations indicate that a *desired balance* between management efforts for linear BMs and CBMs would start with governments, institutions and other organizations developing more ecologically focused norms and values. This could lead to more balance between circularity and linearity in society, from where more possibilities to balance linearity and circularity within their organization could arise: "Circular businesses are not going sky-high because the vast majority of the Netherlands is still ignorant and unaware" (Herso).

5.2.3. Putting things in perspective

In the previous sections, the ways in which handlebars for contextual ambidexterity are present in practice are discussed. It can be said that within the researched organizations contextual ambidexterity as a dual BM-management perspective is fostered according values and visions that take financial value creation and ecological value creation into account. As a result of a dominant linear macro-economic perspective in society, the organizations indicate that they are forced to value financial value creation over ecological value creation in order to survive. The leverage of assets and investments towards CBMs and linear BMs are organized accordingly, as investments in exploring CBMs depends on their ability to create financial value next to ecological value. What this means for the presence of contextual ambidexterity in most researched organizations is that the external organizational context (read: linear macro-economic perspective in society) is highly decisive for the degree to which management efforts for CBM exploration and linear BM exploitation are balanced.

Combining the above with the notions found in paragraph 5.2., it can be said that societal economic pressures on the researched organizations mainly define the installed management approach for balancing efforts in exploration activities and exploitation activities, as stored in differentiated activity systems. But what does this mean for answering the main research question? In the following chapter, conclusions will be drawn and an answer to the main research question will be formulated. From there, it will be possible to discuss the found results. Insights in the extent to which the results are in line with the projected literature and on beforehand set expectations will then be discussed. To finalize, the limitations of this research and possible implications for future research directions are presented.

6. Conclusion and discussion

The introduction of this research showed that multiple environmental and social crises derive from our current linear produce-consume economy. In order to overcome these crises in the future, a transition towards a more sustainable economy has to be made. Existing organizations can contribute to this transition from a circular perspective in a risk-averse way by exploring a circular BM while exploiting a trusted linear BM. From here, the question of how balancing efforts for a circular BM next to a linear BM can be managed is derived. Viewing BMs from an activity system perspective helps to see that linear BMs organize value creation in a value chain of interlinked activities, while circular BMs organize value creation in a value cycle of interlinked activities. Contextual ambidexterity literature shows to be applicable in assessing dual BM management situations. From here, a way of exploring real-life dual BM management approaches in a linear versus circular context is created. Using the developed interview guide in practice provided empirical insights in the way that several organizations deal with the balancing efforts for managing a CBM next to a linear BM. In this chapter, the conclusions of empirically found results, that are presented in chapter 5, will be presented. From here, an answer to the main research question will be presented and compared to on beforehand presented literature and expectations. Furthermore, the research itself and the research process will be reflected on. Subsequently, evaluations on to what extent the research objective is achieved and to what extent the used interview guide was successful in supporting the achievement will be discussed. Finally, limitations and recommendations for future research will be presented

6.1. Conclusions

The presented results in chapter 5 show the way that the operationalized theories are reflected in what is empirically found while conducting research. Appendix E supports these findings by presenting a story line for each researched organization which represents their dual BM management approach and underlying motives. The main finding of chapter 5 is that societal economic pressures on the researched organizations mainly define the installed management approach for balancing efforts in exploration activities and exploitation activities, as stored in differentiated activity systems. But what does this mean and how can it offer clarity in answering the main research question?

As shown in appendix E, the main point of chapter 5 displays itself in a wide array of ratio's between CBMs and linear BMs according each organizations' past efforts in exploring circularity and exploiting linear practices. Some organizations already use a CBM as main generator for financial and ecological value creation while using linear processes to support the CBM (van Werven, Revamo, Dekker Duurzaam, Mondial Movers). Others use a linear BM for primary financial value creation and slowly explore CBMs for ecological value creation (Werner & Mertz, Hexta, PrintAgora, Timmerhuis Groep). Some other organizations even totally dismissed linear processes as the CBM provides them all the value to achieve environmental and financial strategic goals they have set for themselves (Herso, Weggeefwinkel Zeist). But despite these different ratio's between linear and circular value creation, almost all organizations work according the strategic intent to create financial value for the organization in the first place and create ecological value for the environment in the second place. A single organization is able to value ecological value creation over financial value creation, but that exception is caused by the non-profit origin of that organization (Weggeefwinkel Zeist).

However, this exception reveals that the chosen strategic intent towards profit generation determines the way that strategic efforts for financial and ecological value creation are organized and balanced within all organizations. What this implies for development of CBM exploration is that as long CBMs can create financial and ecological value simultaneously, the organizations are willing to leverage their assets towards the development of CBMs. When the CBMs are insufficient to create financial value next to ecological value, investments in CBMs are kept on a down-low as they lead to degrading financial value within the organization in question. All organizations seem to be very aware of their endeavour for money, but blame it on the dominance of a linear macro-economic perspective within society. As long as this linear macro-economic perspective is still dominant in society, organizations find themselves obligated to comply to these linear values as their survival depends on it. Within all researched organizations, this leads to tensions between the organizational strategic intent to leverage assets towards developing ecological value creation and the economic pressure from society to make money for the organization. The organizations deal with these tensions in different ways. But the broad tendency here is that the leverage of assets towards circular and linear value creation processes is managed along monitoring what the internal and external organizational context allows for. What this means is that strategic goals for both circular and linear processes are formulated in ways that fit the restrictions and opportunities

that the organizations face internally (BM design elements and themes) and in society (linear norms and values). The efforts for pursuing these strategic goals often leads to an unbalance in strategic management efforts, in the favour of CBMs or in the favour of linear BMs. The actual (dis)balance for each organization is determined by the way the internal context (a dual BM management situation assessed from an contextual ambidexterity perspective) is influenced by the external context (in the form of a linear macro-economic perspective in society). When simultaneous value creation cannot be achieved within the CBM according the way external context influences internal context, asset leveraging efforts are in the favour of a linear BM. When simultaneous value creation can be achieved within a CBM according the way external context influences internal context, asset leveraging efforts are in the favour of the CBM. Regardless of their emphasis on efforts in the CBM or either in the linear BM, each organization shows to value the overall wellbeing of our society and our planet. Therefore, each organization would like to see a shift towards a more circular-minded macro-economic perspective in society. This will allow the organizations to adopt a more balanced management of efforts in circular and linear value creation processes, as the success of the economy would be assessed by also taking the environment into account. Societal and economic pressures for growing financial revenues would then be reduced.

In the introduction of this research, the following research question was set: *How can organizations manage the balancing efforts for simultaneously conducting a Circular BM next to a linear BM within the same organization?* In providing an answer to this research question, it is now possible to say that the researched organizations balance the efforts for managing a CBM and a linear BM simultaneously according the extent to which the internal and external organizational context allows for the present CBM to create financial and ecological value simultaneously. When simultaneous financial and ecological value cannot be achieved within the CBM, management efforts are forced to be leveraged towards the linear BM in order to secure financial value creation and organizational survival in an overly macro-economic system. This answer to the main research question leads to a number of practical implications for organizations that currently deal with managing a CBM and a linear BM simultaneously:

→ Current macro-economic perspective of society is still based on linear economic values. Therefore, CBM development within the researched organizations is based on the ability of the CBM to create financial value for the organization; otherwise it will impede the financial position of the organization.

- Each organization creates strategies according to the internal and external possibilities that they have and internal and external opportunities that they see. An imbalance between balancing management efforts for a CBM and a linear BM is not necessarily a bad thing; the internal and external organizational context that the organization is in is highly determining for the possibilities that the organization has to influence the actual balance.
- Strategic intent towards development of CBMs does not have to be solely based on progressive, environmentally focused values and visions; financial value creation along a CBM can also be a motive.

6.2. Comparing results to literature

In the theory of O'Reilly & Tushman (2011) it is proposed that the context of the organization determines the way that exploration and exploitation activities are managed simultaneously within one organization. In paragraph 6.1., it is indeed found that the context of the organization is decisive. Also, BMs are proposed to be systems of interlinked activities by Zott & Amit (2010). This perspective is found to be fitting to differentiate between CBMs and linear BMs. However, two questions are raised:

- Are the definitions of 'organizational context' and 'activity systems' as regarded in the conclusion of this research the same definitions that were presented in the theories by O'Reilly & Tushman (2011) and Zott & Amit (2010)?
- To what extent is the organizational context providing a balance in the sense that management efforts for both BMs are equal, as proposed by O'Reilly & Tushman (2011)?

In answering the first question, it is possible to say that the definitions of 'organizational context' as presented in paragraph 6.1. and by O'Reilly & Tushman (2011) are not in line with each other. This research found the 'external context' to be the determinant for managing balancing efforts, while the 'internal context' was proposed to be the determinant in literature. But this does not mean that internal and external context are independent of one another? As said, the external organizational context in the form of a linear macro-economic perspective within society is decisive for balancing management efforts. That linear macro-economic perspective would then influence internal context. Strategic intent, leveraging assets, common visions and values towards circular practices, communication of strategy and resolving of tensions appear to all be influenced by the

societal and economic pressures to value financial value creation over ecological value creation and thrive for traditional linear ways of working. So, internal context is proposed to determine the management of balancing efforts while external context influencing internal context proved to be decisive. The activity system perspective on BMs (Zott & Amit, 2010) is found to be a fitting theoretical base in the previous paragraph. Opposing contextual ambidexterity theory (O'Reilly & Tushman, 2011), the activity system theory as presented by Zott & Amit(2010) does not make normative implications but rather tries to offer descriptive sense-making. After reviewing the research results, the operationalization of BMs as activity systems in the interview guide proves to be adequate in providing a sense-making contribution in answering the main research question. It thereby achieved the goal that was set prior to conducting the field work: making differentiation between linear BMs and CBMs empirically visible.

Answering the second question, the results show that in most cases the organizational context does not provide an equal balance between efforts for circular and linear value creation processes. But does this mean that the proposed organizational context by O'Reilly & Tushman (2011) is not in place in most organizations? To find out to what extent it is in place is not the main imperative of this research. In finding an answer to the research question, it is only important to find out if an organizational context could be of influence on the management of balancing strategic efforts. External organizational context is found to influence internal organizational context in such ways that unbalances are created according management efforts. Therefore, using the proposed organizational context by O'Reilly & Tushman (2011) as a tool to find whether organizational context influences the management of balancing strategic efforts is successful.

6.3. Discussing methodology, research process and research results

The chosen research methods have the goal to ensure that the outcomes of the research are found in a systematic and reliable way. As was stated in chapter 4, a qualitative research approach is taken. This approach fits the content and structure of this research properly. Also explained in chapter 4, different measures are taken to secure validity, reliability and trustworthiness. But despite these explained and conducted measures, some methodological limitations are still present in conducting the research. The first difficulty is about the interpretations of the researcher as staying completely objective while collection of data and

interpretation of data. Within the first few interviews, I found it hard to stay close to the interview guide as the conversations sometimes took unexpected turns. Also, within these first interviews it was hard to make the respondent explicitly explain the different value creation processes within their company. After slightly reformulating some interview questions regarding value creation and accompanied BMs, this difficulty was overcome in the following interviews. In analyzing the data of these first few interviews, I managed to overcome difficulties by finding quotes that fit the imperatives of the newly formulated interview guide. Regarding the coding process, it was sometimes hard to formulate codes for sections of data that partly fitted actual codes could also be indicated by an open code. I tried to work as systematically as possible, but reliability within the analyzation process could have been improved if the coding process was supervised more. But regarding the time-span of this research and supervision intensity this would have been difficult to realize.

Furthermore, a few limitations regarding the case selection have to be explained. First, the selected cases prove to be hard to compare regarding the presence of CBMs and linear BMs in each organization. In first instance, I had in mind that I would research organizations that manage full CBMs next to full linear BMs. But in most cases, an actual full CBM and full linear BM that both generated financial value for the organization were not in place. The presence of CBMs next to linear BMs were unbalanced, in that sense. Within the data-collection process, I did not know how to deal with this straight away. But while analyzing data, it came to me that unbalances are also balances and that the research provided motives for the actual unbalance in these cases. As the goal of this research is to find ways of managing balancing efforts for CBMs next to a linear BMs, presenting unbalances between the two and their underlying reasons proves to be in line with achievement of this goal. Second, a non-profit organization is among the selected research cases. As this non-profit origin proves to create a different strategic goal formulation process than the selected cases of profit-organizations, this could influence the viability of this research. Third, it was sometimes hard to contact potential respondent organizations as the busy working schedules of the targeted respondents got in the way of my own time schedule regarding this research. But eventually, all ten respondents were interviewed successfully.

The research process took 12 months of time in total. Miscommunication with my supervisor in the early stages, a few difficulties in defining the research subject and job obligations resulted in delay of the whole research process. Another barrier regarding the

research process relates to the complexity of the analysis. Due to the chosen theoretical connection between ambidexterity literature and dual BM management and accompanied abstractness, it was sometimes hard to interpret the found results within the context and boundaries of this research. From this consideration it would have been useful to work with a more specific and demarcated theoretical framework. But this would not have given me the possibility to create a connection between two theoretical concepts. The actual connection could sound farfetched when projecting them into practice, but in chapter 2 and chapter 3 it was shown that there is sufficient theoretical foundation for connecting ambidexterity literature to dual BM management. Furthermore, the following sections of this research proved the applicability of the connection in practice and supported the creation of the presented results. Regarding the societal relevance of this research, the results of this research can be useful for organizations that currently involve in managing balancing efforts for a CBM and linear BM or will in the future. As the transition towards a more circular economy is part creating an overall sustainable economy (Jonker, 2012), insights in how to manage strategic development of circular BMs in a risk-averse way (by setting them up next to a trusted linear BM) can be useful for finding ways to grow the circular economy. The results of this research could therefore make organizations aware of the possible difficulties that can arise when strategic management efforts have to be divided over CBMs and a linear BMs.

6.4. Recommendations for future research

Based on the conclusions in this chapter and the reflection on this research, a number of recommendations for further research can be distinguished. In general it is stated that research on circular BMs or the circular economy is important in context of ‘achieving a sustainable and resistant future’. Moreover, there is a clear demand for research on CE from diverse actors in society. First, a somewhat similar research can be conducted where a different ambidextrous solution than contextual ambidexterity is proposed as management strategy for balancing efforts between a CBM and a linear BM. The effects of for instance spatial or temporal separation of BMs could be used as a base for managing a CBM next to a linear BM. Second, it could be interesting to conduct a similar research where cases within certain industries are selected. Cases can be compared regarding the industry- or sector characteristics from where the possible influences of these characteristics on management strategies can be revealed. Also, case selection could be more detailed by selecting organizations on their size or age as no distinction between organizational size or age was made in this research. Within

large organizations, there could be research for more in-depth understanding of the actual drivers behind strategic choices managing circular and linear processes. The role of communication or leadership could for example be involved as extra variables to create extra research dimensions and better understanding. Regarding the fact that not all researched cases this research had a full financial value creating linear BM and circular BM in place, it would be nice to see a similar research that would only capture organizations that actually have a full market-focused CBM and full-market-focused linear BM installed. This could provide a more substantive view on the way that organizations manage balancing efforts when both the CBM and the linear BM are active in a consumer- or business market. Furthermore, this research was explorative. Conducting research on development of CBMs in existing organizations by using a more straightforward theoretical framework could be very useful in this context. One could for example see CBM development as a BM transformation or innovation question rather than a dual BM management situation. BM transformation literature has a much larger base than the conceptual connection between dual BM management and ambidexterity, which could make more detailed theoretical explanations possible.

Building on the conclusions of this research, it would especially be interesting to look at the way in which institutional theory (DiMaggio & Powell, 1983) can provide clarification on why and how a linear macro-economic perspective in society influences the strategic management of organizations in dual BM situations. Institutionalism as defined by DiMaggio and Powell (1983), is about the reasoning that for organizations to survive under pressures from its external context, it has to take a look at how other (preferably bigger) organizations and institutions deal with these pressures and copy it where possible, so that similarities between them are created. This means that what goes on inside the organization can also be a result of external pressures from the public or governments (Dasgupta et al., 2000). Regarding the found conclusion of this research, it can be said that institutional theory imperatives and strategic management of organizations that is influenced by societal pressures can possibly be connected to each other. A nice extra consideration within research CBMs and institutional theory could be the strategic balance perspective on achieving optimal distinctiveness (Zuckerman, 2016), which is about finding the right balance between conformity to external pressures and differentiation within the organization by being as different as legitimately possible. Could this finding also offer solutions in dealing with setting up CBMs and a linear macro-economic perspective in society?

Furthermore, regarding the influence that the external organizational context appears to have on the balance between strategic management efforts for a CBM and a linear BM, it would be also be interesting to see how this organizational context influences organizations that start with CBMs from scratch. As they dispose linear value creation processes, they do not have the possibility to create financial value accordingly. The CBM therefore has to create financial value and work on creating ecological value straight away. It could then be interesting to see if these organizations are influenced by this linear macro-economic perspective in society and if yes, how they are influenced. The type of influence could be researched on a BM design theme or design element level, when the activity system perspective of Zott & Amit (2010) is taken as starting point. But of course, and just as in this research, strategic management could also be taken as starting point. Concluding, new research for development of circular BMs in existing organizations is very useful. As was stated in chapter 1, existing organizations have to start involving in circular value creation processes to kick-start the transition towards a circular economy. In making this kick-start eligible, scientific literature on the concept a circular economy has the duty to provide practically relevant research on how Tom, Dick and Harry can grow the circular economy by setting up CBMs.

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Appendix B – Interview Guide

The interview guide that was used for collecting empirical data from 10 respondent organizations.

Introduction

1.1. Wie bent u en wat is uw rol binnen dit bedrijf?

Business models + Values & Visions

1.2. Hoe zou u het bedrijf beschrijven op het gebied van normen, waarden en die visie die de organisatie heeft op de toekomst?

1.3. Hoe denkt u dat deze organisatie waarde creëert voor (1) zichzelf en voor (2) de samenleving?

(Hoe definieert u de manier waarop de organisatie geldt verdient voor zichzelf maar daarnaast ook de samenleving ten goede komt?)

1.4 In hoeverre gaat waarde-creatie binnen deze organisatie aan de hand van circulaire processen (*systeem waarin datgene wat je produceert na consumptie weer probeert te hergebruiken als input voor het systeem*) en daarnaast aan de hand van lineaire processen (*systeem waarin eenmalige input leidt tot output wat leidt tot afvalproductie*) volgens u?

1.5. Hoe zou u circulariteit binnen de context van uw organisatie omschrijven?

(Op welke manieren is de organisatie circulair volgens u? Wat betekent circulariteit volgens u in de praktijk?)

1.6. Hoe zou u lineariteit binnen de context van uw organisatie omschrijven?

(Op welke manieren is de organisatie lineair volgens u? Op welke manieren komt de lineariteit binnen uw organisatie in de praktijk naar voren?)

Strategic intent

2.1. Wat betreft circulaire activiteiten en binnen uw bedrijf, hoe zou u beschrijven wat u strategische wilt bereiken door het gebruik van circulaire waarde-creatie

(Wat heeft de organisatie voor ogen op het moment dat het gebruik maakt van circulaire activiteiten?)

2.2. Wat betreft lineaire activiteiten binnen uw bedrijf, hoe zou u beschrijven wat u strategisch wilt bereiken door het gebruik van lineaire waarde-creatie?

(Wat heeft de organisatie voor ogen op het moment dat het gebruik maakt van lineaire activiteiten?)

2.3. In hoeverre denkt u dat er verschil zit in de manier waarop circulaire processen en lineaire processen waarde creëren voor de organisatie en voor de samenleving?

(Hoe creëren lineaire processen waarde voor organisatie en samenleving, en hoe creëren lineaire processen waarde voor organisatie en samenleving? → Wat verschilt er?)

Resolving tensions & leveraging assets

2.3. In hoeverre denkt u dat de zojuist door u genoemde doelen van circulaire processen en lineaire processen tegenstrijdig zijn met elkaar?

(In hoeverre spreken circulariteit en lineariteit elkaar tegen als je kijkt naar waar ze in essentie voor staan?)

- Zo ja, hoe uit deze tegenstrijd zich binnen de organisatie volgens u?

(Waar ontstaan er problemen door de tegenstrijdigheid van beide processen en wat gebeurt er dan precies?)

2.4. Zo ja, wat wordt er volgens u gedaan om deze tegenstrijd in de praktijk uit de weg te gaan?

(Wat wordt er gedaan om te zorgen dat er geen daadwerkelijke problemen ontstaan door de tegenstrijdigheden?)

Desired + Actual Balance between CBM and linear BM + Senior Management

3.1. Hoe ziet de taakverdeling over werknemers eruit wat betreft de circulaire processen en de lineaire processen binnen uw organisatie?

(Wie doet wat en wie is waar de baas over de eindresultaten?)

3.2. Hoe zorgt het management van de organisatie er op dit moment voor dat zowel de lineaire processen als de circulaire processen hun strategische doelen halen?

(Hoe wordt gezorgd dat de doelen voor circulariteit en lineariteit niet met elkaar in de knoop komen gezien hun essentiële tegenstrijdigheden?)

3.3. In hoeverre heeft u het idee dat de huidige strategische aanpak zorgt voor het daadwerkelijk behalen van de doelen die gesteld zijn voor beide soorten processen?

(Behalen beide soorten processen hun doelen naar behoren tot op heden?)

- Zo ja, wat volgens u de succesfactoren in deze aanpak? In andere woorden:

(Op welke manier stimuleert de huidige management-aanpak op dit moment dat beide soorten processen hun strategische doelen behalen?)

3.4. Wat zou er volgens u eventueel nog beter kunnen in deze aanpak?

(Op welke manier ontmoedigt de huidige management-aanpak op dit moment dat beide soorten processen hun strategische doelen behalen → Wat moet er volgens u gedaan worden om dit tegen te gaan?)

Appendix C – Code Book

The codebook is visualized in this Appendix. The deductive codes, inductive codes and inductive codes that were given to defining quotes within each interview are presented. All codes are accompanied by an explanation on the content of the codes.

Deductive Codes

Code	Explanation
(1)Content	All codes refer to the practical way that the business model creates value for the organization
1a BM Content	The ways that each specific organization links activities in order to create value
1b Market focus	The type of consumer market that the specific organization is targeting
1c Linear BM	The appearance of a business model where material input is only used once and disposed afterwards
1d Circular BM	The appearance of a business model where a material resource loop is closed
(2)Structure	All codes refer to how business model activities are organized in relation to each other
2a CBM network participation	The notion that a group of organizations conjointly create a CBM in structuring activities by dividing tasks in closing a material resource loop
2b Linear support processes	Linear activities within the organization, like fuelling or paper-use in office activities, support the conduction of circular practices
(3)Governance	All codes refer to who perform the business model activities within the organization and their interrelations
3a Organizational governance	The state of power dividement between all actors within the organization as a whole
3a CBM governance	The state of power dividement between actors that work within the CBM
3a Linear business model governance	The state of power dividement between actors that work within the linear business model
(4)Novelty	All codes refer to involving in new business model activities; the organization involving in circular business model activities in particular
4a CBM alternatives unavailable	The notion that our current state of development in technology/economy does not (yet) offer a circular alternative for a linear business model solution
4b Innovation	The way that new linkages between business model activities enable for new products or services to emerge
4c First movers advantage	The advantage that the organization has over its competitors within their market as a result conducting circular practices
(5)Lock-in	All codes refer to how the organization keeps their stakeholders attracted as business model participants
5a Price lock-in	Creating a strong customer relationship as a result of negotiating a satisfactory product or service price
5a Relationship lock-in	Creating a strong customer relationship as a result of leader charisma or sales skills
5a Network lock-in	Lobbying new partners by making use of your networks' network
5a Reward lock-in	Creating a strong customer relationship by rewarding them for their purchase; for example providing coupons for future purchases
(6)Complementaries	All codes refer to the extra value that is created by matching grouping business model activities and create BM overlap
6a Simultaneous value creation	The CBM is creating financial value for the organization while also creating ecological value for the planet
6b Process complementaries	Grouping matching processes in order to create extra value through specialization
(7)Efficiency	All codes refer to how certain business model activities can be standardized from its design is streamlined
7a Process sustainability	The durability of a certain process to be viable within and for the organization
7b Streamlining	Standardization of business model activities for more value creation to occur by using less activities

Table 1: Deductive codes derived according the operationalization of business models as activity systems(Zott & Amit, 2010).

Content	Explanation
(1)Desired Balance between BM's	All codes refer to how the targeted balance between the linear BM an CBM should be in practice
1a Effort decline	A decline in management efforts for a certain type of BM in order to work towards a desired state of balance between the CBM and linear BM
1a Effort growth	A growth in management efforts for a certain type of BM in order to work towards a desired state of balance between the CBM an linear BM
(2)Actual balance between BM's	All codes refer to what the balance between the linear BM and CBM currently looks like in practice
2a Balance in practice	The targeted mutual alignment between the CBM and linear BM
2a Balancing efforts	The way that the organization mutually aligns its efforts in the CBM and linear BM
2b Con-balance	Factors that work against the creation of the targeted balance between the CBM and linear BM
2b Pro-balance	Factors that stimulate the creation of the targeted balance between the CBM and linear BM
(3)Toleration/Resolving of tensions	All codes refer to the way that tensions between management efforts for the linear BM and CBM are resolved
3a Origin of tensions	The actual source that leads up to difficulties in balancing the management efforts for both types of BM's
3a Resolvment	The solution that is proposed by the organization in finding balance
(4)Common values & visions	All codes refer to the present organizational values and visions towards linearity and circularity
4a Organizational culture	The certain hierarchies, beliefs, attitudes that shape the dynamics of interactions within the organization
4b Linear norms and values	Economic norms and values that are perceived traditional, such as valuing possession over usage and consuming-disposing material products
4b Circular norms and values	Economic norms and values that are perceived innovative, such as valuing usage over possession and recycling material products
4b Circular vision	The envisionment of the way that circular practices will develop within the organization
4b Ecology	The way that perceived ecological wellbeing of the planet influences the emergence of circular practices in the organization
4b Linear vision	The envisionment of the way that linear practices will develop within the organization
4c Growing consciousness	Spreading organizational values and visions beyond the organizational boundaries in order to educate society
(5)Strategic intent & communication	All codes refer to what the strategies of the linear BM and CBM look like and how they are communicated
5a Transparency	Openness about involvement in circular/linear practices
5b CBM strategy	The plan that allows the CBM to achieve its formulated goals, taking internal and external conditions into account
5b linear BM strategy	The plan that allows the linear business model to achieve its formulated goals, taking internal and external conditions into account.
5c Communication	The way that the strategic intents for both the CBM and linear BM are spread across the organization
(6)Senior team owning strategy	All codes refer to how decision power regarding exploration and exploitation activities is divided within the organization
6a Hierarchy	The actual management structure within the organization from where decision power is divided
6b Owning exploration	The way that the management structure allows for exploring new and unfamiliar activities
6b Owning exploitation	The way that the management structure allows for yielding value from existing and trusted activities
(7)Leveraging organizational assets	All codes refer to the possibilities of the organization to leverage investments over linear and circular activities
7a CBM investments	The motivations of the organization to (financially) invest in the development of the CBM
7a Linear BM investments	The motivations of the organization to (financially) invest in the development of the linear BM
7b Investment threshold	The costs of developing circular practices are perceived insuperably high for the organization

Table 2: Deductive codes derived according operationalization of contextual ambidexterity (O'Reilly & Tushman, 2011).

Inductive Codes

Code	Explanation
Financial value creation over ecological value creation	The motives behind the notion that the organization values revenue generation over the ecological wellbeing of the planet
Competitive advantage	The way that circular practices enhance the competitive position of the organization within its market
Balance through transparency	Creating a targeted state of balance between CBM and linear BM by making operations public along the achievement of ecological certificates
Strategic discrepancy	A discrepancy between the overly linear macro-economic perspective in society and the strategic management of the CBM
Societal value discrepancy	A discrepancy between societal and organizational values towards ecology and circular practices
Slow gains versus quick gains	The notion that creating significant ecological value is more time consuming than creating significant financial value
Block of circular development	The development of the CBM is blocked by external factors, societal values and visions on linearity in particular
Industrial value discrepancy	A discrepancy between industrial (competitors from the same market for example) values and organizational values towards ecology and circular practices
Institutional value discrepancy	A discrepancy between institutional (local governments for example) and organizational values towards ecology and circular practices
Circular awareness	The degree to which a group of people is informed about circular practices

Table 3: Inductive codes derived during the analysis process

Clusters and corresponding categorizations

- *Business models as activity systems*

Cluster name	Corresponding categorizations/codes and organizations
'Recycling practices'	'Recycling of plastic' (van Werven BV) – 'Revision of engines' (Revamo BV) – 'Furniture development' (Herso Meubelmakerij) – 'Recycling of multiple sorts of used materials' (Dekker Duurzaam).
'Product development/sales'	'Sales of cleaning products' (Werner & Mertz) - 'Painting tiles using graphene technology' (PrintAgora) – 'Production and sales of fences and security hardware' (Hexta BV) – 'Thrift shop' (Weggeefwinkel Zeist).
'Delivering service'	'Cooperative management organ for 20 moving companies' (Mondial Movers) – 'Infrastructural services + community involvement' (Timmerhuis Groep)
'Linear BM's enabling CBM emergence'	'Circular supporting processes' (Werner & Mertz) – 'Efforts to work towards CBM emergence next to linear BM' (Timmerhuis Groep) – 'Main circular production process with linear support processes' (van Werven BV) – 'CBM emergence next to linear BM' (Revamo BV) - 'CBM emergence next to linear BM' (PrintAgora). 'Efforts to work towards CBM emergence next to linear BM' (Mondial Movers) – 'Efforts to work towards CBM emergence next to linear BM' (Hexta BV) – 'CBMs with linear support processes' (Dekker Duurzaam).
'Linearity dismissed'	'Minimal presence of linear processes' (Herso Meubelmakerij) – 'Minimal presence of linear processes' (Weggeefwinkel Zeist).
'Board management'	'Board monitors all value creation processes' (van Werven BV) – 'Senior team owning exploration vs exploitation strategy' (Timmerhuis Groep) - 'Senior team owning exploration vs exploitation strategy' (Werner & Mertz) – 'Senior team owning exploration vs exploitation strategy' (Revamo BV) – 'Senior team owning exploration vs exploitation strategy' (Mondial Movers) – 'Senior team owning exploration vs exploitation strategy' (Hexta BV) – 'Senior team owning exploration vs exploitation strategy' (Dekker Durzaam).
'Single leader management'	'Novelty in senior team owning exploration vs exploitation strategy' (Herso Meubelmakerij) – 'Single person management creating exploration vs exploitation strategy' (Weggeefwinkel Zeist) – 'Single

	person management creating exploration vs exploitation strategy'(PrintAgora).
'Multiple value creation in CBM'	'Business unit Demolition and Environment'(Timmerhuis Groep) – 'Multiple CBM's creating financial and ecological value'(Herso Meubelmakerij) - 'Multiple CBM's creating ecological value'(Weggeefwinkel Zeist) – 'One main BM creating ecological and financial value'(van Werven BV) – 'One CBM creating ecological and financial value'(Revamo BV) – 'Developing CBM creating ecological and financial value'(PrintAgora) – 'Multiple CBM's creating financial and ecological value'(Dekker Duurzaam) - Developing CBM for creating ecological and financial value (Mondial Movers).
'Single value creation in CBM'	'Circular supporting processes'(Werner & Mertz) – 'Working towards CBM emergence'(Hexa BV) – 'Codes used: Relationship lock-in (CBM), Price lock-in(linear BM)(Timmerhuis Groep) – Relationship lock-in, network lock-in (CBM), price lock-in(linear BM)(van Werven BV) – Network lock-in (CBM), price lock-in(linear BM)(Mondial Movers)
'Differentiated lock-in strategy' (for linear BMs vs. CBMs)	'Codes used: Linear BM Governance (Timmerhuis Groep)(van Werven BV)(Revamo BV)(PrintAgora)(Mondial Movers)(PrintAgora)(Werner &Mertz)
'Linear BMs organized internally '	'Circular supporting processes'(Werner & Mertz) – 'Connecting circularity and linearity in a supporting and receiving relationship'(van Werven BV) – 'Circular business models with linear support processes'(Dekker Duurzaam) 'Cooperating in CBM's enables better value creation possibilities than conducting linear models'(Herso Meubelmakerij)
'BM's organized in relation'	'Minimal presence of linear processes'(Herso Meubelmakerij) – 'Minimal presence of linear processes'(Weggeefwinkel Zeist) - 'Efforts to work towards CBM emergence next to linear BM'(Timmerhuis Groep) – 'Main circular production process with linear support processes'(van Werven BV) – 'CBM emergence next to linear BM'(Revamo BV) - CBM emergence next to linear BM'(PrintAgora). 'Efforts to work towards CBM emergence next to linear BM'(Mondial Movers) – 'Efforts to work towards CBM emergence next to linear BM'(Hexa BV)
'BM's organized separately'	'Business unit Demolition and Environment'(Timmerhuis Groep) – 'Multiple CBM's creating financial and ecological value'(Herso Meubelmakerij) - 'Multiple CBM's creating ecological value'(Weggeefwinkel Zeist) – 'One main BM creating ecological and financial value'(van Werven BV) – 'One CBM creating ecological and financial value'(Revamo BV) – 'Developing CBM creating ecological and financial value'(PrintAgora) – 'Multiple CBM's creating financial and ecological value'(Dekker Duurzaam) - Developing CBM for creating ecological and financial value (Mondial Movers).
'Exploring multiple value creation in single BM'	'Circular supporting processes'(Werner & Mertz) – 'Working towards CBM emergence'(Hexa BV) –
'Exploiting single value creation in single BM'	

Table 4: Construction of clusters along corresponding categorizations.

- Contextual ambidexterity

Cluster name	Corresponding categorizations/codes and organizations
‘Balanced norms and values on linearity and circularity’	‘Change in economic values towards circularity --> more balance between circularity and linearity in organization’ (Werner & Mertz) – ‘Change in economic values towards circularity --> more balance between circularity and linearity in organization’ (Timmerhuis Groep) – ‘More balance between organizational and societal and economic values/visions on circularity’ (Herso Meubelmakerij)(Weggeefwinkel Zeist)(van Werven BV)(PrintAgora)(Hexta BV) – ‘Investing in growth of circular value creation for more balance towards linearity’ (Mondial Movers) – ‘Working towards growth of unbalance between circular BM’s and linear support processes’ (Dekker Duurzaam)
‘Unbalance between CBM and linear BM investments’	‘Thriving for circularity, but technology allows for a certain extend’ (Werner & Mertz) - ‘Disbalance--> dismissing linear ways of value creation based on organizational vision/values’ (Herso Meubelmakerij) – ‘Disbalance --> dismissing linear ways of value creation based on organizational vision/values’ (Weggeefwinkel Zeist) – ‘Making the internal linear value creation supportive for the main CBM’ (van Werven BV) – ‘Investing in growth of non-balance between linear BM and CBM’ (Revamo BV) – ‘Disbalance --> Small company size forces leveraging assets towards linear BM’ (PrintAgora) – ‘Disbalance--> leveraging organizational assets towards preference for single value creation’ (Hexta BV) – ‘Disbalance--> dismissal of linear processes in organization’ (Dekker Duurzaam).
‘Pursuing investment efficiency’	<i>Codes used: ‘CBM Strategy’ (all organizations) Categories: ‘Multiple value creation against single value creation’(see appendix A)</i>
‘Financial value creation over ecological value creation’	‘Financial value creation over ecological value creation’ (Timmerhuis Groep)(Revamo BV)(van Werven BV)(PrintAgora)(Mondial Movers)(Hexta BV)(Dekker Duurzaam) - ‘CBM addressed ecological intent, linear BM adresses financial intent’ (Werner & Mertz) – ‘External (linear) stakeholders focus on financial value creation, internal organization focuses on ecological value creation’ (Herso Meubelmakerij) -
‘Fostering ecological awareness’	‘Growing sustainable awareness in traditional organization’ (Revamo BV) – ‘Growing sustainable awareness in small organization’ (PrintAgora) – ‘Connecting people while performing circular processes’ (Weggeefwinkel Zeist) – ‘Sustainability policy --> open-to-change vision’ (Timmerhuis Groep) ‘Novel BM idea --> novel vision’ (Herso Meubelmakerij)
‘Fostering care for stakeholders’	‘Taking care of future generations’ (Werner & Mertz)(Dekker Duurzaam) – ‘Taking care of stakeholders on multiple societal levels’ (Mondial Movers)
‘Supervising strategic goal achievement’	‘Board monitors all value creation processes’ (van Werven BV) – ‘Senior team owning exploration vs exploitation strategy’ (Timmerhuis Groep) - ‘Senior team owning exploration vs exploitation strategy’ (Werner & Mertz) – ‘Senior team owning exploration vs exploitation strategy’ (Revamo BV) – ‘Senior team owning exploration vs exploitation strategy’ (Mondial Movers) – ‘Senior team owning exploration vs exploitation strategy’ (Hexta BV) – ‘Senior team owning exploration vs exploitation strategy’ (Dekker Durzaam). ‘Novelty in

	senior team owning exploration vs exploitation strategy' (Herso Meubelmakerij) – 'Single person management creating exploration vs exploitation strategy' (Weggeefwinkel Zeist) – 'Single person management creating exploration vs exploitation strategy' (PrintAgora).
'Multiple value creation as a condition for CBM investments'	'Financial value creation over ecological value creation' (Timmerhuis Groep)(Revamo BV)(van Werven BV)(PrintAgora)(Mondial Movers)(Hexta BV)(Dekker Duurzaam) - 'CBM addressed ecological intent, linear BM addresses financial intent' (Werner & Mertz) – 'External (linear) stakeholders focus on financial value creation, internal organization focuses on ecological value creation' (Herso Meubelmakerij) -
'Facing external tensions'	'External tensions --> Linear societal values oppose organizational circular values' (Werner & Mertz)(Herso Meubelmakerij)(Weggeefwinkel Zeist)(van Werven BV)(PrintAgora)(Dekker Duurzaam)
'Facing internal tensions'	'Internal tensions --> Traditional linear organizational values oppose new circular values' (Mondial Movers)(Hexta BV)(Revamo BV)
'Gradual growth in CBM investments'	'Investing in circular alternatives for linear main productions process' (Werner & Mertz) – 'Dare to invest in novel CBM ideas' (Herso Meubelmakerij) – 'Sparring with external stakeholders to create better mutual understanding' (Weggeefwinkel Zeist) – 'Connecting circularity and linearity in a supporting and receiving relationship' (van Werven BV) – 'Gradual shift in organizational values and visions from linearity to circularity' (Revamo BV) 'Working towards gradual shift in organizational values and visions towards circularity' (Hexta BV). 'Keeping investments within the financial reach of the organization' (PrintAgora)

Table 5: Construction of clusters along corresponding categorizations.

