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DYNAMIC CAPABILITIES AND THEIR MICROFOUNDATIONS IN THE GROWTH OF BORN CIRCULAR FIRMS

A case study of Finnish born circular firms

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ABSTRACT

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In view of the global environmental and climate challenges facing our society, a linear economic system is no longer sustainable. New resources are constantly being used for products, and their production, use, and disposal generate tons of waste. The alternative is a circular economy in which renewable raw materials are used and resources are used efficiently, with the aim of achieving a closed material cycle. Companies have a particularly important role to play in the transition to a circular economy by developing processes, products, and technologies that are based on the principles of avoiding waste and pollution and reusing materials for as long as possible.

Despite a growing interest in the circular economy, researchers have mainly focused on companies that are transitioning from a linear to a circular business model. Companies that have been founded on the principles of the circular economy from the outset, so-called born circular companies, have been largely ignored. One branch of literature follows theories of business growth, demonstrating that the implementation of circular principles can lead to cost reductions, access to new target groups, and a greater competitive advantage. Other studies are based on theories of dynamic capabilities, claiming that companies need to develop certain capabilities to sense opportunities in the circular economy, seize them, and constantly reconfigure their resources. In order to close the gap on dynamic capabilities in the business growth of born circular firms, this study examines the following main research question: *"What are the key dynamic capabilities that enable Finnish born circular firms to achieve business growth?"*.

To answer this question, qualitative case studies were conducted with Finnish born circular companies. In seven semi-structured interviews with company representatives, the growth path of the respective organization was discussed, using similar guiding questions in each of the interviews. Subsequently, all interview transcripts were organized into themes to conduct data analysis. This data analysis revealed the dynamic capabilities that helped the interviewed companies to grow their business. In addition, the microfoundations, referring to the internal actions and mechanisms that form the basis for the development of dynamic capabilities, were examined.

The findings of this study reveal specific dynamic capabilities that can be categorized as *sensing* threats and opportunities, *seizing* opportunities, and constantly *reconfiguring* resources. In addition, the results provide detailed insights into the microfoundations underlying these dynamic capabilities. Sensing capabilities include "market monitoring and external sensitivity", "customer analytics", and "regulatory intelligence". Born circular companies must recognize changes in their environment at an early stage, understand the demands of their customers, and stay informed about the legal framework in which they operate. Seizing capabilities include "financial resource acquisition", "talent acquisition and development", "strategic alliance building", and "brand management". Born circular companies need to secure a financial base, employ the right staff, collaborate with other stakeholders, and present their company and its products or services credibly. Reconfiguring capabilities were found to include "organizational flexibility", "agile resource allocation", and "leadership and change management". This means that born circular companies must constantly be able to adapt to new conditions, reallocate their limited resources accordingly, and apply a leadership style that can build trust to effectively communicate the necessary change.

Consequently, this study provides new insights into born circular companies and thus expands the knowledge of circular entrepreneurship. By combining theories of business growth and dynamic capabilities for the theoretical framework, it was demonstrated that these theories complement each other and provide an important approach to understanding the growth of born circular firms. Furthermore, managers of circular economy firms are provided with recommendations on which factors can be crucial for their business growth and how they can develop the necessary dynamic capabilities. At the same time, research limitations were unavoidable. These can be found in the narrow sample of seven cases from Finland, the fact that all of the interview participants are in leadership positions, and the application of theories on dynamic capabilities and business growth to establish a theoretical framework. Hence, future research is needed to study a larger amount of case firms, produce quantitative findings, and validate the applicability of theories on dynamic capabilities and business growth to study born circular companies.

Keywords: Dynamic capabilities, microfoundations, business growth, born circular firms, circular economy

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1. Introduction

1.1 Background

Since the beginning of industrialization, consumption, and production have been seen as something good that should be further promoted (Boulding, 1966). Today's economic model is still characterized by a fast and high throughput of raw materials and energy, which are cheap and easy to obtain. As a result, the Western world in particular benefits from rapid economic growth and the resulting prosperity, but this comes at a high price. In this linear model, raw materials are continuously consumed to produce products that are disposed of after use. In addition, the world's population continues to grow, further increasing the consumption of raw materials. Consequently, raw materials are becoming increasingly scarce, while at the same time, more and more waste is being produced. (Ellen MacArthur Foundation, 2015.)

Developing a sustainable solution requires a rethinking and restructuring of the economic model we are used to. In an alternative flow, the end-of-life concept is replaced by closed loops in which materials are recycled again and again. This approach goes beyond the recycling concept by including all measures aimed at closing the entire value chains and integrating renewable energy sources. A circular economy aims to use products and raw materials for as long as possible. Waste should be avoided by reusing and repairing existing products. If this is not possible, products should be broken down into their original materials in order to recycle them. In addition, new approaches aim to reduce consumption in general by sharing, exchanging, and using products together instead of buying them individually. However, in order to realize such concepts and innovative approaches and bring about the necessary change, a fundamental societal transformation needs to be implemented at national, European, and even global levels. Government and business leaders have a central role to play in envisioning a circular future and should be at the forefront of the mindset shift required across the economy. (Ellen MacArthur Foundation, 2015; van Buren et al., 2016.)

For companies, the CE can even represent an opportunity for a more profitable business by saving resources and thus reducing associated costs. Moreover, it improves the competitive advantage by appealing to target groups that are increasingly conscious of their impact on the environment. Circular business models (CBMs) are gaining more and more customer and market acceptance, as many consumers are rethinking their approach to a more sustainable lifestyle. Often, successful

companies are also those that can recognize a changing business environment early on and respond accordingly (Tan et al., 2022). In other words, "natural selection will likely favor the swift and agile players – able to quickly combine circularity with scale – that are best adapted to a planet transformed by humanity" (Ellen MacArthur Foundation et al., 2014, p. 23).

By embracing these promising future benefits and the need for alternative products and services, innovative entrepreneurs are causing circular entrepreneurship to become a new reality. Not only are a large number of companies willing to transform their business model but over the past few years, more and more new companies have been founded based on circular values. Compared to established companies, startups, in particular, have the advantage of being able to build their business on an innovative business model right from the start, "without constraints from existing organizational routines, capabilities and cultures" (Zucchella et al., 2019, p. 89). Founders of so-called born circular companies are motivated not only to achieve economic and financial goals but also to realize circular principles through innovative ideas and approaches (Zucchella et al., 2019).

However, despite the push to transition to a circular economy and the potential benefits for businesses, participating in the circular economy is by no means an easy undertaking. The circular economy represents an extremely complex and uncertain business environment, characterized by rapid technological shifts and market volatility. Companies that want to establish themselves in the circular economy must not only be able to respond to external conditions but also adapt their internal capabilities and resources accordingly. Ultimately, the ability to capture value and achieve business success in the circular economy depends on a wide range of internal capabilities (Hopkinson et al., 2018) and strategic relationships and cooperation with other stakeholders (Zucchella et al., 2019).

The ability of an organization to purposefully adjust its resource base to continually adapt to changing external circumstances and take advantage of new opportunities is based on so-called dynamic capabilities. It is indispensable for both large and small companies to build dynamic capabilities in order to achieve and maintain competitive advantage in an uncertain environment. (Teece et al., 1997.) This ultimately helps companies to achieve business growth targets. Born circular firms in particular can benefit from dynamic capabilities. In addition to the challenge of establishing themselves as a startup, they also have to develop and implement a circular business model. These efforts are supported by internal competencies and drivers such as leadership commitment, values, organizational culture, and communication. It is these internal strengths and

dynamics that enable born circular firms to overcome obstacles and grow their business. (von Kolpinski et al., 2022; Zucchella et al., 2019.)

Since born circular companies are a relatively new type of business, there is little literature to date on how they compete against traditional, established companies and drive the shift to a sustainable economic model. Specifically, the area of business growth of these types of firms is a relatively new and thus incomplete area of research. This gap in the literature will be addressed in this study.

Hereby, the focus is limited to born circular firms from Finland. Finland is particularly interesting as a country in this context, as it stands out with excellent performance in various international indices and reports on innovation, sustainability, and circular economy. For example, the European Innovation Scoreboard (EIS) 2023 (European Commission, 2023) ranks Finland among the top Innovation Leaders in the European Union, behind Denmark and Sweden. The EIS 2023 notes that Finland's strengths lie in collaboration between public and private actors, indicating a strong willingness to partner and share knowledge effectively. Small and medium-sized enterprises (SMEs) from Finland are particularly successful in collaborating with other actors to develop and implement innovative solutions. In addition, according to the EIS 2023, people in Finland possess digital skills above average, which helps to make the best use of digital technologies in the circular economy. (European Commission, 2023.) In the Sustainable Development Report 2023 (Sachs et al., 2023), Finland even ranks first in the SDG Index in 2023, followed by Sweden and Denmark. This underlines Finland's high commitment to the implementation of the United Nations Sustainable Development Goals (SDGs) and its efforts to promote the circular economy (Sachs et al., 2023).

Overall, Finland offers a promising environment for born circular companies due to its innovation power and commitment to sustainability. This study will take an in-depth look at the dynamic capabilities of Finnish born circular firms and explore how these companies can achieve their growth targets. Thereby, the research will identify concrete dynamic capabilities and their underlying building blocks, so-called microfoundations, for the development and application of dynamic capabilities. For this purpose, this paper is organized as follows. First, the detailed objectives of the research are presented along with the research question and its sub-questions. Then, the key concepts of the study topic are explained before a literature review of both traditional and circular approaches to business growth and dynamic capabilities is presented. This is followed by a presentation of the methods of data collection and analysis. Finally, the research findings and the resulting theoretical and practical implications are presented and discussed.

1.2 Research objective and questions

The aim of this study is to investigate the dynamic capabilities and their underlying microfoundations that support the growth of Finnish born circular companies. Qualitative case studies are conducted to explore how organizational resources and the resulting dynamic capabilities influence the competitiveness and scalability of companies founded on the idea of a circular economy. The focus is on the question of which dynamic capabilities have helped the case companies to grow their business and on which microfoundations these dynamic capabilities are based. The objective is not only to identify specific dynamic capabilities but also to create an understanding of how these dynamic capabilities are created and developed at an individual and organizational level.

Thus, the research question arising from this objective is:

> *What are the key dynamic capabilities that enable Finnish born circular firms to achieve business growth?*

This research question will be supported by the following sub-questions, based on the dynamic capabilities framework by Teece (2007):

1. *How do Finnish born circular firms sense opportunities and threats?*
2. *How do Finnish born circular firms seize opportunities?*
3. *How do Finnish born circular firms transform their resources and assets?*

Answering these questions not only contributes to the scientific discussion of circular entrepreneurship, business growth, and the potential benefits of Teece et al.'s (1997) concept of dynamic capabilities for born circular companies. It also contributes to the transfer of the concepts of dynamic capabilities and business growth into entrepreneurial practice. Entrepreneurs considering establishing a business based on circular economy principles can gain insight into possible prerequisites or beneficial dynamic capabilities for the competitiveness and scalability of a born circular firm. Born circular companies that are already operating are given an opportunity to learn from the experiences of the case companies in this study and analyze and improve their competitiveness and achieve growth targets.

1.3 Key concepts

Circular economy

The European Parliament (2022) defines circular economy as "a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible". The benefits of moving from a linear economy, dominated by production and consumption, to a circular economy in which materials remain in closed loops, affect the environment, the economy, and society alike. By extending the life cycle of products and reducing waste to a minimum, pressure on the environment can be reduced, raw material supply secured, competitiveness increased, innovation promoted, economic growth stimulated, and new jobs created.

Born circular firms

The concept of born circular firms has only recently appeared in the circular entrepreneurship literature, which itself is still a relatively new area of research. To date, the only scholars who have studied born circular firms in-depth and provided a definition are Zucchella et al. (2019). In their view, which is adopted in this study, born circular firms are "young ventures, which have been created to deliver circular value propositions and exploit circular economy opportunities" (Zucchella et al., 2019, p. 208). Thus, born circulars are designed to operate in a circular economy from the very beginning of their existence.

Born circular firms create economic as well as social and environmental value by closing resource loops. This is achieved through the design and management of products, services, and systems that allow for the continuous reuse of materials and resources. By operating in a circular manner, born circular firms aim to reduce their environmental impact and contribute to a more sustainable future. At the same time, they also often benefit from reduced costs and increased efficiency, as they are able to capture value from resources that would otherwise be discarded.

Business growth

Business growth is a phenomenon that has preoccupied scholars for decades. In particular, the interest in the growth of small firms has increased steadily in recent years. This has led to a fragmentation of knowledge about firm growth and the existence of various theories and perspectives on the subject (e.g. Dobbs et al., 2007; Wiklund et al., 2009). Dobbs et al. (2007, p. 313) provide a general definition of growth as "a change in size over any given time period".

In attempting to integrate various existing studies, the complexity and dynamic nature of the growth process becomes apparent. For instance, growth can be conceptualized in terms of size of assets and market share, number of employees, and volume of sales and revenue. Dobbs et al. (2007) note that among the many measures of firm growth, no single best measure can be identified. This is because different measures lead to different results. However, they suggest that employment and sales are generally the most appropriate means of measuring business growth because they are methodologically rather uncontroversial, and concrete data about employment and sales are relatively easy to access. Therefore, this study also views business growth as an increase in employment and sales.

Dynamic capabilities

The dynamic capabilities perspective was developed by Teece et al. (1997) to explain organizational performance in dynamic environments. More specifically, Teece et al. (1997, p. 516) define dynamic capabilities as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments". Here, the term "dynamic" refers to the ability of companies to continuously renew their competencies, which is fundamental to adapting to changing business environments. In this context, "capabilities" describes how strategic management plays a key role in meeting the demands of these changing environments. Moreover, Teece (2007) develops this theory further by introducing three categories of dynamic capabilities, namely *sensing*, *seizing*, and *reconfiguring* capabilities. This categorization provides a deeper understanding of how companies sense and respond to opportunities and threats in their environment and how they reorganize and adapt to keep pace with changing conditions.

Microfoundations

As a continuation and elaboration of the dynamic capabilities framework, Teece (2007) introduces the concept of microfoundations. He defines microfoundations as the fundamental, often elusive abilities, processes, and knowledge resources at both the individual and organizational levels that enable a company to identify, interpret, and respond appropriately to opportunities and threats in its business environment. These foundations include the competencies and activities of individuals within an organization as well as organizational processes.

At the individual level, microfoundations refer to the cognitive and creative skills of employees, and their ability to process information, interpret market trends, and generate innovative ideas. This includes the ability to gather and filter relevant information from various sources and to

respond flexibly to changes in the business environment. At the organizational level, microfoundations involve implementing processes and structures that enable the continuous search for external information, monitoring technological developments, capturing customer needs, and adapting to changing market realities. This requires an open corporate culture in which information flow and knowledge sharing are encouraged. Here, microfoundations are regarded as the cornerstone for the development and implementation of dynamic capabilities in a company. They enable the company to respond proactively to changes in its environment, develop innovative business models, and create long-term competitive advantages.

2. Literature review

This chapter presents a literature review that guides the objectives of this research. Existing literature on circularity, business growth, and dynamic capabilities is presented. The branches of literature on business growth and dynamic capabilities are organized into traditional literature and circular economy literature respectively. Based on the literature review, the theoretical framework of this study is established, which is explained at the end of this chapter.

2.1 Circularity

Although the concept of the circular economy has only gained increasing attention in recent years, the first approaches were developed decades ago. One of the first scientists to criticize the "open system" based on inputs and outputs was Boulding (1966), who envisioned a "space economy" as a model for the future. According to his theory, systems can be either open or closed and have inputs and outputs of matter, energy, and information. In an open system, as we are used to, material is input into the economy through production processes, and once these products leave the economy, their value is zero. However, he points out that input sources such as fossil fuels for energy are exhaustible. For this reason, Boulding (1966) argues for a closed-system future in which humanity takes its place in an ecological cycle in which all outputs of consumption are continuously recycled and become inputs to production once again.

If the problems of the linear economic system seemed remote at the time Boulding's circular economy approach was published, they are more present today than ever. While the world's population continues to grow and the demand for raw materials increases, the supply of raw materials is running out. According to the European Parliament (2022), some EU countries are already dependent on other countries to supply them with enough raw materials. Furthermore, they emphasize that it is not only the demand for raw materials that is a problem, but also their use, which has a serious impact on the environment due to increased energy consumption and carbon dioxide (CO2) emissions.

Findings of a report by the Ellen MacArthur Foundation et al. (2015) have shown that in Europe, material recycling and energy recovery from waste currently yield only five percent of the original raw material value. Just for the mobility, food, and built environment sectors, the production and use of products and resources cost Europe a total of 7.2 trillion euros annually. Advances in technology and alternative business models could help reshape the European economic model to

improve resource productivity and reduce costs by 0.9 trillion euros in these three sectors alone by 2030.

It is therefore not without reason that for years there have been increasing calls for the success of the economy to no longer be measured by throughput and for companies to no longer be compared by profit. However, despite the growing interest in the circular economy as an object of research and the increasing drive to implement the concept, it is striking that there is as yet no uniform definition of the circular economy that could provide a harmonized view. A study by Kirchherr et al. (2017), in which 148 articles mentioning the term "circular economy" were analyzed, shows that only 114 of these articles contained a definition of the term and that there are a total of 95 different definitions. Although the most common definition comes from the Ellen MacArthur Foundation (2012), according to Kirchherr et al. (2017) this does not cover all aspects of the circular economy. They emphasize the need for a clear definition and conceptualization of the circular economy for the progress of research in order to avoid misunderstandings and confusion. A comprehensive definition should therefore include elements such as concepts that seek to create closed cycles, a systemic perspective, environmental quality, economic prosperity, and social justice.

The fact that a uniform understanding of the circular economy is crucial, especially for the implementation of this concept, becomes clear when considering its complexity. The circular economy focuses not only on environmental, but also economic and social aspects, and without a holistic understanding, there is a risk that problems will simply be shifted from one area to another. Zucchella et al. (2019) therefore argue that the much-needed paradigm shift in which the circular economy becomes a new reality requires a holistic approach in which economic and business systems need to be rethought and restructured. Proponents of the circular economy (see Ellen MacArthur Foundation et al., 2014; Millette et al., 2020; van Buren et al., 2016; Zucchella et al., 2019) clearly express that the transition from a linear economy to a sustainable economy requires active collaboration among business leaders, governments, consumers, and other stakeholders. The circular economy is inclusive and collaborative in nature, so a successful transformation requires a collaborative mindset and trust among all economic actors, nongovernmental organizations (NGOs), policymakers, and consumers.

Businesses in particular can act as a driving force, as they are the core of the economy. On the one hand, they are in a position to shape the way in which resources are used more sustainably; on the other hand, they can also influence consumer behavior. (Ellen MacArthur et al., 2014.) In

Zucchella et al.'s view (2019), the application of circular principles alone can be seen as part of a solution to achieving global sustainable development. Millette et al. (2020), on the other hand, argue that the transition from a linear to a circular economic model requires innovation and a fundamental shift in thinking.

The Ellen MacArthur Foundation et al. (2014) claim that the circular economy is proving to be ideal terrain for innovative entrepreneurs as innovative products and services are substantial to closing the loop of the flow of resources. At the moment, new circular business models and technologies may appear to have little impact and largely serve niche markets, but Ellen MacArthur Foundation et al. (2014) believe that these business models will gain increasing competitive advantage over the next 15 years. As competition for resources becomes fiercer as the world's population increases, those models that are able to best combine specialized knowledge and cross-sector collaboration will be favored. This is the condition for creating the greatest value per unit of resource, which will ultimately prevail over linear models designed for ever more resource extraction and throughput. "Natural selection will likely favour the swift and agile players – able to quickly combine circularity with scale – that are best adapted to a planet transformed by humanity" (Ellen MacArthur Foundation et al., 2014, p. 23).

Thus, the circular economy is now no longer an opportunity for companies to develop new businesses, but a must for corporate sustainability and the preservation of the planet. Zucchella et al. (2019) assert that circular entrepreneurship has become an emerging reality in which entrepreneurs have come to understand that resources must be made available through novel organizational, technological, and biological developments. They also confirm that while radical innovation is needed to make the circular economy a reality, entrepreneurs must make a profit and create value for their stakeholders to account for their efforts. Business model innovation is therefore essential for circular entrepreneurship. Zucchella et al. (2019) note that different scholars provide different definitions for circular business models and their components in the literature and, that also in reality, the adoption of circular principles leads to different circular business models. In general, Zucchella et al. (2019) hold that different business model strategies aim to either close or slow down resource loops.

In a multiple-case analysis of business models, Ranta et al. (2018) concluded that cost efficiency is the most important factor for a successful circular economy business. Accordingly, the cost factor is also decisive in the choice of business model, which in turn determines the way in which value is created. The analysis shows that at current conditions, the acquisition of certain wastes as

resources is easier and more cost-effective to implement than the reduction or reuse of resources. This makes recycling easier to integrate into a linear business model, as it merely replaces new materials with recycled materials without significantly affecting the fundamentals of the business model. (Ranta et al., 2018.) Recycling is one of the circular economy's concepts, however, it will not be sufficient to address current environmental concerns. This is because recycling begins at the end of a product's life cycle, but the circular economy's primary purpose is to eliminate waste and pollution in the first place. Recycling still relies on raw materials and waste in the form of leftover materials, whereas the circular economy seeks to entirely close loops. (van Buren, 2016).

Zucchella et al. (2019) add to the discussion of circular business models that there is a difference between transforming existing models and creating new ones. For circular ventures, they essentially distinguish between so-called “born circular ventures” and the “growing circular ventures”. The difference lies in the starting position of the company types. While born circular companies were built on the principles of circular economy from the beginning, growing circular companies are in a transformation towards a circular approach. Growing circulars are typically large, established companies whose organizational structures and routines have been in place for a long time. Zucchella et al. (2019) see the existing ways of working as the biggest challenge for growing circular firms, as the transition to closed resource loops can become a highly complex undertaking if said enterprise has multiple businesses, functions, and locations. Born circular companies enjoy the advantage of building their business on an innovative business model right from the start and shaping the corporate culture on circular approaches. More specifically, born circular firms differ from traditional businesses in that they prioritize sustainability and resource conservation in all aspects of their operations. This can involve using renewable resources and recycled materials, designing products for reuse or repair, and implementing closed-loop systems that capture and recycle materials. Born circular firms also typically adopt business models that incentivize the reuse of resources and minimize waste, such as through product-as-a-service models or shared economy platforms.

Furthermore, it is important to note that born circular firms are not the same as born sustainable firms. Although they are similar in that both types of companies prioritize sustainability in their operations and business model, there are some key differences between the two. According to Knoppen et al. (2022), born sustainable firms are companies that were founded with the specific goal of being environmentally and socially responsible from the start. These firms prioritize sustainability by “[addressing] environmental and social needs before economic gains” (Knoppen

et al., 2022, p. 1790). They may also seek to have a positive impact on the local community and society as a whole.

Born circular firms, on the other hand, are companies that have a business model that is based on the principles of the circular economy, as described above. They strive to design products and services that can be reused, recycled, or repurposed, to minimize their environmental impact by reducing waste and conserving resources (Zucchella et al., 2019). While both types of firms aim to positively impact both the environment and society, significant differences can be observed based on their approaches and strategies for achieving this goal. (Knoppen et al., 2022; Zucchella et al., 2019.)

In most cases, born circular firms are startups founded only a few years ago, following the growing demand for a circular economy. Zucchella et al. (2019) see the greatest advantage of startups in their ability to build their business model from the ground up on a circular economy and not need to transform an existing model. However, these small companies are disadvantaged in that they often lack financial resources and relevance. For Zucchella et al. (2019), this aspect highlights the importance of collaboration between different actors in the circular economy and the development of relationships outside the company. However, in addition to collaborations and networks, Zucchella et al. (2019) refer to the interorganizational level, arguing that internal factors are key to the success of circular enterprises. Accordingly, the individual level is based on entrepreneurial and organizational resources and capabilities, and it is crucial to capitalize on circular economy opportunities (Zucchella et al., 2019).

Despite all the urgency for a more sustainable economic model and the prospects of having found the ideal solution in the circular economy, there is also criticism of it. It starts with the fact that no single definition of circular economy can be found. According to Corvellec et al. (2022), myriad definitions have been established, resulting in circularity meaning different things to different people. However, underlying all definitions is the fundamental idea of delinking natural resource extraction and economic output (Corvellec et al., 2022).

Here, however, Corvellec et al. (2022) note the next point of criticism. The concept of keeping raw materials and materials infinitely in the cycle, i.e., making used products the starting point for new products and processes after their use, ignores established knowledge. In purely physical terms, the unlimited use of resources is not compatible with the laws of thermodynamics. Materials lose quality and quantity over time or simply become unusable. Hence, adding resources to the cycle is inevitable. At this point, Corvellec et al. (2022) also emphasize the creation of waste and

emissions involved in this context. Materials simply cannot be reused indefinitely, as their reusability becomes limited over time, which can result in the need for new raw materials. Furthermore, not all materials are inherently recyclable or require too much energy to be made reusable in a way that is economically or environmentally viable. (Corvellec et al., 2022.)

Apart from this, extending the use of materials and products does not fully address the causes of resource depletion and environmental degradation. An important element in the economy are consumers, whose consumption patterns and demand determine which products can compete in the marketplace. While the circular economy seeks to reduce waste and promote resource efficiency, Corvellec et al. (2022) find that it does not address excessive resource use or unsustainable production and consumption patterns.

Instead, manufacturers are brought into focus for driving a transformation to a circular economy. The implementation of the circular economy is another issue that Corvellec et al. (2022) criticize. Despite the fact that circularity is not a new concept and is so highly praised, its implementation has so far been vague. Corvellec et al. (2022) conclude that while there are many different circular business models, individual organizations usually apply circular practices to only a part of their business activities. Moreover, the development of circular business models is subject to many barriers that can be technical, economic, financial, regulatory, organizational, or cultural in nature (Corvellec et al., 2022; Geissdoerfer et al., 2022).

Even advocates of the circular economy, such as Zucchella et al. (2019) and Ranta et al. (2018), acknowledge that it does have certain limitations and that the implementation of a circular economic model presents considerable challenges. For example, Zucchella et al. (2019) point out that the market economy is in reality a highly competitive field, contested by more or less powerful actors, in which circular ventures have to claim and maintain their place just like other businesses. Any form of enterprise is always subject to the dictates of financial markets, political decisions, and the regulatory landscape. Moreover, Ranta et al. (2018) highlight that even in the circular economy, companies need to create not only environmental but also economic value. Any decision, such as the choice of business model or product and service design is always based on the motivation to achieve economic benefit in the form of profit (Ranta et al., 2018). What distinguishes circular entrepreneurs from others is the will to move beyond the purely economic value of their business activity and incorporate environmental and social values (Ranta et al., 2018; Zucchella et al., 2019).

The Ellen MacArthur Foundation (n.d.-a) adds to this that it is not about being completely circular. In their view, the transition to a circular economy is advanced by the combined efforts of companies that implement circularity through one or more circular principles. In addition, they emphasize that while many businesses are currently part of the problem, they are also a crucial part of the solution. This solution includes startups and small, seemingly impactless companies. As mentioned earlier by Zucchella et al. (2019), startups are usually not yet in a strong financial position, but with their visionary views and innovative mindsets, they add to the disruption that is needed for a transformation to a circular economy. Zucchella et al. (2019) contend that transformational leadership is one of the most important internal factors in the success and growth of circular ventures. In a startup, transformational leadership can inspire people and attract talent and resources that can make the goals of a circular startup a reality.

In general, Zucchella et al. (2019) attribute both challenges and opportunities for the expansion of circular firms to both internal and external factors. In addition to leadership, they consider resources and capabilities to be internal conditions. External conditions are the particular context in which companies find themselves and the extent to which that context enables circular entrepreneurship. Advantageous characteristics of the external environment can include market readiness, the presence of appropriate technologies to support the business model, R&D initiatives and programs supporting circularity, and appropriate technology transfer systems.

According to Zucchella et al. (2019), the growth of the circular economy and companies operating within it will also be achieved greatly through the creation of regulations that effectively discourage unsustainable behaviors and activities and support sustainable practices. Both Ranta et al. (2018) and Zucchella et al. (2019) urge policymakers therefore to find ways to promote value creation based on reduce and reuse principles. Regulations can limit unsustainable production and consumption on the one hand, while contributing to the transition to a circular economy and the realization of its full potential. In this way, circular entrepreneurs can be encouraged to pursue innovations to keep materials in circulation without the risk of losing business.

2.2 Business growth

2.2.1 Business growth in traditional literature

The topic of business growth has been of interest to many economists from early on and was significantly influenced by Edith Penrose and her book “The Theory of the Growth of the Firm”,

originally published in 1959. Penrose's growth theory focuses on the development of corporate knowledge, thereby understanding the firm as a bundle of resources: “It is at the organization as a whole that we must look to discover the reasons for its growth” (Penrose et al., 2009, p. 6). Penrose considers the continuous growth of a company as a constant extension of productive activities, where the mere performance of different activities leads to the creation of new knowledge over time. (Penrose et al., 2009.)

One core assumption of this theory is that knowledge determines which outputs can be unleashed by resources. A company not only produces but also learns over time, with team collaboration being of particular value in the accumulation of internal knowledge. In this process, common, company-specific knowledge is created. Accordingly, business growth is not simply a matter of increasing the size of the company, but a complex process of acquiring new resources, skills, and knowledge that enable the company to take advantage of new opportunities for growth. Penrose even argues that firm size is only a by-product of growth. Thus, the size of a company is not necessarily a constraint to the pursuit of growth. Instead, it is the existing resources and capabilities of a company that can limit its growth potential. Management must make strategic decisions about how to maintain knowledge growth within the company, on the one hand, and how to deploy resources to take advantage of opportunities, on the other. (Penrose et al., 2009.)

This view, which has provided the basis for other theories such as the Resource-Based View, is also advocated by Wiklund et al. (2009). Similar to Penrose, they see small business growth as a dynamic process of acquiring and using resources. Resources they see as critical to small business growth are financial-, human-, social-, and knowledge-based. However, it is also emphasized that focusing on resources is far from sufficient and that the effective use of these resources, in particular, plays a key role in achieving business goals. Moreover, the continuity of growth is closely linked to the acquisition of new tangible and intangible resources. (Chaston et al., 1997; Penrose et al., 2009; Wiklund et al., 2009.)

Following this, Audretsch et al. (2007, p. 82) argue that “those firms that learn the most will enjoy the greatest growth” and suggest that business performance increases in locations with better access to knowledge resources. This is especially true for knowledge-intensive and technology-oriented companies, but other firms can also generally benefit from the presence of highly qualified workers. With respect to young companies, Audretsch et al. (2007) claim that those companies that actively invest in learning by hiring a high proportion of skilled workers exhibit faster growth.

Penrose et al. (2009) and Wiklund et al. (2009) also shed more light on the external environment, as they share the view that internal factors alone do not influence a company's growth. Penrose et al. (2009) emphasize that the external environment of a company is on the one hand characterized by constant change, but on the other hand, it can continually present new opportunities for company growth. As an example, they mention technological developments and changes in consumer preferences. Chaston et al. (1997) and Wiklund et al. (2009) take this argument further and define environmental factors as the competitive landscape and market conditions, economic factors, technological advances, and the regulatory environment.

Building on this, other scholars have looked more at measuring business growth. Thereby, Dobbs et al. (2007) criticize the fact that knowledge about business growth is limited and fragmented. For this reason, it is also difficult to develop practical tools that can help companies to grow. In general, however, Dobbs et al. (2007) recommend looking at business growth in terms of sales growth, employee growth, or market expansion, as these indicators can usually be obtained from measurable data. However, other researchers choose a different angle to observe the growth of companies. For instance, Baum et al. (2001) suggest that business growth can be divided into four dimensions. These dimensions are size, profitability, organizational complexity, and organizational age. Size can be measured by sales, number of employees, and market share, and is increased by expanding the market, acquiring new customers, or diversifying product offerings, among other factors. Similarly, Coad (2010) identifies employment growth, sales growth, profit growth, and labor productivity growth as specific factors that influence business growth. Furthermore, he argues that all these factors are interdependent and coevolve over time. According to his findings, employment growth precedes sales growth, which is subsequently related to profit growth. Thus, changes in one factor can have a positive impact on another factor and ultimately lead to business growth. However, this effect does not occur immediately, a fact that Coad (2010) recommends management keep in mind when making strategic decisions.

Baum et al. (2001) also go into detail about the influence of different factors on the growth of a company and argue that both direct and indirect effects can be observed. Direct effects refer to immediate impacts of a specific factor, such as specific competencies. The authors suggest that industry-specific competencies of an entrepreneur can provide firms with an important advantage in the form of expert power, which can facilitate the implementation of strategies and thus have a direct positive effect on firm growth. Indirect effects, on the other hand, are the influence of factors that do not directly affect the growth of a company but enable it to realize growth opportunities.

These include motivation, for example, which affects the company's performance, and can help the company take advantage of opportunities when they arise. (Baum et al., 2001.)

Penrose et al. (2009) explain that in practice, demand for new products or services can be a major opportunity for firms that possess the resources to meet that demand. At the same time, however, the external environment can constrain a firm's growth potential through competition, regulatory constraints, or resource scarcity. This is another reason why Penrose et al. (2009) and Wiklund et al. (2009) rely on the role of management in a firm's growth process. Penrose et al. (2009) believe that the willingness of the management to take risks and invest in new opportunities is critical to a firm's growth. This requires the general ability to recognize the constant changes in the external environment and adapt the company accordingly. This ability is ultimately critical to the growth and success of any business. To achieve this, companies must be flexible and continually invest in developing their resources and capabilities. (Penrose et al., 2009; Wiklund et al., 2009.)

The capabilities aspect is taken up and further analyzed by Chaston et al. (1997). In their view, core capabilities are the unique skills, knowledge, and resources a company possesses that make it successful in the marketplace (Chaston et al., 1997). First of all, Chaston et al.'s study (1997) concludes that companies with a higher level of core capabilities also have higher growth potential. Specifically identified core capabilities whose improvement can have a positive influence on business growth are "employee productivity, product performance, innovation, quality control, and employee development" (Chaston et al., 1997, p. 55). According to Chaston et al. (1997), improvement in these areas can make an important contribution to enhancing business performance. However, this requires a balanced approach, as placing excessive emphasis on a single one of these capability dimensions can have the effect of unbalancing internal capabilities and, in the worst case, lead to a negative impact on the company's future performance. Their advice for effective growth management is thus to develop all critical aspects of the operation equally but to consider the current revenue position and growth rate in planning the performance improvement program. (Chaston et al., 1997.)

Similar to Penrose and other resource-based scholars, Pitelis et al. (2009) place the role of internal resources and capabilities as the essence of the firm and thus at the center of all business operations. They perceive the concept of capabilities as an explanation for growth, scope, as well as limitations of companies, and claim that dynamic capabilities are a key driver of enterprise performance and sustainable competitive advantage, and therefore can be seen as an important part of the reason why firms are established in the first place. At the same time, however, Pitelis et al.

(2009) criticize the fact that previous research did not analyze how companies can use these resources and capabilities to achieve sustainable competitive advantage.

2.2.2 Business growth in the circular economy

Despite the fact that the circular economy is still a comparatively new topic, many researchers have already chosen approaches that examine business management in the circular economy. In this section, approaches to business growth for companies that operate in the circular economy are presented. Table 1 provides an overview of the various pieces of research in this context.

Table 1. Overview of the literature on business growth in the circular economy

Authors	Summary points	Themes	Implications for business growth in the circular economy
Demirel et al., 2019	- Discussing the concepts of circular economy and Environmental Innovation (EI). - Demonstrating that green entrepreneurs have the capacity to profoundly impact markets. - Highlighting the financial limitations that SMEs, particularly green SMEs, encounter.	- SMEs in the circular economy - Environmental innovation (EI) - Financial constraints of SMEs within the circular economy	- Firms should **prioritize eco-design** to benefit from cost savings, increased revenue through meeting green consumer demand, and improved competitiveness. - Firms should **be aware of the relatively high investment threshold** for growth returns. Accessing financial resources, including alternative financing options is essential. - Traditional forms of external funding may not be as impactful for SME growth in the circular economy. Firms should **explore alternative sources of finance**, particularly venture capital and angel funding.
Horbach et al., 2020	- Demonstrating the interconnectedness of circular economy innovations, firm growth, and performance. - Discussing policy implications for encouraging circular economy approaches.	- Circular economy innovations and firm performance - Policy implications of promoting circular approaches	- Firms that adopt circular practices are likely to experience growth in sales and employment. Hence, firms should actively **embrace circular economy innovations** as a strategic approach for fostering growth. - Firms should actively **engage with policymakers and advocate for regulations that promote circular practices** in order to create a supportive environment for businesses to grow within the circular economy. - Firms should **invest in initiatives that enhance consumer awareness** and align their products with circular principles to stimulate demand and support growth.
Leoncini et al., 2019	- Exploring the impact of green technologies on firm growth. - Demonstrating that older firms benefit more from green technologies than younger startups. - Emphasizing that investments in both tangible and intangible innovation significantly contribute to firm growth.	- Impact of green technologies on firm growth - Role of firm age in growth - Investments in innovation for growth	- Firms should strategically **integrate eco-friendly practices** to experience a "win-win" scenario by driving growth while promoting environmental sustainability. - Firms should **tailor innovation strategies based on their age** to leverage respective strengths to drive growth effectively. - Firms should **prioritize investments in innovation** across tangible and intangible assets to foster growth within the circular economy.
Zucchella et al., 2019, chapter 4 and 6	- Circular economy provides entrepreneurial opportunities for addressing environmental challenges. - Exploitation of circular opportunities involves setting up organizations and collaborations. - Corporate governance influences environmental performance and green innovation. - Circular entrepreneurship involves processes from opportunity exploration to exploitation, emphasizing the need for an enabling environment.	- Circular entrepreneurship framework - Entrepreneurial creativity and opportunity formation - Exploitation of opportunities and innovation	- Circular entrepreneurship involves **identifying and creatively interpreting opportunities,** addressing environmental challenges through innovative solutions. - Exploiting circular opportunities requires **collaboration, ecosystem development, and resource pooling**, often involving partnerships with various organizations, including public and non-profit entities. - Successfully exploiting circular opportunities may involve **financial innovation, such as green bonds, and governance mechanisms**, which are crucial for sustainable growth in circular firms.

With regard to the growth of circular enterprises, scholars agree that the interaction of various internal and external factors is the key driver (Demirel et al., 2019; Horbach et al., 2020; Zucchella et al., 2019). Due to the transformative nature of companies guided by circular economy principles, innovation occupies a central theme in much circular business research. Horbach et al. (2020) assert that circular economy innovations can affect firm growth in different ways. On the one hand, technological advances can lead to cost reductions in the long term by reducing energy and material consumption, enabling the use of renewable energy sources or recycling waste. These savings in turn enable companies to lower their product prices and thus increase demand for and acceptance of their products. In addition, new circular products can provide first-mover advantages that increase the competitiveness of the innovating company. Furthermore, this effect can be enhanced if consumers are willing to pay more for products with added ecological value. Such product features are often signaled by companies through certifications or eco-labels. (Horbach et al., 2020.)

Leoncini et al. (2019) also find that patents on green technologies make a positive contribution to company growth, which can be seen as a clear win-win situation for business and the environment. They include intellectual property such as patents and trademarks among intangible investments that companies need to make in order to drive business growth. Other non-physical assets include investments in research and development, brand development, human capital, and organizational capabilities. In addition, Leoncini et al. (2019) report physical investments such as the acquisition of buildings, machinery, or equipment as prerequisites for firm growth. These physical investments contribute to a firm's growth by increasing its production capacity, operational efficiency, or market presence. In general, intangible and tangible investments can lead to technological advances and innovations that help firms gain a competitive advantage and promote growth. (Leoncini et al., 2019).

One form of innovation in the context of sustainability promotion is Environmental Innovation (EI). According to Demirel et al. (2019), EI focuses on both business opportunity creation and environmental benefits through innovation. Accordingly, EI has the potential to reduce the environmental impact of the firm, lower its costs, and generally increase the market share of environmentally friendly products. Demirel et al. (2019) claim that circular economy investments are usually focused on two areas, namely ecodesign and clean production. Ecodesign is about using environmentally friendly materials or creating new product categories, while clean production focuses on improving eco-efficiency by reducing material and energy consumption in manufacturing processes. In their study, Demirel et al. (2019) identify that ecodesign in particular can have a positive impact on SMEs' business growth. This is attributed to energy- and material-

related cost savings, increased revenues from meeting green consumer demand, and improved business competitiveness.

However, the results also show that only investments that account for more than 10% of sales in circular EI are likely to result in growth gains for SMEs. In other words, this means that SMEs need to invest a significant amount of their resources in the circular economy to achieve growth benefits. Demirel et al. (2019) also point out that the impact of innovations on business growth depends on various factors and that innovations do not guarantee faster business growth. Similarly, Horbach et al. (2020) describe that implementing circular economy innovations can lead to higher costs in the short term due to the need for additional equipment or organizational changes and warn that this can lead to a U-shaped performance effect over time.

In general, lack of access to finance is seen as one of the main barriers to circular economy innovation, especially in young companies. Leoncini et al. (2019) consider the role of firm age on the growth of firms investing in green technology development. They find that older firms are in a better position to translate eco-innovations into growth. Leoncini et al. (2019) suggest that this is because older firms are better at assessing market viability, accessing finance, and renewing their capital in environmentally sustainable ways. Younger companies, on the other hand, often face barriers such as limited resources, the lack of established networks, and the greater uncertainty and risk associated with bringing innovative green technologies to market. Without an established reputation and credit relationships, younger firms have a harder time obtaining funding for their innovations.

In this context, Demirel et al. (2019) highlight the role of alternative sources of finance in promoting SME growth in the circular economy. Not only is it difficult for young companies to obtain external financing such as bank loans and government funds, this form of external financing also does not have a positive impact on SME growth. In contrast, alternative sources of financing, especially venture capital and angel funding, are considered to be conducive to SME growth.

Other external as well as internal barriers can be attributed to the low priority given to environmental issues and the resulting lack of a supportive regulatory framework, the lack of customer perception of benefits, and the low technological competence of young companies (Demirel et al., 2019; Zucchella et al., 2019). Regulations and policies can have a significant impact on the growth of circular entrepreneurship, so a favorable regulatory context is critical for circular enterprises. Zucchella et al. (2019, p. 186) contend that “the growth of the circular economy and circular entrepreneurship also relies on an ‘entrepreneurial state’”. Some regulations

favor linear, resource-intensive models, making it difficult for circular businesses to operate effectively. Inconsistent or unclear regulations related to waste management, recycling, and product standards can create further barriers and increase compliance costs for circular businesses. What is needed, in contrast, are supportive regulations and frameworks that reduce barriers to entry, encourage the adoption of circular innovations, and provide a clear roadmap for the transition to sustainability. (Demirel et al., 2019; Zucchella et al., 2019.) According to Horbach et al. (2020), such measures may include requirements for longer product life, improved reparability, and recyclability, or continuous increases in energy and material efficiency. Likewise, public funding, research programs, and technology transfer systems play a role in creating an environment that supports circular initiatives (Demirel et al., 2019; Zucchella et al., 2019), as governments can create a win-win situation by promoting ideas and innovations that are in line with the principles of a circular economy. However, this requires that there is a demand and willingness among consumers to purchase circular economy-based products. Lack of awareness, education, and consumer willingness to adopt sustainable consumption patterns limit the demand for circular-based solutions and thus can negatively impact the growth potential of circular entrepreneurship. Accordingly, combining circular economy-oriented regulation with measures to inform users about the long-term benefits of transitioning to a circular economy is critical. (Demirel et al., 2019; Horbach et al., 2020.)

The responsibility for educating and informing consumers about circular economy values and principles and their importance for the future also lies heavily with the companies themselves. Zucchella et al. (2019) emphasize that circular economy firms benefit from market readiness and acceptance of their products and services, and that new opportunities for growth open up as consumer awareness and demand for sustainable and circular solutions increases. Educating consumers and creating compelling value propositions that meet customer needs and preferences are thus critical to the business growth of circular companies.

Another step to overcome regulatory barriers in the circular economy is to form partnerships and collaborations. According to Zucchella et al. (2019), collaborating with other organizations and stakeholders helps circular businesses overcome regulatory challenges and can even play a role in fostering a more favorable regulatory environment for circular entrepreneurship. In addition, networks and collaborations within the circular economy enable companies to share expertise, access complementary resources, and jointly drive circular economy innovations (Demirel et al., 2019; Zucchella et al., 2019). Zucchella et al. (2019, p. 20) argue that “by its very essence, the

circular economy is collaborative, built on partnerships" and that "circular ventures cannot operate effectively as stand-alone organizations" (Zucchella et al., 2019, p. 183). However, Zucchella et al. (2019) also point out that building and maintaining effective partnerships can be perceived as a challenge, especially in industries where the circular economy is not yet widespread. In their view, finding the right partners and developing mutually beneficial relationships can even be a barrier to growth.

To mitigate this risk and maximize the impact of collaborations, effective leadership plays a key role. Zucchella et al. (2019) assert that managing collaborations for the circular economy depends on a clear and compelling vision for joint effort. The purpose and goals of the collaboration need to be jointly articulated and beneficial for all stakeholders involved. To do this, leaders must first identify the right partners based on expertise, resources, and shared values. In addition, potential collaboration partners must be assessed based on their commitment to the shared vision and their ability to contribute meaningfully to the goals of the collaboration. Zucchella et al. (2019) point out that different stakeholders involved may have different interests and priorities, and finding common ground is part of effective leadership.

Further, leadership plays a critical role in building trust among all stakeholders. This applies not only to external stakeholders but especially internally to their own employees. "A transformational leadership capable of developing and communicating effectively a compelling vision also helps in attracting new talent" (Zucchella et al., 2019, p. 179), and attracting talent is critical to circular entrepreneurship. Skilled employees can drive innovation, facilitate the implementation and launch of circular services and products, attract investors and partners, and enhance brand image. Leaders must have the ability to build a culture of trust and collaboration, motivate employees, and empower individuals within the organization. (Zucchella et al., 2019.)

However, in the context of business growth in the circular economy, it is clear that the number of employees in a company need not be an explicit measure of positive growth. Although employee growth is often seen as a factor or dimension in research on general business growth (see Baum et al., 2001; Coad, 2010), Horbach et al. (2020) provide counterarguments to this hypothesis. In their study, they shed light on the relationship between circular economy innovations and employment and find that employment effects can vary depending on the type of circular activity. On the one hand, circular economy innovations may require more specialized and skilled employees or increase the demand for new employees to be able to expand production. On the other hand,

circular economy innovations may reduce worker demand if they increase labor productivity or if sales volumes fall due to extended product life.

2.3 Dynamic capabilities

2.3.1 Dynamic capabilities in traditional literature

It was recognized early in the literature that unique resources can be a noteworthy advantage for the competitiveness of companies, and academic approaches such as the Resource-Based View of the firm (Barney, 1991) emerged. However, according to Teece et al. (1997), it remained unclear how firms acquire new resources and develop them over time in changing environments. To fill this knowledge gap, the dynamic capabilities theory was developed in the early 1990s. Teece et al. (1997) introduced the first framework and precise definition to better illuminate how a firm's resource base and its external environment change and adapt.

According to Teece et al.'s (1997) definition, dynamic capabilities are "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece et al., 1997, p. 516). The fundamental idea of Teece et al.'s (1997) dynamic capabilities framework is that the competitive advantages of a company are based on its organizational processes. These, in turn, are shaped by the existing assets that the company possesses and the paths it takes. Assets may include technology, intellectual property, the customer base, and relationships with suppliers and other partners. Paths in this framework describe the strategic alternatives open to a company to choose from. A central part of this concept is the assumption that "soft assets" such as values, corporate culture, and entrepreneurial experience must be learned in a process that takes time, even years.

Initially, this framework was applied to large, established companies and was based on the assumption that the desired outcomes are high financial returns and competitive strategic performance. Moreover, these capabilities were seen as essential to keep up with the competition in the context of rapid technological advances. However, according to Teece (2023), dynamic capabilities have been shown to be important not only in the face of technological advances but also for profound uncertainties about opportunities and changes at various levels in both the domestic market and abroad.

Over the years, the approach by Teece et al. (1997) has been widely used and reviewed in the literature and remains one of the most cited articles in economics and business today. The reason

this definition is used so often is that it includes both the organization's internal resources and resources from the external environment. In order to survive in today's business world, characterized by a fast pace and continuous change, companies need the ability to build and reconfigure internal and external competencies. In this regard, Teece et al. (1997) clearly distinguish between static and dynamic capabilities in their definition. Static capabilities refer to the existing resources within a company, which as presented in the Resource-Based View (Barney, 1991) are difficult to change and thus not quickly adaptable to changing external conditions.

Moreover, throughout the years, the dynamic capabilities framework has been refined several times. For instance, the original framework was organized by processes, positions, and paths, but Teece (2007) reshaped these into three categories that are better applicable in practice. He believes that the most important activities in a company are sensing, seizing, and reconfiguring in order to anticipate where markets and technology are going and how their business can benefit from these trends. *Sensing* refers to the capacity to "sense and shape opportunities and threats" (Teece, 2007, p. 1319) outside the company. *Seizing* means mobilizing resources to seize these opportunities while *reconfiguring* describes the act of maintaining competitiveness "through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets" (Teece, 2007, p. 1319).

In addition, dynamic capabilities are subject to building blocks that are observed at the level of single individuals in companies. Teece (2007) describes these building blocks as microfoundations and defines them as the specific actions, routines, and behaviors of individuals within an organization that contribute to the development and utilization of dynamic capabilities. Thus, he shows that a company's capabilities and performance are rooted in the actions of individuals within the company and are the foundation for dynamic capabilities. Accordingly, it is critical for organizations to recognize these microfoundations and understand how employees in different departments and at different levels of the organization collectively contribute to the development of dynamic capabilities and thus to adaptability and innovativeness within the organization.

Despite its popularity and frequent use, different views and debates on dynamic capabilities can be observed. Easterby-Smith et al. (2009) note that Teece et al.'s (1997) original definition of dynamic capabilities leaves many open questions and room for interpretation, which is why different scholars hold different views regarding dynamic capabilities. The two most common debates revolve around the nature of dynamic capabilities and their effects and consequences. On the one hand, the literature assumes that dynamic capabilities are rooted in the resources and

capabilities of companies and enable organizations to respond to change in the environment. The counter view is that they arise from a company's ability to learn and thus evolve over time and alongside environmental change. Thus, it is not clear whether dynamic capabilities address the internal processes and capabilities of a company or require an external focus where companies identify and adapt to changes in their environment. (Easterby-Smith et al., 2009.)

With regard to the effects and consequences that dynamic capabilities can bring, Teece et al. (1997) clearly position themselves in favor of a connection between dynamic capabilities and competitive advantage. Opposing voices argue that dynamic capabilities are merely best practices (Eisenhardt et al., 2000) which aim at increasing effectiveness (Zollo et al., 2002) and thus cannot be a source of competitive advantage. Teece (2007) also retrospectively continues to believe that dynamic capabilities are necessary to obtain higher business performance and emphasizes that best practices, in his opinion, neither lead to competitive advantage nor represent dynamic capabilities. Easterby-Smith et al. (2009) conclude that dynamic abilities vary in form and function, but are in principle characterized by the same features. According to their view, dynamic capabilities are "higher level capabilities which provide opportunities for knowledge gathering and sharing, continual updating of the operational processes, interaction with the environment, and decision-making evaluations" (Easterby-Smith et al., 2009, p. S7).

Since the first publication, scholars have used the dynamic capabilities framework of Teece et al. (1997) many times to conduct concrete research to analyze the relationship between certain capabilities of companies and the competitive advantages derived from them. While Zahra et al. (2006) do not question the link between dynamic capabilities and competitive advantage, they criticize the fact that the majority of this research work has been limited to large established companies and disregarded SMEs. Although the concept was originally developed based on large companies, they find it surprising that little research and theory-building have been done on the dynamic capabilities of SMEs. Zahra et al. (2006) argue that these business types in particular rely on unique dynamic capabilities that are difficult to replicate in order to prevail against competitors. The ability to quickly adjust to changing customer demands and market trends is a prerequisite for success and growth, especially for SMEs as dynamic capabilities enable them to recognize and seize opportunities that lead to their legitimacy and continued existence.

Fredrich et al. (2022) and Sapienza et al. (2006) further highlight the link between dynamic capabilities and the early internationalization of young firms. According to Fredrich et al. (2022), SMEs benefit from internationalization in the form of significant growth effects, through location-

specific, advantageous conditions that enhance overall business performance. The operations of an SME in international markets are shaped by dynamic capabilites, which thus have an indirect impact on business growth (Fredrich et al., 2022). Sapienza et al. (2006) further argue that exposure to different stimuli in international territories promotes both adaptability to uncertain environments and receptivity to continuous change in firms. Moreover, Teece (2007) notes that the global market can be promising, but at the same time can present new challenges posed by global competitors and technological advances. Accordingly, companies must be prepared to follow the new dynamics in order to achieve success in the global economy (Teece, 2007).

2.3.2 Dynamic capabilities in the circular economy

In view of the circular market environment, the ability to bundle, integrate, and rearrange internal and external competencies in order to adapt to rapidly changing market conditions is particularly important. The literature shows that most of the previous studies on dynamic capabilities in the context of sustainability and circular economy have dealt with the implementation of a circular business model in already existing companies (e.g., Elf et al., 2022; Khan et al., 2020-a; Khan et al., 2020-b; Köhler et al., 2022; Prieto-Sandoval et al., 2019). An overview of the various pieces of research in this context is shown in Table 2.

Table 2. Overview of the literature on dynamic capabilities in the context of the circular economy

Authors	Summary points	Themes	The role of dynamic capabilities and their microfoundations in the implementation of a circular business model
Borland et al., 2016	- Demonstrating how principles of circular economy can be applied to the dynamic capabilities framework of sensing, seizing, and reconfiguring. - Suggesting that the current framework is too restrictive, as it primarily considers the business ecosystem. - Introducing two new dynamic capabilities; remapping and reaping.	- Ecocentric perspective - Ecocentric dynamic capabilities - Role of leadership and management	- Companies need to develop dynamic capabilities to **identify opportunities, seize them, and continuously adapt** within circular ecosystems. - **Effective leadership, an ecocentric mindset, and practical value chain assessments** are critical to achieving competitive advantage and long-term sustainability.
Elf et al., 2022	- Highlighting the challenges in integrating circular business models into existing business strategies and models. - Emphasizing the role of dynamic capabilities in successfully integrating circular practices into business models. - Discussing limited growth ambitions of sustainable fashion enterprises, focusing on sustainability rather than traditional growth. - Introducing the concept of Extended Customer Eco-Engagement (ECEE).	- Circular Economy Business Models (CEBMs) - Extended Customer Eco-Engagement (ECEE) - Role of dynamic capabilities in successfully implementing circular economy practices	- Companies need to develop the ability to **sense opportunities, seize them, and reconfigure their resources and processes** to adapt to circular principles. - Businesses should **actively involve their customers** in co-creating value and solutions, fostering a strong business-customer relationship.
Khan et al., 2020-a	- Discussing strategies and dynamic capabilities needed for successful circular economy adoption. - Emphasizing the role of leadership in driving circular initiatives. - Emphasizing the importance of collaboration with diverse stakeholders for acquiring knowledge and resources to advance circular economy goals.	- Dynamic capabilities as key drivers for circular economy success - Effective leadership and management - Collaboration	- Developing dynamic capabilities is essential for effectively **identifying, acting upon, and adapting to circular economy opportunities**. - Effective **leadership and collaboration** with stakeholders are critical for driving the transition to a circular business model.
Khan et al., 2020-b	- Discussing the impact of dynamic capabilities and circular economy implementation on overall company performance. - Exploring how a circular dynamic environment plays a driving role in shaping dynamic capabilities and circular economy implementation. - Discussing the most important organizational activities for identifying and pursuing circular economy opportunities.	- Role of dynamic capabilities in facilitating the implementation of - Circular dynamic environment (CDE) - Organizational activities for identifying and pursuing circular opportunities	- Organizations should **invest in developing and enhancing dynamic capabilities** to implement a circular business model. - **External factors**, particularly the circular dynamic environment (CDE), can significantly influence the adoption of circular business practices.
Köhler et al., 2022	- Introducing the Collaboration Framework for Circular Economy (CFCE), which integrates dynamic capabilities, open innovation, and the relational view. - Emphasizing the importance of collaboration for implementing sustainability-related strategies. - Highlighting the interplay between open innovation and dynamic capabilities in the circular economy.	- Collaboration Framework for Circular Economy (CFCE) - Open innovation - Relational view	- Implementing a circular business model should involve a **strategic focus on developing dynamic** capabilities to adapt to changing market and environmental conditions. - Implementing a circular business model requires firms to engage in **collaborative efforts to share knowledge, resources, and innovations**.

Prieto-Sandoval et al., 2019	- Highlighting the significance of circular economy -related strategies in enhancing the business and environmental performance of SMEs. - Discussing both internal and external factors influencing SMEs' environmental strategies and circular economy implementation. - Identifying dynamic capabilities crucial for implementing circular economy in SMEs.	- Circular economy implementation strategies - Internal and external factors - Dynamic capabilities for circular economy implementation	- SMEs should develop dynamic capabilities in order to **adapt, innovate, and remain competitive** in the evolving landscape of the circular economy. - Implementing a circular business model requires SMEs to understand and address a **wide range of internal and external factors**, including public policy, market conditions, technological developments, stakeholders, and the firm's internal resource-capability configuration.
Santa-Maria et al., 2021	- Discussing dynamic capabilities for sustainable and circular business model innovation. - Discussing which microfoundations of dynamic capabilities (MofDC) are specific to sustainability-oriented innovation processes and which are relevant for any type of innovation. - Proposing a comprehensive framework of MofDC.	- Dynamic capabilities in business model innovation - Microfoundations of dynamic capabilities (MofDC) - Sustainability-oriented innovation	- Companies should invest in developing and strengthening dynamic capabilities to better **adapt to the dynamic and uncertain landscape** of circular innovation. - Businesses must **integrate sustainability practices and strategies at the core of their CBM implementation** to stay competitive, reduce risks, cut costs, and position themselves for long-term success.
Scarpellini et al., 2020	- Discussing how dynamic capabilities play a crucial role in the adoption and successful implementation of CE practices. - Highlighting the significance of environmental management systems and environmental accounting practices in the context of the circular economy. - Underscoring the role of stakeholders and their pressure in influencing a firm's adoption of circular practices.	- Dynamic capabilities in the circular economy - Environmental management systems (EMS) and environmental accounting - Stakeholder engagement	- Companies implementing a circular business model should invest in **building dynamic capabilities to effectively navigate the complexities of circularity**. - Companies should **actively engage with their stakeholders**, respond to their demands, and consider their interests when implementing circular practices.
von Kolpinski et al., 2022	- Analyzing internal competences, barriers, enablers, and drivers for successful circular business model (CBM) implementation. - Developing specific strategies to overcome barriers to CBM adoption in young and small-sized companies.	- Drivers, internal competences, barriers, and enablers for implementing a CBM - Role of leadership, values, culture, and communication	- Managers must **prioritize circularity in their decision-making and serve as role models** for implementing circular structures within the organization. - Businesses should **cultivate a diverse set of skills and competences**, especially in startups and young organizations based on a CBM.

In general, these studies suggest that both external and internal business environments play a fundamental role in the creation and application of dynamic capabilities for the circular economy. Moreover, they claim that dynamic capabilities and underlying organizational activities significantly facilitate the implementation of circular economy principles and in consequence, contribute to the improvement of the overall performance of the firm.

According to Prieto-Sandoval et al. (2019, p. 1479), "external factors include public policy, market conditions, technological development, and stakeholders". Internal factors include the company's resources, capabilities, and competencies. They introduce the concept of a dynamic environment, which drives both dynamic capabilities and the circular economy. They define the circular dynamic environment "as a momentum, that is, a push by customers, governments, and competitive intensity, towards CE" (Khan et al., 2020-b, p. 3020). Thus, a dynamic environment can be understood as the changes in the industry and the behavior of customers and competitors. It forces companies to adapt and develop the necessary dynamic capabilities or acquire new knowledge. In other words, a circular dynamic environment forces companies to develop certain dynamic capabilities to counter the dynamic environment. In this interaction, the dynamic capabilities act as a mediator for the relationship between the dynamic environment and the implementation of a circular economy in a company. Further, the authors demonstrate that dynamic capabilities are not a vague concept but constitute processes that can be implemented and measured in practice.

An intersection between the literature on dynamic capabilities, strategic management, and environmental sustainability is established by Borland et al. (2016) as an extension of Teece's (2007) dynamic capabilities framework. In their study, they address the integration of environmental sustainability into business strategies. Specifically, they focus on connecting the dynamic capabilities perspective with environmental sustainability principles for strategic management. In doing so, they introduce the new dynamic capabilities of "remapping" and "reaping" for the circular economy context in addition to "sensing", "seizing", and "reconfiguring" (Teece et al., 2007) in order to better address the specific requirements and activities of this type of economy. Borland et al. (2016) state that Teece's (2007) framework was developed for enterprise systems and strategies and is therefore limited to enterprise ecosystems. "For businesses to be eco-effective and ecologically sustainable, their ecosystem, even in a dynamic capabilities framework, must span a global, natural ecosystem that includes both the human and biophysical worlds" (Borland et al., 2016, p. 303).

In Borland et al.'s (2016) concept of ecocentric dynamic capabilities, "remapping" refers to the need to redesign production and value-added processes to ensure that waste and toxic chemicals are handled correctly. This involves managers understanding how both biological and technical cycles of materials work, what the composition of these materials is, and how to separate them. The ability to reallocate also requires developing an ecocentric business model that can be integrated into the manufacture of other products in the portfolio of the company. This may also mean organizing or redesigning products differently to be more sustainable. With "reaping", Borland et al. (2016) emphasize the idea that pursuing an ecocentric agenda need not be a profit-negative activity. It highlights that there are cost reductions and profit opportunities in both traditional and ecologically oriented products and process development. They argue that opting for more sustainability in a company is not just about the financial aspect, but also about non-financial benefits such as awards, recognition, and improving the company's image. Ultimately, a shift to sustainability creates a new type of competitive advantage, namely an environmental competitive advantage.

Indeed, companies that implement sustainable practices and innovative approaches to the circular economy can significantly increase their competitiveness and maintain it over the long term. It is precisely the handling of limited resources that contributes to the need for companies to be more efficient with their resources, often reducing costs as a positive result. In order to deal with this resource limitation, a high degree of creativity and innovation is required from companies in the circular economy. (See Elf et al., 2022; Khan et al., 2020-a; Prieto-Sandoval et al., 2019.) Companies that have the dynamic capabilities to develop innovative solutions and continuously improve themselves on various levels are also better positioned to meet changing market conditions and continue to differentiate themselves from competitors (Khan et al. 2020-b; Prieto-Sandoval et al., 2019). Furthermore, the proactive development of new solutions not only helps companies to adapt to existing conditions but also demonstrates their ability to create markets for new products and services. Dynamic capabilities enable companies to adapt their business models to meet the demands of the circular economy. These adaptations can help create new revenue streams and strengthen the company's competitive position.

According to Khan et al. (2020-a), the ability of top management to take risks and actively support the implementation of the circular economy in particular has an important impact on competitiveness. Leading a company down the path to a circular economy usually requires financial and strategic decisions that are often fraught with uncertainty. Kolpinski et al. (2022)

note lack of financial resources is a frequent barrier, as it affects the ability of companies to invest in skilled personnel and technology. This limitation further emphasizes the role of top management in securing resources for circular economy initiatives.

Companies led by environmentally conscious managers are generally more likely to make the necessary changes and investments to reap the benefits of the circular economy. In general, leadership takes a central role in initiating, implementing, and promoting circular practices in companies. Leaders are critical to directing and leveraging a company's dynamic capabilities to successfully implement circular economy practices within their organization. For example, Khan et al. (2020-a, pp. 1489-1491) argue that "firms that are led by environmentally conscious leaders are more likely to follow CE."

Moreover, Borland et al. (2016), Khan et al. (2020-a), and von Kolpinski et al. (2022) agree on the fact that companies whose leadership has a proactive stance on sustainability are better able to identify and capitalize on opportunities in the circular economy because these leaders are willing to commit resources, take risks, and promote change. To do this, they themselves must be willing to rethink traditional approaches and adopt new ways of doing things, while also ensuring that the entire organization supports these changes. Top management must be the driving force in promoting a sustainability and innovation-oriented corporate culture. This is achieved by formulating a clear vision of the company's role in a sustainable future and developing a tailored sustainability strategy.

Von Kolpinksi et al. (2022) argue that personal motivation and commitment are important enabling factors for making strategic decisions towards circular principles and engaging employees and that high commitment leads managers to be more likely to take risks with unclear outcomes. On the contrary, if managers are reluctant to take risks, they are a clear barrier to implementing a circular strategy. If such risk aversion exists, experimenting with circular economy measures on a small scale can be an essential capability to help overcome this barrier.

Similarly, the lack of clearly defined and effectively communicated values for sustainability and circular economy can be a major barrier to circular business model adoption. In some cases, moving toward circularity may even mean realigning the business model to incorporate sustainable principles. It is then primarily up to leaders to ensure that the necessary resources, training, and processes are in place to make the shift to environmental sustainability successful. (Borland et al., 2016; Khan et al., 2020-a.) Santa-Maria et al. (2021) even argue that training and education on

sustainability issues can empower employees to engage in bottom-up innovation and lay the foundation for fostering a culture of innovation and continuous improvement.

However, “CE requires new knowledge, which cannot always be developed inside firms” (Khan et al., 2020-a, p. 1489). For this reason, the dynamic capabilities of a company's management to build and maintain relationships with other stakeholders are another critical foundation. Through collaboration and partnerships, knowledge, resources, technologies, and expertise can be obtained and shared to achieve the goals of the circular economy. According to Köhler et al. (2022), knowledge sharing is best done on the basis of open innovation, where knowledge and ideas are shared among companies in a network to jointly create holistic and impactful innovations. On the one hand, collaboration enables wide access to knowledge, which in turn is an important prerequisite for sensing and seizing business opportunities and threats. Thus, Köhler et al. (2022) argue, open innovation can be seen as a basis for the development of dynamic capabilities.

On the other hand, dynamic capabilities strengthen open innovation by creating and structuring relationships within the network. Building such structures helps establish appropriate governance mechanisms to allow relevant information to flow between the different sources. However, they also point out that implementing circular economy principles often requires connecting actors who do not traditionally interact with each other (Köhler et al., 2022). It is in such situations that dynamic capabilities such as trust-building communication, conflict management, negotiation, and consensus-building are fundamental to facilitating communication and cooperation and building mutual trust. Stakeholders in the circular economy are diverse and can include suppliers, customers, research institutions, NGOs, and government agencies, among others. Dynamic capabilities help companies engage these stakeholders, understand their concerns, and find collaborative solutions to environmental challenges.

Collaboration with legislators in the circular economy, in particular, can be a critical factor in both ensuring that companies act in compliance with applicable regulations and standards and in promoting their efforts. Dynamic capabilities help companies adapt more effectively to regulatory changes while helping to shape standards for sustainable practices. It is in the interest of both parties to create regulatory frameworks and incentives for the circular economy, thereby promoting a sustainable economic model. (Borland et al., 2016; Prieto-Sandoval et al., 2019.) In this context, Prieto-Sandoval et al. (2019) mention the European Union's roadmap for implementing the circular economy, since March 2020 called “A new Circular Economy Action Plan For a cleaner and more competitive Europe.” The European Commission presents this action

plan as “a future-oriented agenda for achieving a cleaner and more competitive Europe in co-creation with economic actors, consumers, citizens and civil society organizations” (European Commission, 2020, p. 5).

In its policy framework, the European Commission not only addresses companies but also specifically takes up the role of consumers. To empower consumers, the action plan aims to provide consumers with accurate information on products and avoid greenwashing. (European Commission, 2020.) Consumer centricity is also considered a dynamic capability that allows companies in the circular economy to build closer and stronger relationships with their customers. Elf et al. (2022) argue that customer-centric approaches in circular enterprises often go beyond traditional customer relationships as they involve increased interaction and joint activities that can be observed at a variety of levels, from market monitoring to value co-creation. Companies that recognize their role as sustainability educators are expanding their activities beyond traditional business relationships to educate customers about the impact of their own consumer behavior.

The goal of customer-centric approaches is to better understand consumers' values and needs and make them central to the business model. From a business perspective, this has the advantage of building customer loyalty and reducing the risk of rejection of new, more sustainable products. Companies need to develop dynamic capabilities to continuously adapt to changing consumer needs and provide products and services that meet customer expectations. (Borland et al., 2016; Elf et al., 2022.) Creating new products, services, or even business models tailored to the needs of sustainability-minded customers is best done through “extended engagement in the form of communication and joint activities, and this in turn can facilitate opportunities for experiential learning, idea and knowledge creation as well as innovation” (Elf et al., 2022, p. 2694).

In conclusion, scholars find the importance of dynamic capabilities for the implementation of circular business models in companies to be beneficial, if not indispensable. However, how these aforementioned dynamic capabilities can actually be developed has not yet been explored in-depth in research. The discussion of microfoundations that form the building blocks of dynamic capabilities is advanced by Khan et al. (2020-a) and Santa-Maria et al. (2021). In their studies, they identify specific microfoundations for the three dimensions of dynamic capabilities “sensing”, “seizing”, and “reconfiguring”. To sense opportunities and potential threats in the circular economy, a total of six microfoundations are found to be essential.

First, according to Khan et al. (2020-a) and Santa-Maria et al. (2021), external sensitivity enables companies to detect and leverage changes in the external environment. Market monitoring and

technology scanning make it possible to continuously observe market trends and technological developments. In this way, customer needs and the actions of competitors are better recognized, and it is possible to react to them more quickly.

Secondly, idea development leads to innovative ideas being generated within the company, often involving customers and suppliers in the process (Khan et al., 2020-a; Santa-Maria et al., 2021).

Knowledge creation is identified as the third microfoundation for sensing. Ongoing R&D activities generate new knowledge internally that is required for the development of products, production processes, and innovative solutions in the circular economy. These activities, while usually investment-intensive, are essential for circular economy implementation. (Khan et al., 2020-a; Santa-Maria et al., 2021.)

Fourth, adopting holistic perspectives is a significant microfoundation for fostering the development of dynamic capabilities toward the circular economy. On the one hand, this enables companies to identify impacts and opportunities across a product's lifecycle. On the other hand, they can identify the connections of the business model to the surrounding environment. (Khan et al., 2020-a; Santa-Maria et al., 2021.)

Furthermore, Khan et al. (2020-a) and Santa-Maria et al. (2021) demonstrate that experiential learning is a microfoundation that enables companies in the circular economy to learn from experience and analysis. In this context, life cycle analysis in particular is an important tool to identify the impacts of products and their production process, and thereby reveal potential for improvement.

The use of sustainability tools can be considered a microfoundation in its own right. In addition to life cycle analysis, environmental management tools such as ISO14001 and sustainability reporting can be used to identify and manage sustainability impacts. In addition, recognized sustainability frameworks, such as the Sustainable Development Goals or The Natural Step and Framework for Strategic Sustainable Development, guide the direction of corporate sustainability strategy and initiatives. (Khan et al., 2020-a; Santa-Maria et al., 2021.)

Regarding seizing, Khan et al. (2020-a) and Santa-Maria et al. (2021) identify a total of five microfoundations. Strategic planning plays a key role “in terms of formulating a strategy, finding strategic partners, planning investments and capital budgeting, and recruiting employees” (Khan et al., 2020-a, pp. 1486-1487).

Second, business model alignment and governance enable the seizing of opportunities in the circular economy. Santa-Maria et al. (2021) see two different microfoundations in this, namely delineating sustainable solutions and business models, and supporting a sustainability- and innovation-oriented organizational culture. According to them, on the one hand, companies need to focus on clearly defining their new business models and sustainability-oriented solutions. This involves integrating environmental and social aspects into their core value propositions and ensuring that there is a balance between solving sustainability problems and meeting customer needs. In addition, a corporate culture that emphasizes sustainability and innovation must be fostered.

Finally, collaboration with internal and external stakeholders, such as research institutions, suppliers, and NGOs, is critical to acquire the necessary resources and knowledge to implement circular economy initiatives. Here, it is often critical to identify and engage partners early in the innovation process. Also, collaborating with potential users and creating interdisciplinary teams helps to foster effective and customer-focused sustainable innovation. (Khan et al., 2020-a; Santa-Maria et al., 2021.)

Last, Khan et al. (2020-a) and Santa-Maria et al. (2021) identify a total of nine microfoundations for the reconfiguring dimension. First, leadership and change management competencies are noted. Top management commitment and support are critical to the success of an innovation process. In addition, change management is necessary to implement the planned change in the context of circular business model innovation.

The second microfoundation depicts trust-building communication. In the implementation phase of the innovation, consistent and transparent communication builds trust and commitment among different stakeholders. (Khan et al., 2020-a; Santa-Maria et al., 2021.)

Third, organizational flexibility is a prerequisite for companies to quickly adapt to changes, especially changes in the business model. This flexibility can be achieved by implementing experiments, prototypes, or pilot projects to validate assumptions, reduce uncertainty, and learn and adapt quickly. (Khan et al., 2020-a; Santa-Maria et al., 2021.)

Co-specialization of resources is another microfoundation of reconfiguring, according to Khan et al. (2020-a) and Santa-Maria et al. (2021). This refers to prioritizing projects that can be accomplished with existing organizational capabilities and developing or acquiring resources and competencies that add value.

Fifth, ecosystem orchestration capabilities enable companies to identify, manage, and coordinate strategic partners in the business environment (Khan et al., 2020-a; Santa-Maria et al., 2021).

Next, knowledge integration, such as training, enables companies to ensure that their employees are able to successfully implement new technologies and processes in the circular economy (Khan et al., 2020-a; Santa-Maria et al., 2021).

The seventh microfoundation is organizational restructuring. This can take the form of acquiring subsidiaries, setting up specialized units, and selling subsidiaries. The aim here is to adapt corporate structures to the requirements of the circular economy. (Khan et al., 2020-a; Santa-Maria et al., 2021.)

Technological upgrading is cited by Khan et al. (2020-a) and Santa-Maria et al. (2021) as another microfoundation. Technological adaptation and modernization of existing infrastructure are essential to make production and processes more environmentally friendly and efficient.

Adaptation of best practices is noted as the final microfoundation of reconfiguring. Rather than sticking to best practices and procedures, companies need to adapt them to meet the demands of the circular economy. (Khan et al., 2020-a; Santa-Maria et al., 2021.)

The following table summarizes these microfoundations under the three dimensions of dynamic capabilities:

Table 3. Microfoundations of dynamic capabilities for circular economy implementation

	Khan et al. (2020-a)	Santa-Maria et al. (2021)
Sensing	- Market monitoring and technology scanning - Idea generation - Knowledge creation - Experiential learning	- External sensitivity - Adopting holistic perspectives - Creating knowledge internally - Using sustainability-oriented instruments
Seizing	- Strategic planning - Business model and governance - Collaboration	- Delineating sustainable solutions and BMs - Engaging and collaborating with stakeholders - Supporting a sustainability- and innovation-oriented organizational culture
Reconfiguring	- Organizational restructuring - Technological upgradation - Knowledge integration - Best practices adaptation	- Co-specialization of assets - Organizational flexibility - Trust-building communication - Ecosystem orchestration - Leadership and change management capabilities

As a final point, what needs to be emphasized with regard to dynamic capabilities, as well as their microfoundations, is that they should be considered both individually and in combination. Teece (2007) suggests that, especially at the organizational level, there is an interaction between individual microfoundations and dynamic capabilities. On the one hand, microfoundations comprise the individual skills, activities, and behaviors of employees. However, at the organizational level, these individual microfoundations must be combined to develop dynamic capabilities. Likewise, dynamic capabilities must be viewed holistically in order to understand how companies can actively shape competition and the marketplace, rather than solely building defenses to competition: "The enterprise will need sensing, seizing, and transformational/reconfiguring capabilities to be simultaneously developed and applied for it to build and maintain competitive advantage" (Teece, 2007, p. 1341).

2.4 Summary: Theoretical framework

The combination of the presented theories on dynamic capabilities and business growth in the context of young, novel firms in the circular economy provides a comprehensive theoretical framework for this study. As can be seen from the literature review, there are already numerous studies that combine dynamic capabilities and their role in the implementation of circular economy principles in companies. However, these are almost exclusively limited to the transformation of an existing, linear business model to a circular business model. Similarly, researchers have examined the growth of companies operating in the circular economy, but do not address born circular firms nor draw connections between business growth and dynamic capabilities. Consequently, there is a lack of research in the existing literature on the dynamic capabilities of companies built from the ground up upon circular economy principles and how these dynamic capabilities help to drive business growth. Moreover, there has been little circular economy-driven research on the microfoundations on which dynamic capabilities are built. Research into microfoundations is however important for understanding the mechanisms that enable companies to adapt to changing environmental conditions, gain competitive advantage, and achieve business growth in the circular economy.

In the extensive literature on business growth and dynamic capabilities, the theme of investment plays a prominent and unifying role in both the traditional context and the emerging paradigm of the circular economy. In the traditional view, firm growth is often associated with investment in production capacity expansion and resource acquisition. Scholars, such as Chaston et al. (1997),

Penrose et al. (2009), and Wiklund et al. (2009), agree that investment is a key capability for quantitative growth of a firm. For achieving growth targets and securing competitive advantages, the literature emphasizes the importance of a sound investment strategy. In this context, not only financial investments but also investments in research and development, especially with regard to innovations, are considered crucial. In today's global economy, it becomes apparent that sustainable growth is not only a question of company size but rather depends on internal resources and capabilities. Especially in the context of the circular economy, investment and innovation take on an additional dimension. According to Santa-Maria et al. (2021), companies implementing a circular business model need to invest in innovative technologies and processes that promote resource efficiency and recycling. These investments enable companies to keep products and resources in a closed loop, reducing waste, and minimizing environmental impacts. In the circular economy, investing in the development of products and services that are reusable, repairable, and recyclable is fundamental.

It is evident from both traditional and circular literature that a prerequisite for a corporate culture that fosters innovation and investment is leadership that creates a strategic direction for it. Effective leadership guides not only the allocation of resources but also the willingness to innovate within the company. Visionary leadership can help establish a culture of innovation in which employees are encouraged and trained to develop and implement new ideas. (Baum et al., 2001; Penrose et al., 2009; Wiklund et al., 2009.) In the context of the circular economy, the importance of leadership becomes even stronger. Leadership that promotes and itself exemplifies the shift toward sustainable business practices is key. Borland et al. (2016), Khan et al. (2020-a) von Kolpinski et al. (2022) emphasize that leaders in the circular economy often need to take a holistic perspective that considers not only financial aspects but also social and environmental impacts. This requires a clear vision, personal values, and a focus on sustainable growth.

In addition, leaders play a substantial role in creating a culture of collaboration by lowering internal barriers and fostering partnerships with other organizations. Traditionally viewed, collaboration in the corporate world has a strong impact on growth. Companies that collaborate effectively both internally and with external stakeholders are better able to leverage resources, foster innovation, and respond more quickly to market changes. Companies in the circular economy even rely on collaborations, according to Santa-Maria et al. (2021). The shift to sustainable business practices often requires collaboration with suppliers, customers, and other stakeholders to establish circular systems. The literature emphasizes that companies that strive for success in the circular economy

need open innovation approaches and partnerships to keep products and materials in closed loops. Within the company, managers are required to create the necessary willingness to collaborate and to align employees in interdisciplinary teams with the goals of the circular economy.

For both linear and circular companies, the role of the customer should not be neglected. Customer education and engagement are critical factors in creating acceptance and knowledge of novel products and services. Elf et al. (2022) and Scarpellini et al. (2020) emphasize that customer-centric approaches in the circular economy go beyond traditional customer relationship management. A cornerstone of circular products and services is the involvement of customers in product development and value creation. This is because companies in the circular economy must not only sell products but also engage customers in the cycle. This may mean encouraging customers to return, recycle, or reuse products. The literature emphasizes that customers who are involved in the circular economy process often develop a closer bond with the company because they are part of an environmentally friendly and sustainable approach (e.g. Elf et al., 2022). Customers can become ambassadors of the brand and contribute to the spread of the circular idea.

In summary, the existing literature offers extensive insights into the prerequisites for adopting circular economy models and circular practices and demonstrates how dynamic capabilities can promote success and business growth in the circular economy. Numerous scholars have highlighted how traditional businesses can adapt their processes and strategies to reap the benefits of the circular economy. Yet, there remains a notable knowledge gap concerning so-called born circular companies, which are based on circular principles from the outset. Although the need and motivation for creating born circular companies are clear, the question of how they can achieve business growth remains largely unanswered. It is unclear how these businesses can thrive in the long term without experiencing the pitfalls and challenges that traditional businesses face in transitioning to the circular economy. The literature to date has provided limited insights into the dynamic capabilities that born circular companies should develop to achieve growth targets.

However, research in this area is crucial, as born circular companies play a key role in the transformation towards more sustainable economic models and a greener future. To realize the full impact of the circular economy, it is necessary to understand how these companies can be successfully designed and managed to achieve growth and thereby have a positive long-term impact on the environment and society.

This study will help fill the gaps in understanding born circular companies and the dynamic capabilities supporting their business growth and provide new perspectives on a sustainable

economy. In doing so, it draws on the findings of existing literature that extensively identifies dynamic capabilities such as innovation, investment, leadership, and customer centricity as critical elements for business growth. The results of the research will provide a comparison of whether these dynamic capabilities play the same role in born circular companies. Of particular interest here are the microfoundations of dynamic capabilities within born circular firms. As stated in the objective of this research, the aim is to identify specific dynamic capabilities and their underlying microfoundations that contribute to the business growth of Finnish born circular firms.

How these theories of dynamic capabilities, their microfoundations, and firm growth are integrated into a theoretical framework for this study is illustrated in Figure 1.

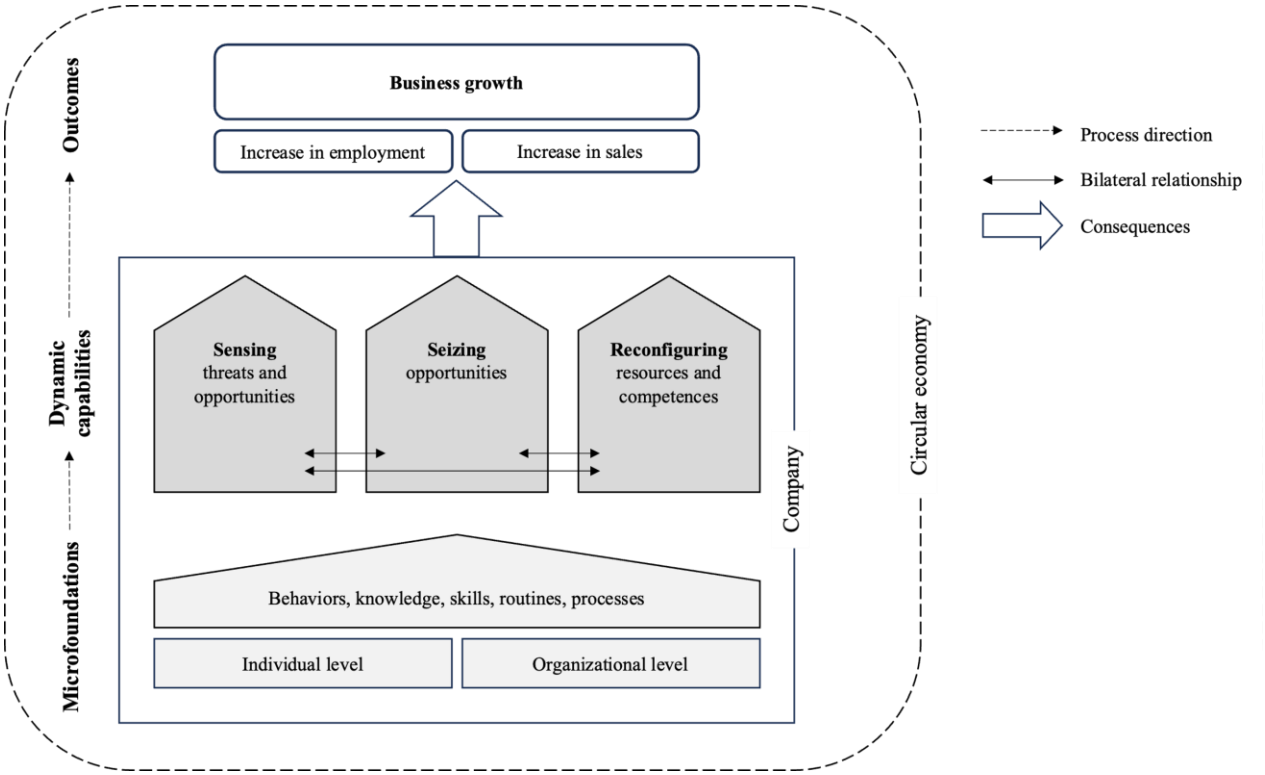

Figure 1. Theoretical framework for the business growth of companies in the circular economy

In this theoretical framework, dynamic capabilities are understood as critical internal abilities and processes that enable born circular companies to adapt to the changing and evolving conditions in the circular economy and thus remain competitive in the long term. These dynamic capabilities are neither separate nor can they be viewed as a process. Rather, they constantly interact with each other and therefore also influence their respective development.

The microfoundations of these capabilities refer to the components and actions at the individual and organizational levels that contribute to the development and implementation of these dynamic capabilities. Hence, microfoundations form the basis of the entire framework. It is assumed in this study that the successful development, application, and continuous improvement of dynamic capabilities help born circular firms realize their growth targets. Here, business growth is measured by the increase in employment and sales. This context requires an in-depth analysis of the specific dynamic capabilities and their microfoundations that are relevant for born circular firms to develop a comprehensive understanding of the mechanisms and influencing factors and thus contribute to the further development of business management in circular economy models.

3. Methodology

This chapter outlines the methodological approach of the present study. It first describes the research design chosen, how data was collected, and how this data was analyzed and evaluated.

3.1 Qualitative case study research design

For this study, a qualitative research approach was applied to explore the proposed research questions directly where the topic under investigation occurs. More specifically, as the focus of this study is on current and novel information, qualitative case study research was chosen as the most appropriate method.

Case study research is a proven method to investigate complex phenomena in their natural context and thereby gain new insights. Qualitative case studies focus on in-depth exploration rather than testing predefined hypotheses. In this type of qualitative research, either a single case or several cases are examined. This allows patterns, trends, and correlations to emerge that can contribute to a better understanding of the relationships, factors, and processes associated with the research topic. This methodology recognizes the importance of context and assumes that the setting in which a phenomenon occurs plays a significant role in shaping its characteristics and outcomes. (Creswell & Creswell, 2018.)

Qualitative case studies involve the collection of data from various sources such as interviews, observations, documents, and other relevant materials. This multi-method approach enables a comprehensive investigation of the phenomenon. This means that data can be collected first-hand, but also existing data material such as literature, studies, or statistics from available print and online sources are used. (Rashid et al., 2019.) Information from secondary sources may not have been collected directly for the research questions at hand but can be very relevant. The advantages of secondary research include the low cost and time involved, as well as the opportunity to obtain background information about the research subject, which can also form the basis for primary research. (Kolb, 2021.)

In this study, a relativistic ontology is adopted, which means that reality is seen as socially constructed and subjective. It is recognized that different people may perceive and interpret the world differently. According to Rashid et al. (2019), it is therefore important that researchers consider multiple perspectives and interpretations of the phenomenon and value the subjective experiences and viewpoints of participants.

This study uses the multiple case study method, in which several cases are examined to determine either similar or contrasting results. The comparability of multiple cases makes it possible to identify patterns, differences, and similarities between the cases. (Yin, 2003.) This allows the complexity of born circular companies and the dynamics of the circular economy to be taken into account in the study. In addition, multiple case studies increase the validity of the study, which can lead to a better generalization of the results to different born circular companies.

According to (Swanborn, 2010), as case study research is generally based on a positivist epistemology, the resulting findings must be perceptible and verifiable. In practice, the knowledge that case studies can provide from the real world is of particular benefit to decision-makers. They need to understand what impact their decision will have on the relevant issues, real-world circumstances, or a particular situation. They need clarity about the relationship between the dependent and independent variables and the reasoning behind them. Case studies can be used to analyze this under the most real conditions possible. (Swanborn, 2010.)

3.2 Data generation

In this study, semi-structured interviews with representatives of born circular companies based in Finland were used as a primary data collection method. Semi-structured interviews are a common data collection method in single and multiple case study research to shed light on a case from different perspectives. In a single case study, a semi-structured interview can be used to gather in-depth information about a particular contemporary phenomenon. In a multiple case study, this type of interview can be used to collect data from multiple participants. In a multiple case study, it is important to be consistent in the interviews so that the data collected from each case can later be compared and contrasted. (Creswell & Creswell, 2018.)

The first step in preparing the semi-structured interviews for this study was to identify suitable interviewees. This was the only point at which secondary data was used in data generation. The search was started using general online search engines by entering keywords and phrases related to the research topic and relevant industries. The search results returned company websites, press releases, and articles, as well as links to social media platforms such as LinkedIn. After a thorough review of the companies discovered, those that matched the criteria of this study were contacted. Here, a circular business model from the start and Finland as the country of foundation were the required criteria for this research.

The next step was to prepare a list of guiding questions for the planned semi-structured interviews to facilitate conversations with the participants (see Appendix A). These guiding questions were formulated based on the three dimensions of dynamic capabilities, sensing, seizing, and reconfiguring. In addition, attention was paid to formulating questions that were both relevant to the research question and provided enough flexibility to explore unexpected or tangential issues that could arise during the interviews.

The interviews were conducted with representatives of seven for-profit companies. All companies were founded in Finland and are characterized as born circular companies, as their business model is based on the principles of the circular economy from the outset. These companies are operating in various sectors and both business-to-consumer and business-to-business settings. This broad range of sectors underlines the diversity of the participating organizations and gives this study a comprehensive perspective on the introduction of circular economy models in different contexts. Table 4 below lists the sectors in which these companies operate and gives a short outline of their circular economy approaches:

Table 4. Overview and description of case companies

Case firm	Industry	Year of establishment	Circular economy solution
A	Food and Beverage Services	2015	Developed a mobile and web service that enables consumers to find and save surplus food.
B	Paper and Forest Product Manufacturing	2015	Developed wood-based renewable and recyclable material to shift away from plastics.
C	Packaging	2011	Developed turnkey solutions to make packaging services sustainable and reusable.
D	Office Furniture and Fixtures Manufacturing	2022	Developed a solution to refurbish and recycle office furniture.
E	Renewable Energy Semiconductor Manufacturing	2012	Developed a technology to extract trace elements from alkaline batteries and return them to nature as micronutrient products for agriculture.
F	Retail Apparel and Fashion	2015	Developed an online platform to buy and sell quality fashion and accessories.
G	Equipment Rental	2020	Developed a mobile application for the rental of household items.

The representatives of these born circular firms were all part of the top management of the respective company. Their titles, as well as information on the length of the interviews and the resulting transcripts, are summarized in Table 5 below.

Table 5. Overview of interviews

Case firm	Code	Representative(s) position(s)	Approximate length of the interview	Approximate number of pages of transcript
A	P1	Chief Executive Officer	35 min	30
B	P2	Chief Sustainability Officer	40 min	30
C	P3	Chief Executive Officer	40 min	35
D	P4	Managing Director, Procurement Director	90 min	55
E	P5	Chief Commercial Officer	65 min	40
F	P6	Co-Founder	75 min	45
G	P7	Co-Founder	50 min	40
Total			**395 min**	**345**

All interviews were conducted online via video calls and in English language. A text-based transcript of each conversation was recorded to facilitate the following data analysis. The opening question asked interviewees to give a brief overview of the growth path of the company they represented in order to start a conversation. Depending on the level of detail and topics mentioned in the responses, follow-up questions were asked to either gain deeper insights or explore further topics.

The length of the interviews varied from case to case. This was due to various factors, such as the type of communication used by the interview participants, their experience in the respective company, or the length of time the companies had been in existence. In all cases, the same core topics were addressed and discussed.

3.3 Data analysis

For the purpose of this case study research, thematic analysis was chosen as the method for analyzing the data collected in the interviews. This method is a useful tool for delving deeper into the qualitative data collected, identifying patterns and trends within them, and understanding the significance of experiences and perspectives. Thematic analysis is often conducted in specific steps. The process begins with preparing the data, followed by re-reading the recorded interview transcripts to familiarize oneself with the data and gain a deeper understanding of the content. On this basis, meaningful quotes or passages that relate to the research question are identified and coded. These codes are then organized into broader themes that represent the phenomenon under investigation. Finally, the results are presented in a detailed report that includes the identified themes, supporting evidence, and interpretations. (Braun et al., 2006; Nowell et al., 2017.)

This study followed the guidelines for thematic analysis provided by Braun et al. (2006). Braun et al. (2006) identify six phases for thematic analysis, emphasizing that these are not to be seen as fixed rules and should not be considered linear. Rather, the analysis involves "a constant moving back and forward between the entire data set, the coded extracts of data that you are analyzing, and the analysis of the data that you are producing" (Braun et al., 2006, p. 86).

In addition, an abductive approach was chosen which, according to Dubois et al. (2002, p. 559), is "concerned with developing propositions from current theory and make them testable in the real world". Due to the complexity of the research topic, which has been little researched to date, this approach was chosen in order to gain the flexibility to identify new findings and patterns without being limited to a fixed theory from the outset. In this approach, deductive and inductive approaches are combined, whereby the researcher continuously switches back and forth between research activities, empirical observations, and theories in order to broaden the understanding of both. The analytical framework is based on preconceptions and develops over time through empirical fieldwork, analysis, and interpretation. (Dubois et al., 2002.)

To facilitate the analysis process, the ALTAS.ti software was used, which enabled the systematic organization, exploration, and interpretation of qualitative data. For this purpose, all seven interview transcripts were uploaded to the ATLAS.ti program before the analysis began.

Phase 1: Familiarization with the data

In the first phase of the thematic analysis, the aim was to become familiarized with the available data in the form of interview transcripts. This involved reading the entire data sets repeatedly and actively searching for initial patterns. The aim was to identify potentially interesting aspects and themes. With the help of the ATLAS.ti software, first ideas, and observations were noted.

Phase 2: Generating initial codes

Once a basic familiarity with the data was achieved, a total of 183 initial codes were generated. These codes are the most basic elements that are later aggregated into superordinate themes. Interesting aspects and important text sections of the raw data were identified and assigned codes. During this process, it often happened that the same pieces of data were coded multiple times to capture different aspects.

Phase 3: Searching for themes

In the third phase, the codes were summarized into possible themes and patterns. For this purpose, the various codes were sorted and organized into a total of 47 code groups that could serve as

superordinate themes in the further process. Attention was paid to allowing the data to determine the direction of theme formation without starting from predefined theoretical assumptions.

Phase 4: Reviewing of the themes

Once all codes had been assigned to the initially identified themes, these themes were checked for coherence and validity. For this purpose, adjustments and refinements were first made at the level of the coded data extracts to ensure that the themes were meaningful and logically structured. In addition, codes that were originally categorized in more than one code group were reduced to the most relevant theme. Themes were then adjusted and refined at the level of the entire dataset to improve the quality of the themes. The entire phase involved deductive reasoning to ensure that the themes were meaningful and resulted in 20 different themes.

Phase 5: Defining and naming the themes

In this phase, the identified themes were further refined, and their key messages were clearly defined. This included creating a meaningful description for each theme that outlines its content and meaning. This involved both deductive and inductive reasoning to both define the key messages of the themes and ensure that the definitions were derived from the data itself. During this process, the number of themes was reduced from 20 to four to facilitate the processing and interpretation of the results. The previously identified themes were grouped into four main themes to provide focus and clarity. These themes were: Market monitoring, Business strategy, Leadership and management, and Resource acquisition and management.

Using an example quotation, Table 6 below illustrates how different codes were identified from the transcripts of the interviews and how these codes were later assigned to higher-level themes.

Table 6. Example of coding and thematization of the data

Quotation	Codes	Theme
"When talking about the growth of [Company G], it has been slow but steady. Because we are a startup with not so many resources, we have not been able to put that much money into marketing, which would be of tremendous help. So, we have used tools like Instagram and TikTok and Facebook. So social media marketing and doing content ourselves to gain a bit more traction." (P7)	- limited resources - limited human resources - limited financial resources - limited time - marketing - positive growth - slow growth due to low marketing budget	Resource acquisition and management

In this example quote, the interviewee refers, among other things, to the fact that the growth of his company is influenced by the limited financial and human resources available. This resulted in seven different codes for this interview excerpt. From a general point of view, all of these codes

relate to resource acquisition and management, which is why this was chosen as the overarching theme of this quotation.

Phase 6: Producing the report

In the final phase, the concluding analysis was carried out and the research report was written. It was essential that not only the data extracts were described, but that an argumentative presentation was created that summarized the key findings in the context of the research question. The aim was to relate the themes to the overarching research question and to produce a coherent and meaningful report. For this purpose, selected data extracts and direct quotes from interview participants were included in the report to support the themes identified and to ensure the clarity and comprehensibility of the findings presented.

The findings were first structured according to the four main themes and an attempt was made to classify the dynamic capabilities and microfoundations identified therein into the categories of sensing, seizing, and reconfiguring. However, this approach proved to be too vague to draw any concrete conclusions. In addition, there was a need to adapt the theoretical framework in order to better integrate the patterns and trends found and thus better explain the reality of the data. For this reason, the final phase was revisited, and the theoretical framework was further developed. At this point, it was fundamental to strictly sort the dynamic capabilities and microfoundations interpreted from the interviews into the three categories of sensing, seizing, and reconfiguring. This does not mean that it was ignored that dynamic capabilities are interlinked or influence each other, but rather that the results were presented in a more focused way to improve their comparability and applicability in practice.

4. Findings

This chapter presents the empirical data collected during the research process. It is divided into three sub-chapters that correspond to the three dimensions of dynamic capabilities. Thus, first the discovered dynamic capabilities and microfoundations that can be assigned to recognizing threats and opportunities are presented. Then the dynamic capabilities and microfoundations of seizing opportunities and finally reconfiguring resources are shown.

4.1 Sensing

The ability of a company to recognize opportunities and threats in its environment is referred to as sensing capabilities (Teece, 2007). Particularly in the context of the circular economy, which is characterized by constantly changing trends and conditions, these dynamic capabilities are fundamental for companies to recognize and react to signals quickly. The analysis of the interviews with the seven Finnish born circular companies revealed three key sensing capabilities. These three sensing capabilities and the internal, organizational elements and processes that enable the development and deployment of these dynamic capabilities are presented in Table 7.

Table 7. Overview of identified sensing capabilities and their underlying microfoundations

Dynamic capability	Microfoundations
Market monitoring and external sensitivity	- Conducting market research - Utilizing prior industry knowledge and experience - Regular monitoring of publications by key opinion leaders - Regular tracking of competitor activities and product launches
Customer analytics	- Identifying a genuine need in the circular economy - Trying to understand the motives, desires, and mindset of the customers - Conducting surveys with potential customers - Prototyping and pilot testing before launching a new product
Regulatory intelligence	- Understanding regulatory frameworks and requirements in the home market (and in international markets) - Staying informed about trends and changes in legislation and policy initiatives related to the circular economy - Assessing the environmental impact of products or services and aligning them with regulatory goals

As shown in Table 7, respondents described market monitoring and external sensitivity, customer analytics, and regulatory intelligence as dynamic capabilities that enable them to identify opportunities and threats in their business environment. Market monitoring and external sensitivity involves continuously monitoring and analyzing the market and identifying external changes, trends, and opportunities. Customer analytics provides deeper insights into customer behavior,

needs, and preferences and enables born circular companies to develop customer-centric solutions. Finally, through ongoing monitoring of regulatory developments, they recognize how legal frameworks are changing to ensure compliance and proactively respond to regulatory updates.

4.1.1 Market monitoring and external sensitivity

The foundation of every company is preceded by the development of a solid business idea that solves a real problem and meets the needs of a specific target group. In all of the seven interviews with the representatives of the born circular companies, it became clear that it is particularly important in the circular economy to develop genuine business ideas. These are characterized by real practical benefits and have the potential to support the transformation to a more sustainable economy. In this way, born circular companies set themselves apart from traditional companies that are mainly focused on fast throughput of resources and profit maximization. According to the participants, genuine ideas can arise simply by observing a personal situation or the behavior of others:

> *"I was a student, and I was thinking of alternative ways of income, and I have a lot of stuff […] which is never in use. And then I saw that this could have some potential, at least for students and people who would maybe want to earn a little bit of extra money. Or then from the perspective of the people who would rent the items, they could save money by, instead of renting from a company which typically is a bit more expensive, renting from a private person." (P7)*

> *"The simple observation of a friend selling clothes on Facebook made [us] realize that there is a gap in the market. [We] questioned the convenience and safety of using a social media platform to buy and sell personal items." (P6)*

However, identifying an emerging trend or a potential gap in the market alone is not enough to launch a successful company. Some of the participants reported that the founders already had extensive experience in the respective sector. Although through employment in traditional companies and not directly in the circular economy, this experience meant that they were already

familiar with the existing dynamics of the respective sector and often already had a network with various stakeholders:

> *"[Company B] was established […] by three persons, who all had a very strong fiber know-how, and they also had a business background and had been working with paperboards and paperboard customers." (P2)*

> *"All of us [founders] have a long history in the furniture recycling business, we have been selling and importing new and recycled office furniture before. I think the average professional time in the industry has been like 20 years for each." (P4)*

But regardless of previous experience or not, an in-depth market analysis was mentioned as a building block in the preparatory work for founding a born circular company. In this way, a business idea in the circular economy, which is still a relatively new business environment with comparatively limited prior understanding, can be validated.

Equally, to ensure sustainable business development later on, continuous monitoring of the market and analysis of potential new markets are considered fundamental. Detailed market research enables entrepreneurs to understand their target group precisely. According to the interview participants, it is particularly important in the circular economy to offer products or services that meet the interests and needs of environmentally conscious consumers. Two participants even mentioned prototype testing as one of their preparatory steps before the official launch:

> *"[…] first users could test drive that prototype and then give us feedback on what is good, what is bad, and what could be improved. And yeah, based on that feedback then we developed with an outsourced company [Company G] itself." (P7)*

> *"First, you have an innovation in the lab, then you scale it up maybe in a pilot […] and basically in order to prove that you can do something with those novel ideas, you have to go forward with them." (P5)*

It can also be worth following industry news to keep up to date on how technologies, materials, processes, legislation, and industry standards are evolving in the business environment. A concrete example that has been mentioned by P5 is to follow the publications of relevant opinion leaders:

> *"There are professionals with good insights and their own analytical tools and in addition to that, we're following certain key opinion leaders in the industry. LinkedIn is really good, it's very cost-effective. You find good people; they throw in the news. Find a few people who do that and that's your filtered information so say." (P5)*

Nevertheless, it was also revealed that although a good market analysis is a prerequisite for sound strategic planning, there is also a risk of overplanning. The tendency to want to perfect every aspect of the plan or strategy down to the smallest detail can lead to endless planning cycles. This, in turn, can lead to execution being repeatedly postponed and no decisions being made, as P1 noted that "there was so much planning and so much research that there was absolutely no execution and nothing really happened."

Another key focus for market monitoring is the competitive landscape, as the circular economy is constantly evolving. Born circular companies not only have to consider other sustainable startups but also traditional companies that are introducing sustainability initiatives. In addition, companies offering alternative products or services that are not sustainable pose competition, for example through lower prices or lack of consumer awareness. Some of the interviewees, however, described that they do not perceive competitors purely as a threat, as noted in the raw data quotation below:

> *"We do the competitor analysis more to understand how we should angle this stuff, how we present ourselves, what's the narrative. So which things should we highlight and so on to kind of make the differences understandable to the consumer." (P1)*

Thus, by observing their competitors, born circular companies can get new ideas, learn how to position and differentiate themselves, and convey their mission and values most effectively.

Interestingly, three of the participants reported that they did not perceive any direct competition at the beginning of their founding stage. Thereby, P4 kept repeating the word pioneer:

"I think we are the true pioneers in our industry because we were one of the first starting in this industry […]. […] we are following the trends and following what competitors are doing but I truly believe that we are pioneers." (P4)

In this case, the lack of competitors can be an advantage for born circular companies, as they have the opportunity to build a brand as a pioneer before other competitors enter the market. On the other hand, however, difficulties can arise for the founders of a new circular company if no clear competitors can be identified. If there is no competition, it can be difficult to prove the actual demand and acceptance of sustainable products or services. Worse still, the impression is created that there is no market at all for the new product or service. P3 formulated the problem like this:

"Having other reuse companies means that there is a market opportunity. If there isn't, which there wasn't when we started, it was of course a bad sign, but we didn't see it like that. Investors or external people said that not having a competitor is a bad thing. […] But it means that there is no other and so you are creating the market." (P3)

The fact that a good understanding of the competitive landscape is also important in the further development of companies is shown by how the participants described the growth path of their respective born circular companies. Almost all participants reported that they had either expanded beyond the borders of Finland as part of their growth strategy or had at least attempted to enter another country. P1 illustrated how Company A changed its strategy over time, from focusing on low entry barrier markets to highly competitive, but lucrative markets:

„[…] back in the day, Estonia was chosen specifically because there was no competition. […] But Germany, on the contrary, is exactly the opposite. We see it as a very difficult market. It's highly competitive, but it is such a large market that if we can get a 5% market share in Germany, we already double our existing business today." (P1)

On the subject of international expansion, it came as a surprise that the interview participants did not necessarily view competitors in other countries as inspiring. As mentioned at the beginning,

Finland along with other Nordic countries is ahead in many areas such as innovation, digitalization, and sustainability (see European Innovation Scoreboard (EIS) 2023, European Commission, 2023; SDG Index, Sachs et al., 2023). Participant P4 summed this up most clearly:

> *"The Nordic countries are at the top in the whole world. It's as if almost everything is invented in Nordic countries and exported to other countries globally […]. I believe that Finland is one of the number one countries in the world, so we can follow, we can learn. But there is not much we can copy or get inspiration from other countries." (P4)*

It is important to note that such perceptions are very subjective and do not necessarily apply to all Finnish born circular firms. Nevertheless, this observation shows that Finnish born circulars should conduct a comprehensive analysis of new markets and, if necessary, adapt their strategies or products for other countries.

4.1.2 Customer analytics

According to the data analysis, the topic that was mentioned most frequently by each interviewee and in the evaluation as a whole was customer centricity. Whether directly or indirectly, customer centricity is evident in every business activity of the interview participants. From the aforementioned market analysis and monitoring to after-sales support. Sensing customer sentiment and keeping up to date with trends seem to go hand in hand. Moreover, understanding the needs and wishes of customers is the basis for developing the right products and services and finding the right messaging to address the target group:

> *"Understanding the importance of environmental consciousness, especially among female shoppers, was important for us so we could position ourselves as a platform that offers cost-saving options but also contributes to recycling and reducing waste." (P6)*

> *"[…] you have to be able to go for the end customer's mindset and what are their key drivers and what works and understand what the trigger is. What helps their lives in the end? And then you have to reach them." (P5)*

These exemplary quotes show that born circulars need to be good at precisely identifying and narrowing down their target group. This enables them to offer personalized solutions that meet customer needs, develop targeted marketing strategies, and thus seize opportunities in the next phase of the process.

4.1.3 Regulatory intelligence

Furthermore, the data analysis showed that another crucial point that contributes to sensing opportunities and threats is the applicable legal framework. Like any traditional company, born circulars must ensure that they follow set rules and guidelines and comply with the law. In addition, for companies in the circular economy, the implementation of their ideas or new strategies is often made possible or at least facilitated by legal requirements:

> *"Those regulations are actually like accelerators for our growth. Of course, the climate discussion is there, and the plastic waste discussion is also increasing. Another very important trend is the microplastics issue. […] And then, of course, recycling and keeping the materials in use because resource scarcity is such an issue; if we lose the properties of certain materials then we are losing resources and we can't afford to lose resources." (P2)*

Legislation plays another important role for born circulars, whose business model includes applying for tenders because, as P4 formulated it, "[…] if you want to participate in big tenders, there are regulations that you must fulfill. If you don't, you are not allowed to participate in these tenders."

Legislators define the legal framework and requirements that companies must comply with when applying for tenders. This is intended to ensure that competition is fair and transparent. At the same time, this protects born circular companies from unfair practices and promotes equal opportunities. Clear legal regulations ensure that companies are assessed on the basis of their environmental friendliness and innovation and not on the basis of unethical practices:

> *"We of course try to understand how for example, the regulation and the operational environment are evolving and changing. So, what the regulation says is important to us. For example, now in the EU area, there are quite many regulatory packages that are*

interconnected, and it starts from sustainable raw materials then goes to eco-design regulations, to certain standardizations of [Life Cycle Assessment] calculations, products' environmental footprint calculations, then packaging and waste regulation." (P2)

However, some of the interviewees also expressed their dissatisfaction with the current regulatory situation. P5 stated that there are currently no legal incentives, such as subsidies, for their customer target groups to choose sustainable options:

"From a cleantech point of view, a little bit disappointing is that for the farmers, there's not much of a financial value to use sustainable products. It's rather like a decision on their own. There are some programs that require using renewable fuels etcetera and our product is considered as being one optional product to use, but what really makes a difference for the farmer is, first of all, does it work? Do they get yield increase?" (P5)

These quotes show that sustainability and the circular economy are gaining traction and demand at various levels, and new opportunities are emerging for businesses built on the principles of the circular economy. Nevertheless, there is still much to be done in terms of government subsidies, regulations, awareness campaigns, and coordinated collaboration to help born circular companies make a greater impact and promote the wider adoption of sustainable business models. In this regard, the development of sensing capabilities is crucial for born circular firms to closely monitor the regulatory environment and respond quickly to changes and new opportunities.

4.2 Seizing

Seizing, according to Teece (2007), is the ability of a company to seize opportunities and use them effectively. In the interviews with the born circular companies, it became clear that seizing opportunities is the issue that concerns them the most. All interviewees described their approach to seizing opportunities in the most detail and also mentioned the most challenges in this context. Thus, the most dynamic capabilities and microfoundations were identified in the seizing dimension. Hereby, the analysis revealed four key sensing capabilities, which are presented below in Table 8.

Table 8. Overview of identified seizing capabilities and their underlying microfoundations

Dynamic capability	Microfoundations
Financial resource acquisition	- Embracing alternative funding options and financial approaches - Developing resilience to handle setbacks in the fundraising process - Understanding that fundraising is a long-term process - Continuous exploration of diverse funding sources (e.g., investors, grants)
Talent acquisition and development	- Understanding the importance of employer branding in attracting talent - Integrating circular values into recruitment advertisements - Engaging with educational institutions, e.g. by participating in circular economy-related courses, to meet potential talents - Hiring team members with diverse skill sets, expertise, and circular mindset - Identifying and addressing poor fit if necessary
Strategic alliance building	- Building a collaborative culture - Forming partnerships with external organizations and other stakeholders - Clear communication within collaborative teams to convey common objectives and expectations
Brand management	- Communicating the brand narrative in an authentic and credible manner - Engaging with external stakeholders through various communication channels - Consistent messaging across different platforms and countries - Clear and transparent communication about circular values and initiatives - Training employees to enhance their understanding of the brand and its values - Agile marketing strategies for circular products and services - Customer engagement through human-to-human marketing - Identifying and collaborating with influencers for promotion - Quickly responding to customer feedback and rectifying negative experiences

Table 8 illustrates the four dynamic capabilities that form the basis for the companies interviewed to seize opportunities in the circular economy. Financial resource acquisition refers to actively seeking various financing options and acquiring the necessary financial resources. In addition, born circular companies must be able to identify, recruit, and develop qualified talent to ensure the company has the skills it needs. Through strategic collaboration and partnerships, resources can be shared, innovation can be driven forward, and the company's sphere of influence can be expanded. Finally, a clear brand identity must be developed, transparent communication established, and the brand strategy adapted according to customer feedback.

4.2.1 Financial resource acquisition

From the data analysis, it was observed that all of the company representatives interviewed reported that the development and growth of their company depend primarily on the resources available to them. First and foremost are financial resources, as the implementation of circular ideas often requires an initial investment in technology and infrastructure such as storage space or plant premises. Unfortunately, these resources are not easily available to a lot of born circular companies as most of them are still "[…] a small company [with] limited resources." (P1)

For this reason, all of the interviewees stated that they are dependent on the support of external stakeholders in some way. Obtaining financial resources, especially from investors and public funding, was most frequently mentioned as an obstacle. Sustainable practices and technologies in the circular economy are often new and untested, leading to uncertainty and perceived risks for investors:

> *"[...] basically, in order to prove that you can do something with novel ideas, you have to go forward with them. So, you have to build the [product] first and show that it works so to say. So that's a chicken and egg thing, which one comes first." (P5)*

Fortunately, born circular companies have a variety of financing options available to them, allowing them to plan a financing strategy that fits their specific needs and long-term goals. It is noteworthy that none of the born circular companies interviewed mentioned relying on traditional bank loans and credit. Rather, they consider alternative sources of financing and sometimes combine them. P3's report shows that this is not an easy endeavor, but that persistence can pay off in the end:

> *"We regularly applied for European Union funding and talked to some investors, but investors weren't interested. There was no growth. You know, it wasn't growing enough for VC. And then finding family investors or super angels is really difficult and you need a lot of luck to manage that. […] In our seventh attempt at European Union funding, we got [a funding amount] and we hired a few more team members. Having this money and having [more team members], we started doing pilots and everything was great." (P3)*

The analysis of the interviews also shows that the accelerating trends towards sustainability and the circular economy have recently brought significant advantages for born cirular companies in terms of financing and funding:

"There's quite a large group of investors these days who have very strict guidelines. They only invest in circular or in environmental impact companies and so that opens up a different world for us as well." (P1)

"Currently for clean tech, it's a really good situation on the public funding, there's a lot of EU-related funding, innovation funds, accelerator programs, horizons. There are those, but all of them also require private-sector funding. You're not going to be able to get a fully government-funded plant. But [in] some of the programs […] you don't necessarily have to break within the first two years or so, especially when it's a novelty, you're doing something new and it's a first of all kind." (P5)

In the last quote, P5 also touches on time as an important but equally limited resource. The development and implementation of sustainable technologies and practices often require time, as does the subsequent acceptance of sustainable products and services on the market. Financial support plays a crucial role in giving born circular firms the time they need to build a new business. It allows them to focus their resources on strategic areas without having to concentrate on short-term financial survival. The following quotes have been selected to illustrate the observed importance of external funding sources to develop a business idea in the first place without jeopardizing personal financial stability:

"We got this innovation grant [from Business Finland] and with that money we were able to create the prototype, and then from TE Office, all of us [founders] received startup money. Only a few €100 a month. However, it enabled us to work full-time for [Company G]." (P7)

In the context of time, the right timing to respond to opportunities was also emphasized, for example when favorable market conditions arise, regulatory environments change or the need for sustainable solutions increases. This applies not only to the launch of a new circular company but also to its subsequent scaling:

"We're a small company and we have very limited resources. If we were to first start doing a lot of development work and only then go to a new market, then that would take a lot of time and burn a lot of cash, which we don't really have." (P1)

Hence, the data analysis shows that time and financial resources are important factors for born circular companies and that they are closely intertwined and influence each other. The development of new, circular products or services requires both time and financial resources. At the same time, a fast market launch is important in order to seize opportunities early on, use limited financial resources more efficiently, and minimize the risk of lost sales.

4.2.2 Talent acquisition and development

In addition to financial and time resources, the data analysis highlights that employees play a central role as a resource in born circular companies. Depending on the business model, the right employees should have the right expertise, innovative strength, and adaptability to overcome the challenges of the circular economy and drive the company's mission forward:

"This world is full of great ideas. But whether you have a team that can actually build it and deliver it and run it, requires all kinds of different skill sets. And that's the challenge for us because we can't have many different people doing all this, we don't have money for it. So you need generalists who can create ideas and bring them to reality and deliver them to the customers and sell the idea and actually then operate it. In bigger companies, you have people for all these tasks; in startups, you don't." (P3)

Surprisingly, finding the right people was not seen as a real challenge by any of the interviewees. It can be assumed that the perception of recruitment challenges is highly dependent on the specific industry, technical requirements, and other factors, but at least in the interviews conducted for this study, no significant talent recruitment problems were mentioned. The main reason given for this was the attractiveness of the mission of born circular companies, which attracts people with similar values and enthusiasm for challenging and future-oriented tasks:

"Interestingly, it seems that a lot of people want to work for companies like us. Companies with a purpose, whether it's [focused on] circular economy or environmental impact, whatever. So that is a big benefit on the recruitment market. […] We get a lot of high-quality applications when we are recruiting. For almost every position that we have, we get people who are prepared to actually step down also in salary because they feel so strongly that they want to work for this type of company" (P1)

Particularly born circular companies that rely heavily on R&D need staff with in-depth knowledge and expertise. At this point, P2 once again emphasized the importance of recruiting suitable employees who, in addition to the skills, also have the right mindset to be able to drive circular approaches forward:

"Generally, our people are quite highly educated because we hire people to develop something new. So, already when they are applying to [Company B], they all sort of have the mindset that they know what kind of company they are applying for, and for that reason, they bring the attitude that they want to make an impact, they want to carry their responsibility for making the world a bit better. In that sense, I think that we have widely skilled people understanding how sustainability is embedded in everybody's work." (P2)

Furthermore, it is the company culture that largely helps to attract and retain the right employees. Born circular firms often value a positive company culture characterized by collaboration, creativity, and social responsibility, which is highly valued by applicants:

"I think it's because of us. I think that they know that we respect people, and we do what we say. We don't promise huge things but everything we promise we do, and we respect all of the guys who are working with us." (P4)

Such an open and honest culture is also particularly important when internal problems arise. Some of the companies surveyed are still considered startups and one problem that came up in the discussion about recruiting employees is that not everyone is suited to working in a startup.

Startups entail certain characteristics, requirements, and challenges that not every person appreciates or can cope with equally:

> *"Over the years, we have noticed that startups are not for everyone. Some people are just not good fits to work at a startup because it is chaotic. Things change very quickly. Because they change quickly, communicating that change and why it is happening is key. But some people will never be able to handle it. […] But of course, it is up to the leader to identify those people who are not good fits. And brutally replace them. […] The easiest job in the world is to come to a startup and point out things that don't exist because everyone can do that." (P3)*

However, this observation cannot be attributed solely to the business model of born circular companies but applies to startups in general. Some people feel more comfortable in established organizations, while others prefer the challenges and flexibility of a startup. It should also be noted that not all born circular companies are startups; there are also established organizations that have already overcome the startup phase.

Last but not least, there was an interesting comment in the interview with P4, according to which a large team of employees is not always a positive sign for company growth. Especially in a narrow market segment where there is a limited choice of employees, P4 warns against hiring less qualified employees. If employees do not have the necessary expertise and skills, it could affect the company's competitiveness and lead to customer dissatisfaction:

> *"The number of employees working in such a small market segment is narrow and - using ice hockey terms here - there is line number one, line number two, line number three and then there are the guys who are sitting on the bench. [To a certain degree] you can play with only line number one. After that, you take the second line. Eventually, the bigger you get, those guys who were sitting on the bench are playing too and that is why you need to be very careful when you grow. You need to monitor how effective and how good you are when you cross that certain line where you take the second line playing." (P4)*

Here it is important to emphasize that hiring less qualified employees does not necessarily lead to negative results. With proper support, training, and development opportunities, a born circular company can overcome the challenge of having to rely on less qualified staff and ensure the long-term growth of the company. One example was provided by P5. Company E relies on retailers to sell its products. These offer direct access to the end consumer market, but the sales staff must be sufficiently trained to present and sell the products effectively:

> *"It was decided that we start training the different salespeople when our agronomist joined […]. She started taking that role, went over to the different stores, gave one-hour visit lectures, and did that for all 40 stores. And we've seen multiple times growth based on that." (P5)*

This quote shows that training and education can be an essential part of ensuring that both internal and external staff understand the goals and values of born circular companies and can communicate effectively with customers. In the end, this helps to reinforce the sustainable message and promote the success of the company.

4.2.3 Strategic alliance building

According to the data analyses, all of the seven company representatives interviewed described an important approach to overcome difficulties such as limited resources. This approach is the formation of partnerships and collaboration with external stakeholders. These include, among others, suppliers, investors, research institutions, and other companies. Through the discussions with the interview participants, it has become clear that partnerships and collaboration help to successfully tackle challenges that can arise in the circular economy, such as the lack of a favorable regulatory framework or the need to find innovative solutions to unsustainable products. Born circular companies gain a broader perspective, more resources, and a wider sphere of influence.

Cooperation with educational institutions in particular was highly valued by interview participants. Educational institutions offer companies access to specialist knowledge in relevant areas as well as a broad perspective on the industry and its trends and actors:

"We are collaborating also with [Finnish university], and I think that's a good source because they have on the R&D side kind of a bird's eye view. What different companies are doing, what companies are working with, what different sectors are looking at, what industrial clusters in the region are doing." (P5)

However, finding the right partners can be a challenge for born circular companies, as there are specific requirements and criteria that need to be considered when selecting suitable partners in the circular economy. The leadership of born circulars needs to have a certain sensitivity to find partners whose values and goals are in line with the born circular firm's principles and then build a positive and trusting relationship with these partners:

"It's of course about the sort of official instructions, but my personal opinion is it's always about people. So, knowing the people in person and also evaluating when starting the corporation that we are sort of matching each other's values. And that's why those contract manufacturers that are willing to start to cooperate with us, they are addressing the same challenge and the same agenda as we. So, I would say that the mutual interest is there and what comes to being ethical and reasonable and efficient in energy use." (P2)

Interviewee P4 even gave a negative example in which the values and ideas of their company did not match with partners, which is why this collaboration was ultimately terminated:

"We have been also working with [furniture producers] in the past. But eventually, it was more convenient to operate by ourselves, because [they] are producers. So even though they say and market that they want to be environmentally friendly and so on, it's not their primary target to sell refurbished because they are producers. […] from our perspective it seems like it's better to work as an independent company." (P4)

In line with existing literature, research institutions are an important and welcome partner for born circular firms. As already mentioned by interviewees, researchers usually have a distant but far-reaching overview of the respective industry or business environment. In addition, born circular

companies can gain access to research grants and financial resources through collaboration with research institutions. From the interviews, it is clear that this type of collaboration primarily supports the development of new technologies and innovative approaches and helps to validate their sustainable practices:

> *"The cooperation is very versatile. Some researchers are of course deepening the know-how. We have research programs, and we also have customer programs with certain stakeholders. I would say that it's very versatile, it's wide and it's creating new, and it's sort of digging deeper in some science-based questions." (P2)*

> *"Why it attracts students and researchers is that the circular economy is so new, it's a new topic, so it's good to publish something about it. But then we also see it as a long-term benefit. We are part of some university courses where circular economy is taught. And [Company C] is used as a case study, and then that has led to simply companies contacting us because somebody in the company has done that course on circular economy." (P3)*

Overall, these quotations show that collaboration with students and researchers can help to strengthen born circular companies by promoting their innovative capacity, making better use of resources, and thus pursuing their sustainable goals more effectively.

4.2.4 Brand management

According to the data analysis, whether a company is successful in seizing opportunities depends furthermore heavily on how the brand is perceived by customers. Born circular firms can directly influence the perception of their target group by developing messages and marketing materials that convey the desired image of the brand. On the one hand, they can design their messages to address the needs and values of their target group, and on the other hand, promote awareness of the circular economy. It is apparent from the statements of the interview participants that clear, simple communication is the key here:

> *"We tried to make it easy to understand for customers. If we say that OK, now you save 20 tons of pollution, you don't say anything. But if we say that now, you save the heating cost*

for 2000 Finnish houses, then it's easy to understand. So, from this point of view, I think that it becomes more and more popular to make these environment savings." (P4)

Another aspect that interview participants felt was important to mention was to adopt a respectful and honest tone and stick to the facts. Through an open and transparent communication style, born circulars contribute to their credibility and help build a good reputation for their business. If customers feel that the company is authentic and truly committed to sustainable practices, they are more likely to trust that company. Specific examples given in the interviews were to avoid badmouthing competitors and greenwashing:

"[…] we're discussing these ways of talking about ourselves and one of the things is basically that as a circular company, the [materials] we use are originally from mines, and mines are needed. So, we're not basically trying to stop mining per se, but we're trying to recycle and reuse the valuable material that comes from mines that would be otherwise thrown away. […] We can tell the story in a positive way without down-talking others." (P5)

The data analysis highlighted the efforts of the born circular companies surveyed to behave ethically and genuinely and to communicate these values effectively to the outside world. To achieve this, born circulars often rely on customer reviews and word-of-mouth marketing. This is not only a proven marketing tool in traditional companies but is particularly important for born circulars in order to strengthen the credibility of their brand messages. When customers share positive experiences, they help to promote understanding and acceptance of sustainable products and services and create a community around the born circular firms:

„Also, word-of-mouth has an impact, and […] we advertise for it on our website. If you tag us on social media about your rental experience, you can get the next rent for half price and stuff like that. So, kind of creating small hints or motivators for users to also promote the service themselves." (P7)

Similarly, influencer marketing can also be effective, a strategy that Company F uses to present authentic testimonials to its target audience. Influencers often have a significant number of followers in their respective niches, with whom they maintain a close relationship. In the circular economy sector, where trust in sustainable practices plays an important role, this can be crucial:

> *"Working with influencers allows us to incorporate their stories and experiences into our brand narrative. This adds a human touch to our platform, making it more relatable to users." (P6)*

In addition, it is important to remain consistent in messaging and generally in how the company presents itself. If customers receive consistent messages across different channels and from different representatives of the company, it creates trust and recognizability. Inconsistent messages, on the other hand, can confuse customers and even raise doubts about the seriousness of the company's sustainable practices. It became clear in the interviews that consistency is particularly important but can also become a challenge as the business grows:

> *"Quite soon when you grow, you need to have ways of working, procedures, messages, the same storyline on the branding messages when you talk to the customers, so we formalized those quite a bit." (P5)*

> *"The [sales decks] are good when they're not too complex and the main messages are there. So even if our salespeople don't recall or have all the stories behind it, everybody presents in their own way, with their own personality. But when the main message is fairly planned and graphical, then it's easier for the receiver to understand it and it's less dependent on how it's presented." (P5)*

According to the data analysis, a strong brand with consistent and appealing messages is particularly important when a born circular firm plans to open up international markets as a growth approach. A clear brand identity makes it easier for customers to understand the company and

what values it stands for. To achieve this, born circular companies must also adapt to local conditions, such as language:

> *"From the early stages of development, we wanted to design our platform with international scalability in mind. We recognized English as a widely used and accepted language and that is why we chose to develop our platform in English from the start. This decision helped us enter other markets more easily because it removes language barriers for our users." (P6)*

This raw data quote clearly shows that for born circular companies, brand management is a capability that not only creates awareness of their products or services but also builds customer trust and loyalty. Consistent and easy-to-understand messaging ensures a uniform brand experience, regardless of where the customer is located. However, it matters not only how a company presents itself to the outside world, but also how it interacts with its customers. In this context, P4 mentioned how important it is for company D to respond quickly to both positive and negative feedback to offer its customers the best possible experience:

> *"We are even so committed to the service that if we get negative […], we are immediately contacting the customer and saying that […] we really want to make it work. Then it's a long-lasting business relationship because there are always people behind it." (P4)*

This quote underlines once again that customers value personal and human interaction. Responding quickly to their feedback demonstrates not only a commitment to continuous improvement, but also customer focus, which is a cornerstone of the circular economy.

4.3 Reconfiguring

Teece (2007) views the process of reconfiguring as the ability of a company to restructure or combine its resources and capabilities in order to adapt to changing market conditions, technologies, or new requirements. During the analysis of the raw data collected in the interviews, three key dynamic capabilities were identified, which are listed below in Table 9.

Table 9. Overview of identified reconfiguring capabilities and their underlying microfoundations

Dynamic capability	Microfoundations
Organizational flexibility	- Continuous monitoring and analysis of customer feedback - Staying current with marketing trends and technologies to use relevant channels - Revisiting and adapting the messaging to provide a better customer experience - Developing new and existing products and services based on customer feedback - Flexibly adapting and optimizing logistics processes
Agile resource allocation	- Regularly reviewing and aligning projects and available resources - Quickly reassessing priorities and allocating resources where they are most needed - Identifying risks associated with resource allocation decisions - Making quick and well-informed decisions to adapt to rapidly changing situations - Exploring new possibilities and adjusting organizational strategies during crises
Leadership and change management	- Leading with a strong commitment to circular principles and ethical standards - Aligning leadership messages with organizational values and circular goals - Maintaining an open-minded attitude to encourage team members to express diverse opinions - Building trust through clear and transparent communication - Guiding change initiatives, ensuring that they are effectively communicated, understood, and embraced by the rest of the firm - Promoting a culture of open dialogue and facilitating the internal flow of information - Valuing and empowering employees to take ownership of their tasks and responsibilities

Table 9 shows the three dynamic capabilities organizational flexibility, agile resource allocation, and leadership and change management that enable born circular companies to restructure or redevelop their internal resources and capabilities. Organizational flexibility describes the ability of companies to flexibly redesign their structures and processes in order to quickly adapt to changing circumstances in the circular economy. Agile resource allocation makes it possible to react to new opportunities or challenges by adapting financial and human resources to changing conditions. Underpinning all of this is the leadership and change management capability to guide teams through change processes, overcome resistance, and promote a positive attitude to continuous adaptation.

4.3.1 Organizational flexibility

In the discussions with representatives of born circular companies that have been in existence for several years, the need to constantly adapt to changing internal and external conditions became clear. Specifically, the interviewees discussed how customer preferences and expectations change over time and how working methods are influenced by the rapid development of technologies. Born circular firms must, among other things, ensure that their branding and marketing strategies

constantly reflect their sustainability values in order to gain and maintain customer interest and trust. Two of the interview participants described how their approaches to marketing their products or services have changed over time:

> *"We put [products] to our stock and made a presentation in a local newspaper back then, nowadays in Google. […] and business was like hell. Everyone came. Back in those days, we had a showroom that was full of people. Nowadays everyone is ordering from e-commerce. So, no longer people in the showroom." (P4)*

> *"We're in a continuous discussion with the customers and so basically in the past two years what we've done is revamp messaging and contacting information or the website's benefits story. We did a sprint of three weeks and did an update on the website and put the benefits there. That started helping already, and this year we even managed to revamp and focus on the message on the English site and also bring in the Finnish site because we are a Finnish company, and on the Finnish site we've seen in the first month there were 2500 visitors without promoting it." (P5)*

The raw data quotes above provide concrete examples of how platforms on which the target group is present can change over time and through new technologies and that born circular companies must keep up with these changes in order to communicate effectively with the target group. However, this applies to all strategic considerations, as the needs and requirements of customers are crucial factors for the success of any company. By listening to and analyzing the needs and wishes of their customers, born circulars can understand which sustainable products or services are in demand:

> *"The customers are really good at telling what they like. […] So basically it's a matter of prioritizing and if somebody is asking for a new product, we have to get the same request from multiple customers. We have to be able to get the volumes and understand the pricing level […]." (P5)*

By responding to customer feedback, companies can therefore ensure that their products and services remain relevant and up to date. This is particularly important in the circular economy, which is characterized by rapid change and technological progress.

Furthermore, the data analysis showed that it is essential for born circular companies to make their products or services easily accessible to customers. Two of the interview participants showed how they actively adapt their logistics processes:

> *"We tried to focus on companies that are mainly in Europe because there the logistics is not that big of an issue as we are selling liquid-based solutions. We have customers in Brazil and Australia and they're good and there's good work ongoing, but the fact is that if those start ramping up, we need local production to make it really feasible. And in Europe, the logistics is easier and there are big players in Europe too and we've been focusing on trying to get known retail companies and known fertilizer producers." (P5)*

These insights demonstrate that optimized manufacturing and logistics enable companies to respond more flexibly to changes in market demand or the supply chain. By optimizing routes, born circular companies can both shorten their delivery times and reduce emissions, which contributes to improved customer satisfaction. In addition, a flexible logistics strategy can help to minimize risks, such as natural disasters or political unrest, and strengthen the resilience of the supply chain.

4.3.2 Agile resource allocation

As previously mentioned, the data analysis showed that all of the born circular companies interviewed face the challenge of limited resources. For this reason, it is crucial for them to focus the available resources efficiently on the most important tasks or projects and to reallocate them if necessary:

> *"We do of course have the roadmaps, how to develop, so we must ensure that there is a suitable amount of development projects going on at each time because then we also have to ensure that there are enough resources to do the projects. If not then you don't get that*

much output of the use of the resources, so you have to make sure that the resources and the projects are in line." (P2)

This quote above was specifically chosen as it demonstrates that limited resources require a clear prioritization of activities. Agile resource allocation enables born circular companies to allocate their resources to projects with the greatest business value, proactively responding to change and ensuring profitability. Agile resource allocation also helps to be prepared for unforeseen changes as part of risk management. However, it is important to emphasize that planning and anticipating identified risks or difficulties is not always enough to adequately deal with unforeseen crises. Planning is important to help organizations better prepare for a variety of challenges, but some crises are so complex and unpredictable that it is difficult to fully anticipate them:

"And then the pandemic started. The whole business environment changed. We had just started the US office […] but crisis after crisis, with the pandemic, then the supply chain chaos, then the war, and more supply chain chaos. And now the cost-of-living inflation and people going back to shopping in the stores and not spending any extra money on anything that is sustainable etcetera. Priorities are to cut anything extra out because retail is in such a difficult situation." (P3)

Nevertheless, two of the interviews proved that not every crisis is necessarily negative for companies and their growth. Especially in times of crisis, born circular firms have the opportunity to use their innovative strength and offer products and services that meet new needs and requirements. The prerequisite for this is being able to react quickly to changing conditions by shifting resources to areas that have a higher demand in times of crisis. Customer needs can change significantly during a crisis and the ability to dynamically reorganize resources allows born circular firms to strengthen customer relationships or even tap into new customer segments:

"During the pandemic, people were much more relying on digital platforms than before, and this has strengthened digital transformation initiatives and accelerated the relevance of companies like us." (P6)

"Our estimate for the office furniture business segment in Finland is that the total market turnover has gone down by 30% in the past years with COVID, and especially with the Ukraine crisis. But we saw potential in recycled furniture, so we started immediately […] and the first year was pretty good for a startup company." (P4)

These two quotes above demonstrate that certain born circular companies can even perform better than others in times of crisis. In the case of Company D, as P4 shows, crises were even a suitable time to found a new company based on the principles of the circular economy.

4.3.3 Leadership and change management

As already emphasized in the existing literature, effective and visionary leadership is fundamental to realizing the vision and goals of a born circular company (see e.g. Baum et al., 2001; Penrose et al., 2009; Wiklund et al., 2009). Accordingly, leadership and change management were also a key topic identified in the data analysis. As already mentioned, the founders of some of the companies interviewed had a long history of experience in the respective industry. In addition, P2 made it clear that not only the experience but more importantly the commitment of the founders and managers is beneficial to the entire company, describing that Company B's "current CEO is one of the founders and so is the Strategy Chief Officer and they are sort of like the running spirits of the company." (P2)

What exact qualities managers of a born circular company should have emerged from the analysis of the individual interviews. Genuineness, and a leading by example were hereby mentioned:

"Obviously, as a CEO or leader in general, it's leading by example. So I, of course, have to also live up to these values. […] When I joined there was some skepticism and maybe even prejudice […] I certainly had to prove myself. But again, because I have a genuine engagement and this whole green mission that we're on is very important to me, it's not difficult. It's just being yourself, I guess that's the thing." (P1)

Transparency in particular, according to the data analysis, fosters an open, trusting, and engaging work environment, which is critical for born circulars to achieve their circular economy goals and

business growth. The ability of leaders to create a clear vision, communicate change, and build trust helps the business to adapt flexibly and embrace change. Communication naturally flows not only from management to employees, but also vice versa, and takes place within the teams themselves.

However, interviewees also admitted that they find it challenging to establish effective and open internal communication. As managers, in particular, there is a fine line between falling into micromanagement. If they interfere too much in their employees' tasks, this can be seen as controlling and lead to frustration and loss of motivation:

> *"Communication is absolutely the most important, but it's difficult. You need to give people responsibility and set targets to achieve, but then, at the same time, you yourself have worked on the product for so long that you have the attention to detail. Some may feel that it's micromanaging. Others may feel that you give the final touch to what everybody has been working on." (P3)*

This quote above also highlights the challenge for managers to offer their employees the right level of support without overly monitoring them. Especially when reconfiguring resources and competencies, it is important to promote trust, autonomy, and employee participation. Otherwise, the flexibility and agility of the company can be impaired as employees no longer act independently or react creatively to new challenges.

4.4 Summarizing the findings

The aim of the analysis of the interviews with the representatives of Finnish circular economy companies was to identify the dynamic capabilities that help these companies grow their businesses. The importance of the growth of born circular companies, and therefore the importance of this study, was aptly summed up by interviewee P1: "We grow our impact to grow our business, we grow our business to grow our impact."

Teece's (2007) dynamic capabilities framework formed the theoretical basis for this analysis and was supplemented with the concept of microfoundations of dynamic capabilities. Table 10 provides an overview of the key findings from the interviews by highlighting the dynamic capabilities and underlying microfoundations that drive business growth for these circular

economy companies. For better illustration, the dynamic capabilities and their microfoundations have been categorized as *sensing*, *seizing*, and *reconfiguring*.

Table 10. Overview of the dynamic capabilities and microfoundations contributing to the business growth of born circular companies

Category	Dynamic capability	Meaning	Microfoundations
Sensing	Market monitoring and external sensitivity	Ability to sense and react to chances and threats in the market environment.	- Conducting market research to identify business opportunities, react quickly to changing market conditions, and recognize opportunities and risks at an early stage. - Utilizing prior industry knowledge and experience of founders to better understand the market. - Regular monitoring of publications by key opinion leaders to follow trends and future developments. - Regular tracking of competitor activities and product launches to adapt to market developments.
	Customer analytics	Ability to continuously analyze customer behavior to understand needs and desires and tailor products and services accordingly.	- Identifying a genuine need in the circular economy to develop products and services that not only meet customer requirements but are also in line with the principles of the circular economy. - Trying to understand the motives, desires, and mindset of the customers. - Conducting surveys with potential customers. - Prototyping and pilot testing before launching a new product to identify potential weaknesses at an early stage and make adjustments before the broad market launch.
	Regulatory intelligence	Ability to continuously collect and analyze information on legal frameworks, legislative changes, and political initiatives.	- Understanding regulatory frameworks and requirements in the home market (and in international markets) with regard to the circular economy. - Staying informed about trends and changes in legislation and policy initiatives related to the circular economy to operate in accordance with and make use of the applicable legal provisions. - Assessing the environmental impact of products or services and aligning them with regulatory goals.
Seizing	Financial resource acquisition	Ability to successfully acquire and efficiently utilize financial resources.	- Embracing alternative funding options and financial approaches to obtain the best possible resources for endeavors and strengthening the financial base. - Developing resilience to handle setbacks in the fundraising process. - Understanding that fundraising is a long-term process. - Continuous exploration of diverse funding sources (e.g., investors, grants) to identify new opportunities.
	Talent acquisition and development	Ability to identify, successfully recruit, and continuously develop talent.	- Understanding the importance of employer branding in attracting talent that shares the same mindset. - Integrating circular values into recruitment advertisements - Engaging with educational institutions, e.g. by participating in circular economy-related courses, to meet potential talents. - Hiring team members with diverse skill sets, expertise, and circular mindset. - Identifying and addressing poor fit if necessary to create an effective and efficient workforce.

	Strategic alliance building	Ability to build and leverage strategic alliances to share resources and knowledge and seize opportunities.	- Building a collaborative culture and forming partnerships with external organizations and other stakeholders to gain the advantage of sharing resources as well as risks and jointly developing circular economy solutions. - Clear communication within collaborative teams to convey common objectives and expectations to build trust between partners and avoid misunderstandings that could lead to conflict.
	Brand management	Ability to actively manage the brand in order to build trust with the target group, create positive perceptions, and adapt to changing market conditions.	- Communicating the brand narrative in an authentic and credible manner to build trust. - Engaging with external stakeholders through various communication channels to effectively address different target groups and cater to different needs. - Consistent messaging across different platforms and countries. - Clear and transparent communication about circular values and initiatives. - Training employees to enhance their understanding of the brand and its values. - Agile marketing strategies for circular products and services. - Customer engagement through human-to-human marketing to build strong emotional connections. - Identifying and collaborating with influencers for promotion to increase the brand's reach. - Quickly responding to customer feedback and rectifying negative experiences.
Reconfiguring	Organizational flexibility	Ability of companies to continuously adapt to changing internal and external conditions.	- Continuous monitoring and analysis of customer feedback to respond quickly to changing customer preferences and needs. - Staying current with marketing trends and technologies to use relevant channels. - Revisiting and adapting the messaging to provide a better customer experience. - Developing new and existing products and services based on customer feedback. - Flexibly adapting and optimizing logistics processes to react more agilely to changes in the supply chain and in demand.
	Agile resource allocation	Ability to reallocate resources flexibly and efficiently in order to respond to changing conditions and new requirements.	- Regularly reviewing and aligning projects and available resources. - Quickly reassessing priorities and allocating resources where they are most needed. - Identifying risks associated with resource allocation decisions. - Making quick and well-informed decisions to adapt to rapidly changing situations. - Exploring new possibilities and adjusting organizational strategies during crises.
	Leadership and change management	Ability of managers to communicate corporate visions and goals and to successfully initiate, manage, and adapt organizational change.	- Leading with a strong commitment to circular principles and ethical standards. - Aligning leadership messages with organizational values and circular goals. - Maintaining an open-minded attitude to encourage team members to express diverse opinions. - Building trust through clear and transparent communication. - Guiding change initiatives, ensuring that they are effectively communicated, understood, and embraced by the rest of the firm. - Promoting a culture of open dialogue and facilitating the internal flow of information. - Valuing and empowering employees to take ownership of their tasks and responsibilities.

As shown in Table 10, the data analysis revealed specific dynamic capabilities that were discussed in detail during this chapter which help the born circular companies interviewed to achieve business growth in the circular economy. In addition, the table outlines the meaning of each dynamic capability and lists the microfoundations underpinning them. This overview provides an understanding of the mechanisms studied by which born circular companies sense opportunities and threats, seize opportunities, and constantly evolve to maintain and improve their competitiveness.

5. Discussion and conclusion

5.1 Research summary

The purpose of this study was to investigate the dynamic capabilities supporting the growth of Finnish born circular companies and to identify which microfoundations underlie these dynamic capabilities. The principles of the circular economy have only recently gained significant interest among the general public and in the business world, which is why the literature on entrepreneurship in the circular economy is not yet abundant. Previous research on dynamic capabilities and business growth in the context of the circular economy has focused intensively on the introduction of circular practices in existing companies, but little attention has been paid to born circulars. Therefore, the aim was to close these gaps in the existing literature and formulate concrete recommendations for action for other born circular companies. This research was guided by the question "*What are the key dynamic capabilities that enable Finnish born circular firms to achieve business growth?"* and built on the theories of dynamic capabilities, their microfoundations, and business growth.

The literature review served as a basis for the development of a well-grounded and relevant research framework. It focused on existing literature on dynamic capabilities and microfoundations in the context of companies operating in the circular economy. It was found that some researchers have already started to examine companies that are transitioning from linear to circular business models (see e.g., Demirel et al., 2019; Leoncini et al., 2019). This has led to the conclusion that certain dynamic capabilities are necessary to successfully implement circularity in existing businesses. However, companies that are built from the ground up according to the principles of the circular economy are still largely unexplored. This applies above all to their ability to adapt and assert themselves against competition in a circular economy environment that is characterized by constant change. To fill this gap in the literature, a line of research was chosen for this study that aims to identify dynamic capabilities and underlying microfoundations in born circular firms to understand how these types of firms can achieve growth in the circular economy.

A multiple case research strategy was applied in this study, whereby a total of seven Finnish born circular firms were chosen as case companies. The data collection was conducted through semi-structured interviews with representatives from seven born circular firms in Finland. These interviews were conducted to gain insights into the strategic decision-making processes, organizational practices, and individual-level behaviors that the interviewees described in relation

to the growth journey of each firm. Through the subsequent analysis of this qualitative data, the dynamic capabilities and microfoundations that characterize the business growth of these companies were derived. For each of the three categories *sensing, seizing,* and *reconfiguring*, several different capabilities were discovered, as illustrated in Table 10.

Following the first sub-research question *"How do Finnish born circular firms sense opportunities and threats?"*, three dynamic capabilities were identified in the category of *sensing*. These are "market monitoring and external sensitivity", "customer analytics", and "regulatory intelligence". The companies surveyed were characterized by a high level of sensitivity to needs and changes in their environment, particularly with regard to sustainability aspects and resource availability. This enables them to sense market opportunities at an early stage and align their business strategy accordingly.

Following the first sub-research question *"How do Finnish born circular firms seize opportunities?"*, four dynamic capabilities were identified in the category of *seizing.* In this context, the interviewees described the importance of "financial resource acquisition", "talent acquisition and development", "strategic alliance building", and "brand management". These dynamic capabilities enable companies to acquire resources, particularly financial resources, as well as to develop talent, enter strategic partnerships, and strengthen their brand positioning. This enables them to seize identified opportunities or mitigate threats.

For the final sub-research question *"How do Finnish born circular firms transform their resources and assets?"*, three *reconfiguring* capabilities were discovered. These are "organizational flexibility", "agile resource allocation", and "leadership and change management". The companies interviewed have the flexibility to adapt quickly to changing market requirements and to use and reallocate their limited resources efficiently. In addition, their management is able to promote a culture of continuous improvement and clearly communicate strategies. In this way, these born circulars are able to reconfigure their resources and competencies to adapt to a rapidly changing business environment.

Consequently, the main research question *"What are the key dynamic capabilities that enable Finnish born circular firms to achieve business growth?"* can be answered by stating the key dynamic capabilities from the categories of sensing, seizing, and reconfiguring, as presented above. These findings provide a basis that can contribute both to the further development of research in this area and its practical application in business. It has been shown that the theories of dynamic capabilities provide an applicable framework for studying the growth of born circular

firms, but that the theoretical framework should be further developed to better understand the specificities of these firms. In practice, recommendations were developed for managers of born circular companies to strengthen their dynamic capabilities and thus secure competitive advantages in the circular economy. Below are the theoretical contributions and practical implications based on the findings of this study on the dynamic capabilities and microfoundations of Finnish born circular companies.

5.2 Theoretical contributions

Previous research on dynamic capabilities in the context of the circular economy has focused intensively on the introduction of circular business models in existing companies. These studies have uncovered extensive insights into how companies can successfully transform their linear business model to align with circular economy principles. However, there has been little research on the dynamic capabilities of born circular companies and how they can help these companies achieve business growth. By investigating the under-researched area of dynamics capabilities and their microfoundations of born circular companies in relation to the achievement of business growth, this study contributes to the existing literature in various ways.

First, it developed a theoretical framework based on two theoretical approaches that have previously been applied independently to similar research paths. On the one hand, researchers have looked at the dynamic capabilities for implementing a circular business model in traditional companies (see e.g., Elf et al., 2022; Khan et al., 2020-a; Khan et al., 2020-b; Köhler et al., 2022; Prieto-Sandoval et al., 2019), thereby utilizing Teece et al.'s (1997) dynamic capabilities theory. However, none of the research was aimed at business growth, but rather mentioned company success, growth, or competitive advantage as a result of the introduction of a circular business model.

Another stream of research has focused on the growth of companies that have made the transition to a circular economy, either by aligning their entire business model with circular principles or by adopting a circular approach to selected processes and activities (see e.g., Demirel et al., 2019; Horbach et al., 2020; Leoncini et al., 2019). Zucchella et al. (2019) have explicitly addressed the business form of born circular firms in the discourse on circular entrepreneurship and have examined the growth of circular entrepreneurship in general. However, the business growth of born circular firms has not yet been researched and dynamic capabilities have not yet been linked to the business growth of circular ventures. This study therefore makes a key contribution by

bringing these two theories together and demonstrating how dynamic capabilities theory and business growth theories complement each other in the circular economy context.

Second, the findings of this study advance the understanding of dynamic capabilities and microfoundations by identifying explicit dynamic capabilities and microfoundations that are conducive to the growth objectives of the born circular firms interviewed. Moreover, the difference between dynamic capabilities and microfoundations is emphasized by contrasting both concepts. From the literature review, it is evident that most researchers have looked at dynamic capabilities without mentioning microfoundations (see e.g., Borland et al., 2016; Elf et al., 2022; Köhler et al., 2022; Prieto-Sandoval et al., 2019; Scarpellini et al., 2020; von Kolpinski et al., 2022). Conversely, researchers, such as Khan et al. (2020-a) and Santa-Maria et al. (2021), that have examined microfoundations have not addressed specific dynamic capabilities but have only referred to the three dimensions of sensing, seizing, and reconfiguring according to Teece (2007).

In order to answer the main research question of this study, it would have been too vague not to specify the dynamic capabilities of the case companies or not to mention their underlying microfoundations. By identifying clear dynamic capabilities for sensing, seizing, and reconfiguring, it was possible to clarify that these are the abilities of the companies to continuously adapt to changing environmental conditions at the organizational level and to strategically reposition themselves. As these dynamic capabilities were simultaneously assigned to microfoundations, it was possible to deepen the understanding of which individual components enable and advance the dynamic capabilities mentioned. In this way, also far more microfoundations were identified than by Khan et al. (2020-a) and Santa-Maria et al. (2021) combined. As a result, the findings of this study provide important theoretical implications for the analysis of the internal functioning of companies and contribute to the development of more precise explanations for the behavior of companies in the circular economy.

In summary, this study contributes to the literature on circular entrepreneurship, dynamic capabilities, and business growth. It addresses a clear gap in the existing literature by focusing on the dynamic capabilities and business growth of companies that were founded on the principles of the circular economy. By combining theories of dynamic capabilities and business growth, this research develops an integrative approach that contributes to a more comprehensive understanding of the mechanisms of business growth of born circular firms. The detailed investigation identifies specific dynamic capabilities as well as their underlying microfoundations in the context of the

circular economy, which helps to broaden the theoretical understanding of how firms can successfully grow in this environment.

5.3 Managerial implications

The findings of this study have shown that born circular companies that use dynamic capabilities effectively can achieve significant benefits for their business growth, particularly in the areas of product development, customer acquisition and retention, and market development. The following managerial implications offer practical suggestions for managers of born circular companies to develop their dynamic capabilities and microfoundations in a targeted manner and use them to promote business growth.

Table 11 below provides a detailed overview of the dynamic capabilities identified in this study that can be conducive to business growth in born circular companies. For each dynamic capability, managerial implications derived from the dynamic capabilities and their underlying microfoundations are presented in the table.

Table 11. Implications for managers based on the findings of this study

Category	Dynamic capability	Managerial implications
Sensing	Market monitoring and external sensitivity	The circular economy is characterized by constant change, which is why managers should adopt the practices of regular market analysis and research to stay on top of market conditions, trends and customer needs. This includes implementing tools and processes to monitor competitors and their activities to better understand their strategies. In addition, it is worth fostering an environment that supports the exchange of industry knowledge and experience within the company in order to benefit from internal know-how. This internal knowledge can be expanded by establishing mechanisms for systematically documenting and analyzing experiences from past projects in order to make them usable for future decisions.
	Customer analytics	Founders and managers should conduct thorough analyses to identify real needs and gaps in the circular economy market. It is particularly important to gather customer feedback and data to develop a deep understanding of their motivations, desires, and mindsets. To this end, structured surveys and feedback mechanisms must be introduced to involve potential customers in the product development process. Consideration should also be given to implementing prototyping and pilot testing procedures to make adjustments and improvements to new products or services before they are launched on the market. Overall, a continuous feedback and improvement process must be established in order to be able to react to changing customer needs and market conditions.
	Regulatory intelligence	National and international regulatory frameworks affecting the circular economy are constantly evolving, which is why a set process for regular review and analysis should be established. This enables managers to identify trends and changes in legislation and policy initiatives related to the circular economy at an early stage. It also allows them to identify opportunities for innovation and business development in line with changing regulatory requirements. They must also develop flexible business models and strategies that enable the company to adapt quickly to new regulatory requirements and ensure that products comply with applicable environmental standards and support sustainability goals.
Seizing	Financial resource acquisition	Founders and managers of born circular companies cannot rely on traditional sources of financing. They need to diversify their funding strategy by considering alternative options such as angel funding, venture capital and public funding. This requires building relationships with investors and funding organizations, as well as a corporate culture that encourages openness to feedback and a willingness to learn from setbacks in the fundraising process. Managers must create realistic expectations regarding the timeframe and develop a funding strategy based on the organization's long-term growth goals. In addition, there is the continuous exploration and identification of different funding opportunities to ensure continuous capital raising across different stages of development.
	Talent acquisition and development	To effectively manage the demands of the circular economy, managers need to put together a diverse team. To do this, they need to develop an attractive employer brand that attracts candidates with different expertise, skills, and experience. This includes communicating the company's values and goals in relation to the circular economy to attract the interest of potential candidates. Job advertisements in particular should emphasize the opportunity for employees to make a positive contribution to the environment and work on projects that promote the circular economy. Furthermore, managers need to build collaborations with educational institutions to gain access to potential talent. Participation in circular economy courses and career events at universities and colleges can be particularly effective. Finally, managers need to implement mechanisms to recognize and address adjustment issues of their employees, including reorientation or termination, if necessary.

	Strategic alliance building	Managers need to identify potential partners from different organizations and stakeholders to drive common interests and goals related to the circular economy. They also need to foster a corporate culture that promotes collaboration, openness, and trust to facilitate the formation of strategic alliances. To facilitate collaboration and avoid misunderstandings, all parties involved need to establish clear goals, expectations, and roles. In addition, managers need to establish regular communication mechanisms and meetings to facilitate the sharing of information, progress, and challenges within the team.
	Brand management	Managers need to develop a clear brand message that communicates the company's values and goals in the circular economy in an authentic and credible way. This includes publishing transparent information about the company's practices to build customer trust. Various communication channels should be used, such as social media and influencer marketing, to reach and engage a wide audience. To maintain consistency in brand communication, simple messages must be formulated, guidelines developed, and employees trained. In addition, managers need to encourage personal interactions with customers through human-to-human marketing approaches. This creates trust and builds personal relationships with customers. Fundamental to this is the establishment of feedback mechanisms to monitor customer feedback in order to respond quickly to positive and negative experiences. This includes customer service channels that enable direct communication with customers to respond quickly to feedback and requests. Last but not least, managers should develop flexible marketing strategies to respond quickly to changing market conditions and customer demands.
Reconfiguring	Organizational flexibility	In the ever-changing business environment of the circular economy, companies must be able to adapt quickly to new conditions. Therefore, managers need to set up processes to quickly translate customer feedback into concrete actions and product adaptations. Integrating customer feedback into the development process of new products or services ensures that customers' needs and wishes are met. Additionally, messaging and branding must be regularly reviewed and revised to customer expectations in order to provide them a positive experience. In addition, the marketing strategy and channels must be continuously adapted based on current trends and customer preferences in order to be present in the right places and ensure a high impact. Managers of born circular companies whose solution requires logistics must constantly monitor and optimize logistics processes to increase efficiency, reduce costs, and respond to changing customer demands and market conditions.
	Agile resource allocation	Managers must ensure that ongoing projects and limited resources are always aligned with business objectives. To do this, they need to establish regular review processes and flexible decision-making structures that allow them to respond quickly to changing priorities and reallocate resources accordingly. They should also implement risk management processes to identify and mitigate potential risks associated with resource allocation decisions. One approach to this is to regularly explore new opportunities and respond quickly to crisis situations to ensure the survival and resilience of the business.
	Leadership and change management	Managers of born circular companies must actively support the values and principles of the circular economy and lead by example. This includes ensuring that their messages and actions are in line with company values and goals to ensure credible leadership. Managers should establish open channels of communication with employees to share information clearly and transparently and build trust. Open and honest communication is essential, especially regarding challenges and changes related to the implementation of circular economy practices and goals. Furthermore, managers must create an environment in which employees are encouraged to freely express their ideas, concerns and suggestions. By empowering employees to take ownership and see themselves as active contributors to the company's success, managers can improve the company's overall responsiveness and adaptability.

As shown in Table 11, there are several concrete recommendations for managers of born circular companies on how they can apply the findings of this study in their company. These recommendations are derived from the microfoundations, i.e., the individual and organizational actions, processes, and knowledge resources that support the development and use of dynamic capabilities, of the case companies in this study. For this reason, the research results are highly practical and, in addition to academic relevance, also offer direct benefits for managers of similar companies.

5.4 Research limitations and suggestions for future research

Although this study provides substantial additions to current understanding, it is not without limitations. Most of these limitations can be attributed to the qualitative research method. In general, case studies are often criticized for the fact that their findings cannot be easily transferred to other contexts, as the results may only be applicable to the specific cases studied. Another problem that can occur is that the number of participants or cases is often limited. This can impair the representativeness of the sample and the ability to draw general conclusions from the study. (Farquhar, 2012.)

Due to the goal of the researcher to conduct this study within a certain time period, also the search for relevant cases was set for a limited time period. Moreover, the research focused on the population of born circular companies from Finland, which in itself is not extensive. This led to this study being limited to a small number of case companies, with only seven interviews conducted in total. The findings may therefore not be representative of born circular companies throughout Finland nor in other countries or regions. The fact that all the interviewed companies are active in a different industry means that a variety of born circular companies could be represented, but since there was only one company per industry, the findings do not represent the entire respective industries. Further difficulties in generalization arise from the fact that the companies surveyed were neither the same age nor the same size. Companies of different sizes and ages may face different conditions and challenges and have different characteristics, resources, and business practices. This heterogeneity of the sample makes it difficult to compare the findings and can potentially lead to an unequal weighting of perspectives.

Thus, further research is needed to investigate the dynamic capabilities of born circular firms on a broader scale. Instead of conducting similar, qualitative research, future research could be based on quantitative methods and investigate a larger sample to deliver more quantifiable data. Moreover, it could be interesting to explore the dynamic capabilities in the growth of born circular

firms that are based in countries other than Finland. Such a research avenue would allow comparisons to be made between different cultural, economic, and technological aspects and to analyze the impact of the business environment on the need for and development of certain dynamic capabilities. A similar approach could consider firm size and age to examine how dynamic capabilities are developed in different organizational contexts. By comparing born circular firms of different sizes and ages, researchers could identify how companies allocate their resources to build dynamic capabilities or what factors contribute to companies being successful in the circular economy.

Another factor that may have influenced the quality of the findings is the positions of the interview participants. All company representatives belong to the top management of their respective companies and therefore spoke purely from a management perspective. For this reason, the findings may offer a one-sided view of company reality and not reflect the full range of company activities. Furthermore, it can be assumed that managers have an interest in presenting as positive an image of their company as possible, which could lead them to emphasize positive aspects and downplay negative aspects. Finally, many of the skills and competencies described in the interviews relate to the managers themselves and not necessarily to the companies as a whole. Adner et al. (2003), who introduced the term *dynamic managerial capabilities*, point out that a distinction should be made between dynamic capabilities and managerial capabilities. They extend the perspective of dynamic capabilities (Teece et al., 1997) by focusing on the role of managers, individually and in teams. However, the objective of this study was to examine the dynamic capabilities of born circular companies as a whole and the results may lack a company-wide perspective.

Thus, looking at the different levels of employees within born circular companies provides an interesting future research avenue. Interviews with employees at levels other than management would ensure a more comprehensive view and representation of dynamic capabilities. This particularly concerns dynamic capabilities that are directly related to human resources. Alternatively, future research could target managers directly and focus on dynamic managerial capabilities to extend the theoretical framework used in this study.

Further limitations of the findings of this study can be attributed to the chosen theoretical framework. The theory of dynamic capabilities was originally developed by Teece et al. (1997) in the early 1990s to study large, traditional companies. To date, few scholars have applied this theory to the study of firms in the circular economy, and when they have, it has rarely been in the context

of business growth. To the knowledge of the authors of this study, such a theoretical framework has never been used to study the business growth of born circular firms, and thus, further research using this approach is needed to validate it.

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Appendices

Appendix A: Interview guide

Recognizing Opportunities and Challenges:

- Market sensing:
  - How do you stay informed about trends, technologies, and market demands/customer needs?
- Environmental scanning:
  - What processes or tools do you use to monitor changes in the regulatory environment?
- Competitor analysis:
  - How do you assess the strategies and capabilities of your competitors?

Exploring and Exploiting Opportunities:

- Opportunity identification:
  - How does your firm identify and prioritize growth opportunities (e.g., new markets or product/service innovations)?
- Innovation and product development:
  - How do you drive innovation in your product or service offerings?
- Market entry and expansion:
  - How does your firm approach market entry and expansion within the circular economy?

Adapting and Transforming:

- Resource reallocation:
  - How do you reallocate resources (financial, human, technological etc.) to support the implementation of growth strategies?
- Organizational learning:
  - How does your organization promote a culture of continuous learning to stay agile in the circular economy sector?
- Collaborative partnerships:
  - How does your firm engage in collaborations, partnerships, and networks within the circular economy?