tise transition, innovation and sustainability environments

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Transition to Circular Economy through ADKAR: Change management guidelines for SMEs

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ABSTRACT

This thesis work aims to investigate how change management has the potential to help small and medium-sized enterprises (SMEs) in the European Union (EU) to transition to a circular economy (CE). Specifically, the study focuses on the application of the ADKAR change management methodology. Seven semi-structured interviews were undertaken with experienced change management leaders and consultants who shared their insights about addressing current challenges by means of ADKAR. The data was analysed using qualitative and quantitative deductive analysis, with a focus on the qualitative approach. Five stages emerged within the ADKAR process: Awareness, Desire, Knowledge, Ability, and Reinforcement. Strategies and tools were identified for each stage to drive the adoption of circular practices in SMEs. Key findings highlight the significance of understanding circularity across the supply chain, engaging change ambassadors, establishing circular economy ecosystems, and facilitating knowledge acquisition and collaboration between different stakeholders: employees, suppliers, corporates, investors, public local authorities and customers. Ongoing reinforcement is vital for sustaining circular practices, and recommendations include celebrating progress, gamifying the change process, and promoting cross-communication. This research offers practical insights and guidelines to support SMEs in the EU in transitioning to circular business models, contributing to the advancement of sustainable practices aligned with the Circular Action Plan, the Green Deal and the Agenda 2023.

Keywords:

Circular economy, sustainability, ADKAR, change management, open innovation, circular ecosystem, Green Deal, Circular Action Plan, European Union, celebration of change, co-design.

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1. Introduction

In the ever-evolving landscape of 2023, the global community finds itself at a critical juncture, grappling with pressing sustainability challenges and striving to meet the ambitious targets set forth by Agenda 2030. The urgency of reaching sustainability as the new social and environmental main goal has become a driver to address climate change, resource depletion, and social inequality. Such approach has taken centre stage in policy discussions, corporate strategies, and societal consciousness. Within this sustainability context, the circular economy has emerged as a transformative model that offers a promising path forward. By redesigning traditional linear economic models, the circular economy seeks to decouple economic growth from virgin resource consumption, aiming to close the loop of production, use and disposal. Through the adoption of circular practices, such as designing for durability, resource recovery, and extended product life cycles, the circular economy presents an opportunity to reconcile economic prosperity with environmental stewardship.

In the European Union context, the drive towards a circular economy is compelling and it is still working to address some complexities. The EU has embraced the circular economy as a core pillar of its policy framework by means of the Circular Economy Action Plan (CEAP). Being one of the main building blocks of the European Green Deal, the CEAP establishes a complete roadmap to foster sustainable development, stimulate innovation, and create circular jobs. However, the transition to a circular economy in the EU is not exempt from challenges. Barriers such as regulatory constraints, market fragmentation, and limited access to financing pose significant hurdles that must be overcome to unleash the full potential of circularity across the region. Given that 99% of the productive sector are SMEs, understanding their correlation between their operations success and the adoption of circular economy practices is a fundamental aspect of the circularity discourse. In fact, small and medium size companies are increasingly recognizing that integrating circularity into their business models is not only aligned with sustainability goals but also presents a strategic advantage. Studies have shown that businesses from small, medium, to large size that embrace circular economy principles, can unlock new revenue streams, enhance resource efficiency, reduce costs, and strengthen customer loyalty. As a result, the business case for circularity is gaining traction, motivating organisations to explore innovative solutions and rethink traditional value chains.

In despite of the benefits of becoming circular, transitioning towards a circular business model is not a straightforward process. It requires a gradual and deep shift in mindset, organisational culture, operational practices and a new management of technology, financial investments and

improvement of organisational processes. Change management becomes paramount, necessitating strategic planning, stakeholder engagement, and collaboration across sectors. Thus, businesses are increasingly called to carry on a deep navigation through the intricacies of transitioning from linear to circular systems in order to maintain competitive while reaching short- and long-term sustainability goals. In this context, adopting a positive attitude towards change and embracing a circular business model becomes a strategic pillar for organisations, especially for SMEs. It requires visionary leadership, cross-sectoral partnerships, and a willingness to foster the redesign of value chains given their high dependency on stakeholders that might not have a circular economy mindset along the supply chain. By adopting circular economy practices, businesses can reach sustainability by reducing environmental impact, and creating value from waste management. Moreover, instilling circular economy as a basis of productivity holds the promise of driving innovation, fostering resilience and educate on the change of behaviour of the markets in order to increase the acceptance from circular practices when purchasing and disposing products.

Therefore, the present thesis work will delve into the key dimensions of the circular economy, examining the barriers hindering its progress in the EU SMEs, analysing the correlation between business success and circular economy adoption, and exploring strategies for effectively addressing change and embracing a circular business model. To guide the exploration of change management in the context of circularity, we will draw upon the ADKAR methodology. ADKAR, which stands for Awareness, Desire, Knowledge, Ability, and Reinforcement, offers a structured framework to drive successful organisational change. By applying the ADKAR methodology to the transition towards a circular business model, we can systematically address the individual and organisational challenges inherent in this transformative journey.

By integrating the ADKAR methodology into the analysis, the aim is to provide a comprehensive and actionable roadmap for SMEs seeking to embrace circularity from an individual dimension. This framework will help organisations navigate the complexities of change management, enabling them to effectively communicate the need for change, cultivate a desire for circular practices, equip individuals with the necessary knowledge and skills, foster the ability to implement circular strategies, and reinforce sustainable behaviours over time. Through this framework, it can be seen the full potential of the circular economy, transforming businesses and societies alike towards a more sustainable future. The alignment of the ADKAR framework with the principles and challenges of circularity, a guideline and

recommendations for organisations seeking to embrace sustainable change and unlock the benefits of the circular economy.

2. Literature Review

2.1. The sustainability context

In the last decade, the 2030 Agenda is the regulatory framework to operate as a responsible society. Policymakers, companies, and civil individuals are increasingly challenged to achieve sustainability in every activity undertaken in society. Speaking from the Sustainable Development Goals' perspective, being sustainable is a daily life decision, driven by values and will to choose the more inclusive, greener and practices based in socio-economic systems. In this vein, economic systems need to boost their added value while adopting sustainable practices. Such value is given by the extent to which companies, public institutions and independent entrepreneurs are able to generate profit and leverage the use of resources the most efficiently possible, leaving less detrimental waste to other sectors to deal with their ecosystem. Thus, they need to embrace sustainability as a measure of success.

Sustainable businesses are those that adhere to the triple bottom line (TBL) concept, which emphasises economic viability, environmental protection, and social equity (Rinalducci, 2022). In other words, these companies are able to maintain a healthy economic flow over time while also safeguarding the environment and the welfare of their stakeholders. The meaning of sustainability can vary depending on the industry or economic activity, but what sets sustainable businesses apart from traditional companies is the actions they take to achieve their goals. For instance, collaboration with other companies is a key factor to measure sustainability. Here, leaders acknowledge the need to learn from outside their boundaries, exchange concerns and in turn, seek for beneficial relationships with key stakeholders. For example, PepsiCo and its suppliers constantly share best practices on energy reduction. They participate in co-creation of common metrics to monitor progress and engage in joint planning sessions to ensure that ideas are executed (Eccles et al., 2012). This external engagement contributes to relieving tension between the trade and encourages transparency. Moreover, some companies have gone farther, fostering an open space to discuss collaboration among competitors. One example of this is Renewable Energy Buyers Alliance (REBA). The firm is a coalition of large corporations, including competitors such as Google, Microsoft, and Walmart, who have come together to advance the development of renewable energy sources. By working together, these companies are able to aggregate their demand for renewable energy and create economies of scale that make it more affordable and accessible. This collaboration not only helps these companies to reduce their carbon footprints and meet their sustainability goals, but it also helps to accelerate the transition to a low-carbon energy system more broadly.

In the same way, companies acknowledge the importance of the social component of sustainability. A study made to 43 frontrunner companies committed to sustainability and circular economy shows that they include community engagement and wellbeing, the capacity of job creation and fostering a resilient human behaviour towards change. (Walker et al., 2022). However, a few cases mentioned material-efficiency, end-of-life products management and regeneration. This fact gives the hint that, even though taking care of environmentally friendly practices is one of the most demanded actions to tackle climate change and reach the 2030 Agenda, it is still unclear how companies envisage their operations to leverage efficient resource management. Attaining an environmentally and socially sustainable economy relying in less extraction of resources continues to be the subject of considerable attention within the business scholarly and practitioners' communities (Brehmer et al., 2018). In order to become an environmentally friendly firm they should include operational practices causing minimal damage to ecosystems and using renewable resources when possible. It also considers creating alliances with local suppliers to reduce the carbon footprint and limit unnecessary packing, stock and transportation. Overall, such actions aim to reduce waste in operations. (Queensland Government, 2022).

The reduction of waste is a critical aspect of effective waste management. While waste management typically focuses on the disposal, reuse, and recycling of production outcomes or residuals at the end of a supply chain, it's important to recognize that such materials can often be reincorporated into new value chains. By facilitating this process, waste management can serve as the starting point for a more circular use of resources, in which materials are reused, repurposed, and recycled in a way that maximises their value and minimises their environmental impact. This not only helps to conserve resources and reduce the strain on the planet's natural systems, but it also presents significant economic opportunities, as businesses can create new revenue streams by finding innovative ways to extract value from waste materials. Therefore, innovation drives businesses to find alternative business models that include circular economy practices.

2.2. Circular economy as a strategic approach in EU SMEs

The circular economy (CE) is nowadays the most powerful and practical method to shift towards a more resource-efficient business model (Cullen & Angelis, 2020). The CE is an approach to promote the responsible and cyclical use of resources (Moraga et al., 2019). Its main principle is to lower the use of newly extracted natural and finite resources in supply inputs and replace them for recycled or waste-origin ones (Takacs et al., 2022). As a function

of sustainability, any kind of institution is called to gradually adopt a circular economy as the bottom line to build their key performance indicators (George et al., 2015). The urgency to adopt such measures has been led by Europe, specifically by the European Commission, as the European Union's (EU) politically independent executive arm (EUMESTAT, 2020). The EU has joined efforts to lead the inclusion of circular economy in policy making globally. In March 2020, the European commission adopted the new Circular Economy Action Plan (CEAP) (Engelkamp, 2023) and it constitutes one of the core pillars of the European Green Deal for sustainable growth. The plan aims at achieving the EU's 2050 climate neutrality target and to halt biodiversity loss by reducing the imports of virgin raw materials and therefore, decrease significantly the EU's dependence on other regions. Thus, the resource price volatility would be able to be more controlled while reducing production costs (Iles, 2022)

The current European economic context is driven mainly by SMEs. The EU defines a SME as a business with fewer than 250 employees, a turnover of less than €50 million, or a balance sheet total of less than €43 million (European Commission, 2020). Within this umbrella, three different categories have been identified: medium-sized, small, and micro-businesses. These categories are defined by turnover and number of employees. (Dey et al., 2022). They play a significant role as the main actors towards more sustainable industries; given that they represent 99% percent of all business in the EU (European Commission, n.d.). As a matter of fact, according to one of the statements in the Entrepreneurship and SMEs pillars, published by the European Commission, small and medium-sized enterprises (SMEs) are the backbone of Europe's economy (OECD, 2018). Currently, they account for more than a half of Europe's GDP due to their high employing numbers around 100 million people. That is how, this cluster actively plays a key role in adding value in every sector of the economy (Coillie, 2020) Therefore, they are an essential pillar of the competitiveness of Europe and representation of the resilience towards abrupt economic and social changes. Therefore, we are called to analyse whether, in the field, SMEs count with the enough support, capacity, expertise, knowledge, will and different drivers that potentially help them to become competent to achieve high levels of sustainability by means of a circular economy.

2.3 Circular economy barriers in the EU context

While many businesses in the EU have stated their support for the CE based on circular regulations, the implementation of such practices are still in early stages, especially in the case of SMEs (Kirchherr et al., 2018). In this context, SMEs are still constrained by a series of barriers which are classified in cultural, regulatory, market failure and lack of technological

capacity (Chioatto & Sospiro, 2023). Culture is the most significant barrier to overcome. The demand for new products still surpasses the one for recycled ones. A study revealed that during the last 5 years consumers have a positive attitude towards products made from recycled materials (Polyportis et al., 2022); however, they frequently end up purchasing other cheaper products made from raw materials. This market readiness discourages not only big companies but the small and medium ones to not invest in enhancing goods' durability. As a result, manufacturers may lose trust in negotiating with providers and clients who do not represent a significant market acceptance and profitability for a circular approach to production. The second barrier is associated to market failures, which are caused by low virgin material prices and high investments costs when producing sustainable outcomes. CE products and initiatives, indeed, do not result economically convenient compared to the traditional ones. (Chioatto & Sospiro, 2023). For example, oil-based plastics are less expensive than bio-based plastics. In light of this, it is possible to consider that market barriers are one of the main direct causes of the effect of the above-mentioned cultural barriers. This situation unfolds the lack of purchasing power of consumers and may reduce motivation for entrepreneurs to base their business models in CE even at the moment of their ideation process. In contrast, technological barriers have been identified as less influential. They are associated with a limited capacity for circular design, deliver high quality remanufactured products and lack of transparency to process data. (Chioatto & Sospiro, 2023). It matches with the fact that entrepreneurs are aware of the implications of building a circular economy model but they depend on other stakeholders to contribute to their efforts towards sustainability.

Public regulations play an important role in embracing sustainability. The regulatory landscape in the EU regarding circular economy is drawn by a package of proposals, including the New Circular Economy Action Plan (CEAP) released in March 2020 (European Commission, n.d.). One of its targets, apart from the EU's 2050 climate neutrality, the CE package has the purpose to improve competitiveness by shielding industries against potential resource scarcities, create more jobs in the context of a circular economy and integrate all the key actors in a supply chain as key drivers of green transition (Milios, 2018). Even though EU governments have tried to formulate state-of-the-art regulations to cope with the demand of a circular economy shifting mindset, it seems that most of the SMEs of various sectors are struggling to adopt the circular economy as a business model. Existing literature and government reports estimate that SMEs have a high environmental footprint by contributing to 60–70% of industrial pollution in Europe (Dey et al., 2022). Manufacturing SMEs are reported to account for 64% of air pollution, whereas only a small proportion of 0.4% of these SMEs hold an environmental management programme. This shows the possible lack of synergy and

necessary policy mix analysis to offer a smooth path for SMEs to embrace CE as a business model.

The Centre for European Policy Studies (CEPS) published a report in 2021 that examined the potential obstacles and opportunities for implementing a circular economy approach in two agri-food value chains. The report found that one of the major challenges was the significant amount of waste generated by electrical and electronic equipment. However, one of the most significant barriers identified as the category with the largest share in votes (70%) was regulations. The representatives of each company expressed their concern about the high level bureaucracy in obtaining the necessary financial support for changing their companies' business models, Specifically, they mentioned the hurdles they faced when negotiating on viable agreements with stakeholders given that each company in the supply chain are attached to different regulations by business nature (Rizos et al., 2021) For instance, although ERP (European Recycling Platform) rules strongly influence the collection and recycling of products, they may fail to induce the necessary product design changes (Huisman, 2013) in order to facilitate a seamless collaboration between businesses specialised in managing a specific part of the supply chain. If regulations were more comprehensive, it would increase the volume, quality and efficiency in recycling due to more standardised processes across companies and types of products.

Despite the broad endorsement of circular economy practices, it has seen limited implementation so far (Kirchherr et al., 2018). CE practices have been developed with an unclear implementability mind-set. The CE concepts have been spread as an ideal perception of sustainability among industries but with no clear discussion or consideration of clear system boundaries. Policy instruments are likely to suggest circulation, rather than to obstruct the legacy of the linear economy (Corvellec et al., 2022). For instance, so far, the EU’s policies are explicitly more focused on the particularities of how to address material management, while its ambitions in matters of social justice and environmental protection remain in general guidelines. (Flynn & Hacking, 2019). Its approach is mainly aimed to promote a technocentric discourse to implement end-of-pipe technologies, taking for granted the socio-ecological challenges of the 21st century. Moreover, there is still a clear centralization of know-how within the sectors that are more aware of waste management technology. This situation deprives the capacity to adapt to changing circumstances. For example, the Croatian Government's ambitions equipped waste administration centres with high investment mechanical biological treatment. By that time, the demand for conventional fuel had increased due to the economic recession in 2005 and consequently, alternative fuel resources demand decreased. That

situation did not allow for flexibility in dealing with the downturn in their economy and therefore, changes in waste legislation (Traven, 2019). Such large-scale investment influenced a limited decision-making to adapt to a reduced demand that left the country with redundant waste-management centres. This situation could be replicated in small and medium-sized enterprises (SMEs) that might struggle to achieve the required level of precision and thoroughness in changing markets. This is because SMEs typically have limited resources and expertise to keep up with the constantly evolving regulatory landscape (Dey et al., 2022). Moreover, studies show that there is a lack of comprehensive approach from corporates, suppliers and distributers for facilitating SMEs to adopt CE practices (Pizzi et al., 2020). This situation not only represents a threat to reach the 2030 Agenda for Sustainable Development but diminishes the probabilities for the companies to be successful. Therefore, it seems important for SMEs to adopt a more global perspective when it comes to regulatory compliance. This can involve seeking guidance from experts in the field, leveraging technology solutions, and collaborating with other businesses to pool resources and knowledge. By taking a more strategic and holistic approach, SMEs can better navigate the regulatory environment and ensure compliance while still focusing on their core business activities.

Consumers play a crucial role in a circular economy because their choices can either support or hinder circularity (Polyportis et al., 2022). Reusing and recycling are the most common eco-friendly actions from the market perspective. Since, circular economy is conceived to happen even from the transformation of recycled materials, consumers start their environmentally friendly actions from the idea of buying goods made of recycled components. Therefore, reusing is related to what extent consumers are able to adapt the remaining products from a linear production into other needs. Consumer responses to products made from recycled materials have been studied since 1995 (Polyportis et al., 2022). Such prior research shows a general increment of papers published analysing the positive trend. The analysis has been done for five-year periods, 1995-1999 and 2005-2009 resulting in a moving average of 0.8 and 0.6 articles respectively. For the five-year period of 2015-2019 published papers increased significantly to 1.2 points of acceptance per year (Polyportis et al., 2022). Interestingly, from 2020 to 2022, 22 articles accounting for over 45% of the total reference pool size, were published to show consumer willingness to buy products with recycled materials. Drawing upon these findings, consumers have reached a stage of recognition of recycled or “green” products based on visual and texture appearance (Magnier et al., 2019). This observation has been mainly given by publicity and environmentally friendliness in product labels. For instance, (Bois et al., 2021) showed that people identify sustainable materials as weaker colour intensity, a rather colourless, matte surface, rough texture and many speckles. Sustainability features are

important during the last years to fit in the rank of “sustainable consumer”. Such is the case of a Dutch sample consumers survey about ocean sustainability who reported that it is important that textile products are made from ocean plastic waste (Magnier et al., 2019). Moreover, the study demonstrated that consumers appreciate products made of recycled materials because they are aligned with their concern about environmental impacts; causing a positive impression in front of society as advocates of sustainability. (Kim et al., 2021).

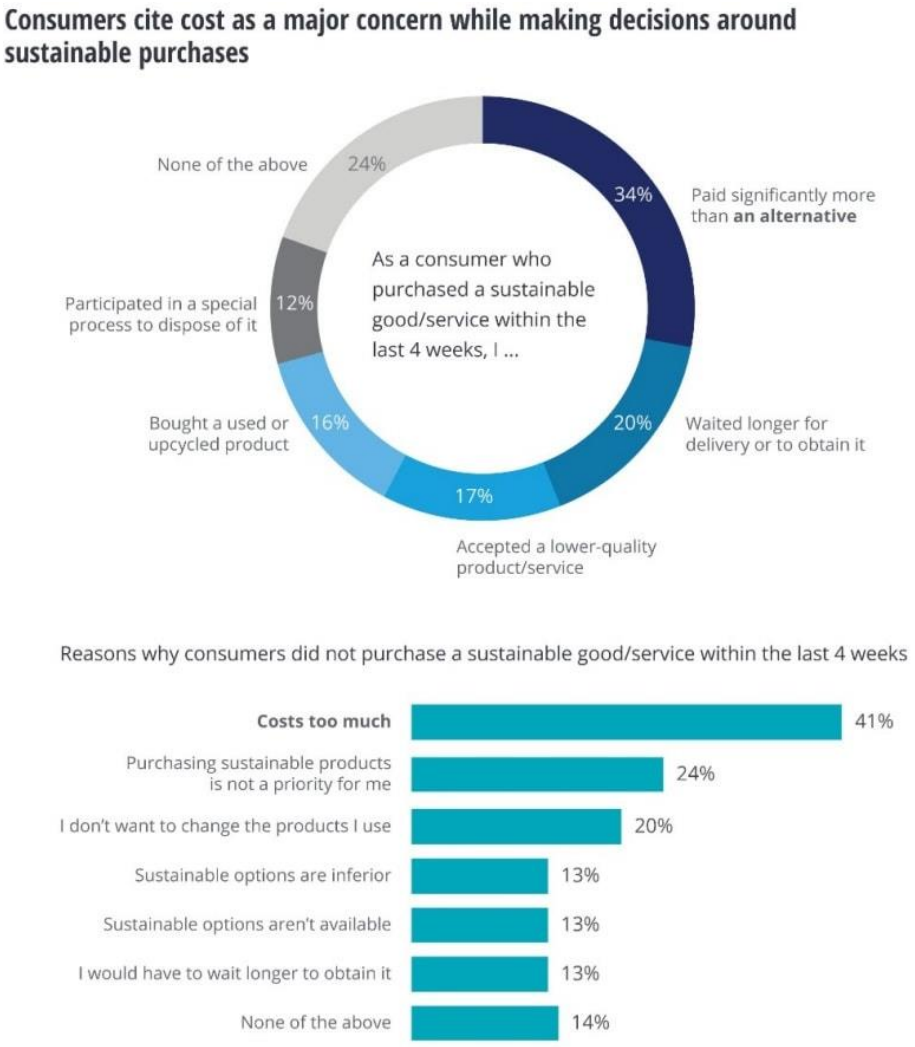
However, consumers might perceive the quality of products made of recycled material as inferior compared to the ones resulting from a linear manufacture (Magnier et al., 2019). Such perception is derived from the fact that people may consider the functionality of green products at risk compared to the conventional new ones. Consequently, there is a financial risk that places recycled materials as a not worthy value for money (Kuah & Wang, 2020). Moreover, recycled materials can be associated with negative feelings such as disgust due to perceived contamination. People may experience a feeling of distrust in the way recycled materials were processed for the new use. For instance, the recycled apparel industry coming from previous recycled plastic bottles may serve as a cue for contamination beliefs for consumers (Meng & Leary, 2021). Even though the garment went through several disinfection and purification processes to get to the market, the consumer resistance is still significant. A similar pattern can be found in second-hand clothes markets. Although thrift shops are increasingly growing globally and in 2019 it reached USD 28 billion of revenue, it still remains small compared to the USD 1.5 trillion of global apparel market (Charnley et al., 2022). Therefore, this might reflect the lack of trust consumers have on second-hand clothes in terms of hygiene, fair pricing or quality. Transparency in pricing seems to be one of the most important factors when deciding to purchase sustainable products. In a study made of 1205 respondents and 10 semi-structured interviews to assess the factors impacting the acceptance of products based on circular economy, a total of 56% of respondents said that the price is the key consideration (Charnley et al., 2022).

Going green or sustainable based on a circular economy imply costs that sometimes are higher than implementing a linear economy business. Moreover, sustainable supply chains need to be price-transparent in the sense that consumers should be aware of what they are purchasing in order to feel comfortable with the price they are paying to be labelled as sustainable consumers. (The Slow Label, 2023). For example, companies certified as a fair-trade business are considered to care about fair labour payments and conditions, organic raw materials, additional packaging and logistics costs using ecological means of transportation, different types of taxes and additional administrative work as organisational costs. Another example of

price transparency is HUMANA, a second-hand online and off-line store and non-profit organisation based in Sweden and now present in several countries such as Portugal, Austria, Ireland and Germany. They identify the time of use of each item and inform buyers of the curation process. Thus, consumers acknowledge the type of quality they should expect and how much they are supposed to pay for second hand clothes that still are in good condition to be worn. Companies that fail to establish a successful engagement from providers and commitment of their clients to accept the value of being sustainable at a fair cost will probably struggle to function as a successful business in the next 10 years. Many consumers are confronted by several trade-offs when seeking a more sustainable living. Between September 2021 and March 2022, the percentage of consumers who purchased a sustainably produced good or service slipped across more than a dozen countries (Leon Pieters et al., 2022). According to a study undertaken by Deloitte, the main concern to make a choice to buy sustainable products is that they are “significantly more expensive” than the regular ones; followed by “not being a priority for them” See *Figure 1*. Moreover, In Europe and in developed countries such as Japan and Singapore, there is a positive correlation between the income of people and their willingness to pay for more sustainable products. Higher-income consumers are more likely to ignore higher price tags associated with sustainable goods. Meanwhile, lower-income consumers are more likely to prioritise their personal finances over sustainable option (Leon Pieters et al., 2022). This situation is influenced by the levels of inflation each country faces and the belief that trading-off their convenience to get cheaper goods will not represent a big difference to change consumption of a whole market.

Figure 1.

Trade-offs in sustainable purchase.



Source: (Leon Pieters et al., 2022).

2.4 The importance of change towards circularity

Circular economy happens to be one of the best supporters to successfully manage sustainable businesses (Barros et al., 2021). While there is growing interest and momentum for circular economy practices in the EU, adoption rates can vary widely depending on the country, industry, and company size. In the macro perspective of waste management in 2020, the recycling rate of waste in the EU was estimated to be 47.8% – a decrease from 48.1% the previous year (kallipso, 2023). In such a context, one of the most worrying materials in this portion is plastic and just 9% of this waste was globally recycled in 2019; while 49% ended up in landfill, 22% was mismanaged and 19% was incinerated. Additionally, according to the OECD (The Organisation for Economic Co-operation and Development) the planet is being

affected by twice the amount of plastic waste that was two decades ago. (Whiteaker, 2023). This critical fact implies that EU companies are still struggling to shift from a linear to a circular economy. One of the main causes is the lack of awareness of their stakeholders to give them the proper facilities to access more sustainable alternatives to produce their products and services.

The lack of comprehensive approach for facilitating SMEs to adopt CE practices represents a big challenge to address in the EU (Pizzi et al., 2020). Moreover, a comparative analysis of CE across geographical locations to reveal the best practices and means for achieving sustainability in SMEs is scant (Dey et al., 2022). Although the Circular Action Plan published by the European Commission encourages sustainability and competitiveness in the longer term, SMEs depend on other actors to keep their sustainable competitiveness. Such dependency creates a snowball of obstacles when it comes to shifting mindset and business models towards sustainability. Therefore, there is an urgent need to change the mindset across the supply chain and the way a business model is planned from its constitution. Change initiatives must start from the internal organisation of companies and in fact, achieving greater sustainability is the greatest challenge in organisational change management in the contemporary world (Sancak, 2023). In order to become circular, supply chains are called to implement sustainability transformations as a planned intra-organisational change. This plan must refer to deliberate activities aiming to move a business from its present state to the desired state (Stouten et al., 2018). Effective collaboration, involvement and commitment across the supply chain in order to achieve a transformation can only be reached through implementing an effective change management methodology adaptable to the context, culture, and technological capacity of the sector.

2.5 Correlation between business success and adoption of CE practices

Sustainability is a measure of success, especially because sustainability can only be achieved by its main triple bottom line: *economic viability*, *environmental protection* and *social equity* (Rinalducci, 2022). Within the frame of the last two dimensions (environmental protection and social equity), studies conclude that the adoption of ethical behaviours increase the probabilities for a firm to exist longer and keep it away from bankruptcy risks. In fact, according to signalling theory (Spence, 1974), the voluntary adoption of an ethical label represents an effective way to engage with stakeholders by means of trust. Such commitment will increase the probability of the company to be seen as trustworthy leaders compared to competitors. For instance, the LR (Legality rate) was introduced in Italy in 2014 as a scoring system to reward

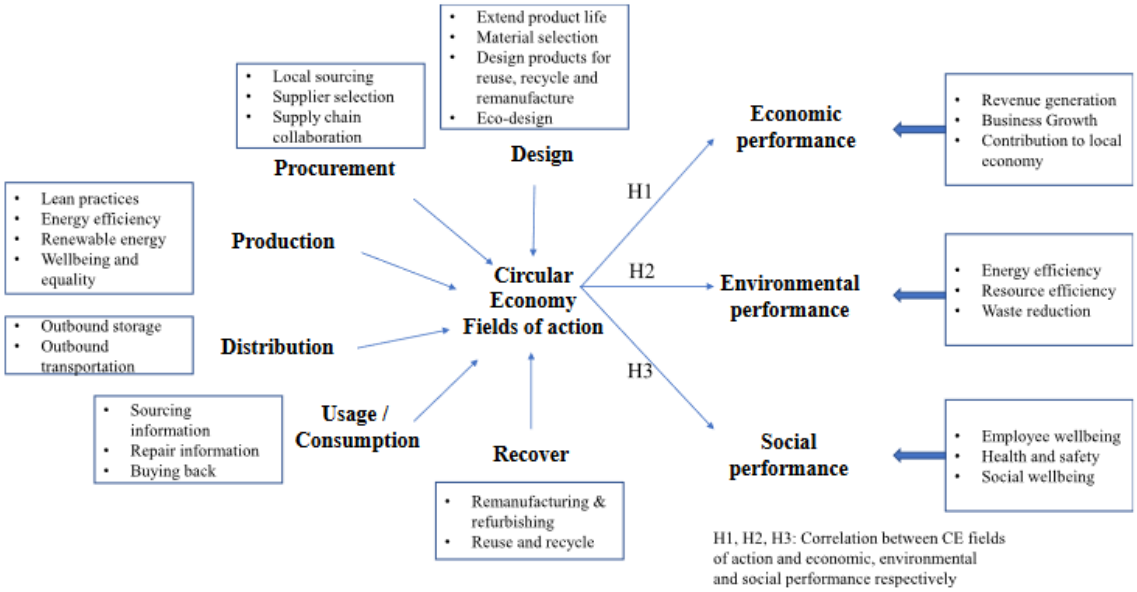
ethical companies through market incentives (Pizzi et al., 2020). Italian companies have been benefited by increased access to credit from financial intermediaries and privileges in public procurement negotiations (Brigante, 2019). Additionally, preliminary studies have shown the positive impact of the adoption of LR even in market negotiations and partnership likelihood with companies that share the same ethical values. (Becchetti et al., 2020).

In this vein, employing circular economy frameworks as a metric of sustainability can facilitate the mitigation of performance expenditures, efficient utilisation of production materials, and enhanced ingenuity in the development of eco-friendly merchandise. However, CE practices often require extra investments that might not be considered profitable but in the daily business environment, such investment may become an opportunity to innovate through experimentation within a continuous and collective learning process altogether with stakeholders (Bassi & Guidolin, 2021). Additionally, this approach can induce a transferrable ethos amongst supply chain networks, prompting the adoption of circular economy methodologies through social pressures and the necessity to promote a more sustainable mindset in markets. It is noteworthy that achieving a comprehensive awareness and a genuine shift towards circular economy business models imply the involvement of all stakeholders in society, and their ability to connect and generate financial, institutional, and infrastructural cooperation amongst one another (Milios, 2018).

In 2022, primary research was undertaken to examine the adoption of CE in European small and medium sized enterprises (SMEs) and its impact on sustainability performance (Dey et al., 2022). The study took a sample of 401 EU SMEs (104 in France, 98 in Greece, 99 in Spain and 100 in the UK) and defined the fields around which Circular Economy is considered to be a business model itself to reach sustainability. Such desired structure, therefore, generates an outcome divided in three hypotheses that describe a positive correlation between the CE fields of action with: *economic, environmental and social performance*. (Dey et al., 2022). See *Figure 2.*

Figure 2.

Theoretical Model relating constructs and talent variables of circular economy and sustainability performance.



Source: (Dey et al., 2022).

The results of the study did not reject the three raised hypotheses; that is to say, CE based business models in SMEs are likely to achieve high levels of economic, environmental and social performance. However, the study also reveals that countries are likely to achieve higher environmental performance through CE adoption, although economic performance and social performance may not be fully assured, apart from France (Dey et al., 2022). On the other hand, by the closed-loop model of supply chains, companies participating in the research have been able to sell their waste instead of disposing of it and make additional profits. Thus, waste can be turned into the main raw materials for other companies, even to produce side products leveraging the energy and installation of current production lines; reducing material costs and eliminating their price volatility. (Kumar et al., 2019).

Furthermore, France has demonstrated a more evolved connection between CE and a higher economic performance. The reason why SMEs might have a higher economic performance related to CE may respond to their patterns towards changing consumption culture as a national strategy (Rezvani Ghomi et al., 2021). The value of waste management has the same weight as their need to reach carbon neutrality in 2050. For instance, the embodiment of this culture can be seen in the management of eco-design for electrical appliances and products, recyclability, the capability of repairing and reusing (Awasthi et al., 2019). The French government acknowledges the importance of CE in business operations. In 2019, the country

aimed to increase the waste valorisation of companies to 70% by 2020 through the Construction and Demolition (C&D) management strategy proposed by the EU (Rezvani Ghomi et al., 2021). The most relevant approaches were: Supporting new recycling businesses by reducing taxes on recycled materials and a framework for preventing illegal material trafficking (Nguyen, 2019). Moreover, their national sustainable goals stating that 100% of plastic should be recycled and 300.000 additional jobs should be created in the context of CE makes French SMEs a fertile landscape to implement circular economy business models.

Given that SMEs depend on other actors to keep their sustainable competitiveness it is necessary to start effecting changes across their collaboration. That is to say, there is an urgent need to change the mindset across the supply chain and the way a business model is planned from its constitution. Changes in organisations are a consequence of individuals and therefore, the collective desire to shift to a new reality (Gennari, 2022). Currently in the business context, change is the only permanent status where companies need to constantly innovate in order to survive in the complex and changing environment of today's society. Indeed, change was always present as the trigger to evolve in the natural and social sciences but it was only formalised as a factor to consider in management from the early 19th century; reaching its peak from mid 90s onwards.

2.6 The change management timeline

The term "change" as subject of analysis in life was introduced for the first time by Arnold Van Gennep (1909), a cultural anthropologist. While studying rites passage, he defined change happening in three states: separating from one's current state, moving through a transition and reincorporation into the desired future state. For example, individuals' growth from childhood to parenthood (Prosci, 2017). Later on, Kurt Lewin (1948) defined the action of change proposing the identification of a force field to keep the stability of societies, transitioning to a new state by the three-step approach: unfreezing (defining the current state), moving (through planned actions) and refreezing (stabilising the new state). This cycle is performed based on the theory that the factors aiming to maintain the stability are the "motivating" and the "limiting" forces in individuals or the society (Cameron & Green, 2009). If these forces are equal, the society remains stable. Later on, in the 1960's, these principles called the attention of managers as a novel way to drive changes in organisations. Likewise in the same era of the change analysis birth, the psychiatrist Elisabeth Kubler-Rose introduced the Kubler Ross Change Curve as an innovative framework to deal with emotions of people through the loss of a loved one caused by cancer (Malev, 2018). It comprises five stages of grief where the relative

would go through a process from identifying negative emotions, the acceptance and resignation of the future loss to finally move on. The five stages are: Denial, Anger, Bargaining, Depression and Acceptance. Later in 1969, the book “Death and Dying” was published based on the change method being widely and successfully accepted. It was found to be valid in a majority of cases and situations relating to change in personal and professional aspects of life (Belyh, 2015).

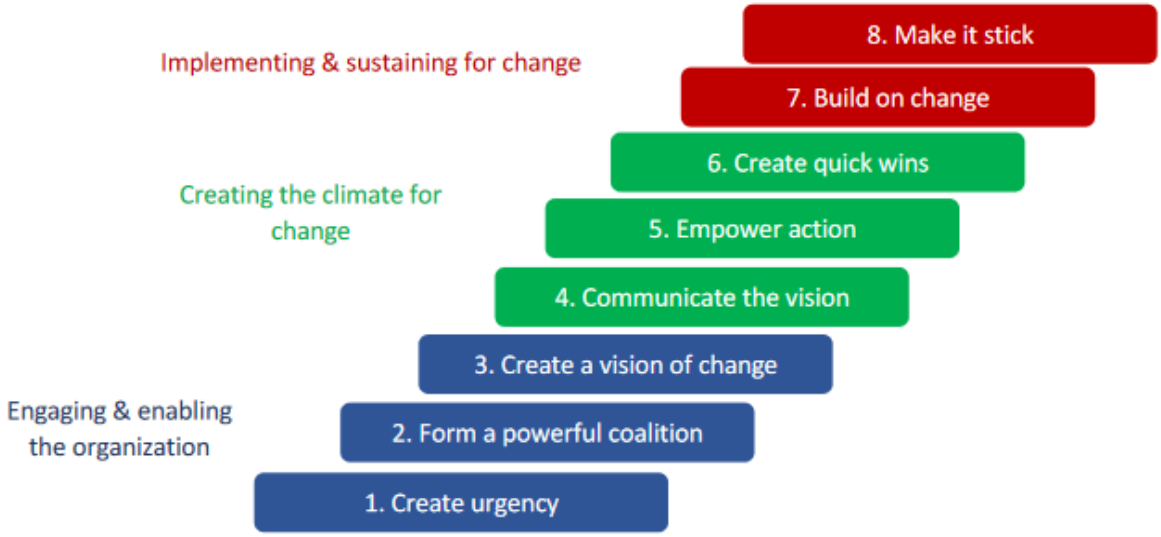
In the field of organisations, Ichard Beckard (1969) and William Bridges (1979) presented change management as a discipline of detecting the end of cycles, finding a neutral zone and building the new beginning. Then a set of actions to plan, communicate and develop a change must be undertaken organisation-wide and managed from the top hierarchical order of companies, using behavioural-science knowledge (Prosci, 2017). These interventions were later introduced in the 1990’s as processes resulting in diverse change management methodologies. During this period, the “on the radar era” of change, managing change started to be part of the business administration toolkit. This time, people’s side of change began to be discussed in project meetings. The psychological side of change, moved out of the academic to the exploratory space. The first steps were taken by leaders that recognised that collective change is the result of transformation in the inner individual (Campbell, 2016). While there were many practitioners and scientists who contributed to develop change management in the current landscape, some of the most relevant authors include:

- General Electric (GE) early 1990’s: As an organisation, they implemented the “Change Acceleration” project as part of its larger improvement program.
- Jeanenne Lamarsh (1995): Through her theory of resistance in business environment, highlighted the importance of ability of change, mitigation of resistance and enabling frameworks for supporting change.
- John Kotter (1996): Holistic approach to change. He described eight change failure modes and subsequent steps to address them.

John Kotter emphasised the importance of leadership and empowerment of change in his book “Leading Change”. The main objective was to use this skill to formally address the “opposition” and tackle the contradictions originated from the resistance ideas (Bekmukhambetova, 2021). Moreover, Kotter’s model has a top-down approach. This implies that employees only receive the ideas of change, waiting for their leader’s intentions to initiate a change, not the other way around (Joseph Galli, 2018). See *Figure 3.*

Figure 3.

Kotter's 8-Step Model



Source: (Bekmukhambetova, 2021).

Finally, the era of the “development of change” began the following year of the 2000s. This is the third and ongoing era in which the formalisation of change was included as a fundamental component of project management. During the revolution of the internet and technological advancement in digitalisations and processes efficiency, there was a need to create change management frameworks that embrace bigger and more challenging transformations. To reach greater impact, the following methodologies focused on the mindset transformation of one individual at a time. This would spread sustained behaviour towards a complete community (Prosci, 2017). Although founded in 1994 by Jeff Hiatt, CEO of Prosci Change Management institution (Deb, 2013), it was in the early 2000s that Prosci accelerated change management research from the perspective of promoters, neutrals and detractors in the process of change. In 2003, Prosci introduced the first comprehensive approach to change management based on five phases that enable individuals to make a change by themselves. The Prosci ADKAR model, an individual change model, offered a structured and logical iterative model to start and sustain a change at large scale (Bekmukhambetova, 2021).

2.7 The application of change management methodologies towards business change

According to McKinsey research in 2017, 70% of transformations without change management support fail. Then, 39% of failures are caused by employees' resistance to changes, 33% by the lack of support from managers and only 14% by inadequate resources and other reasons

(Bekmukhambetova, 2021). Thus, the corporate culture is a key factor in making changes. Managing change is often simply perceived by a communications plan, where executive leaders or project managers communicate to the organisation that there's change coming (typically on short notice). But actually, change management is the set of tools comprising a comprehensive strategy to instil the genuine desire to embrace a change and use it positively to achieve success in any context. From reaching small projects smoothly completion to sustained long term good practices, change management has been widely spread as the best way to shift mindsets in any kind of institution. Especially at the leadership level, change management practices seem to be the best approach before starting the journey towards goals with, to some extent, uncertain outcomes. In fact, according to Posi's Best Practices in Change Management research, project implementation and businesses transformations with excellent change management are six times more likely to meet objectives than those with poor change management (Creasey, 2020).

The process of change, as any other process, is a sequential set of activities aimed to generate value. The system of change is built according to the social context when it happens; for instance, a company, corporate, small community or bigger networks connected to reach a common objective. Within this context some factors perform as a system comprising several variables that impact how processes are adapted. For instance, such variables could be the size and type of company, engagement degree of stakeholders, the objective of change, the depth of knowledge among people regarding the change goals, among others. In this vein, different methodologies have emerged not only as a product of the increasing discovery and improvement of best practices but with the intention of managing change in the best way possible according to the variables existing in each ecosystem. In this vein, it has been necessary to do a comparative analysis of the strengths of the most famous change management methodologies given their practical application and successful achievements during its performance (Hicks, 2022, p. 8). See Table 1. The comparison takes as pivot factors the methodology strengths, weakness, approach, focus and focus of their application.

Table 1.

Comparative analysis of the most famous change management models.

Factor	Kurt Lewin model	Kotter's 8 steps model	Prosci ADKAR model	Kubler Ross Change Curve
Strength	- Great impact in fast and radical changes.	- Strong engagement of leaders.	- Individual engagement of all stakeholders of the	- Deep and rooted acceptance of the new reality.

	- Strong to attract mass support from the beginning.	- Perfect for big companies and a pre-existing culture or collaboration.	change. - Everyone can be a change leader and exchange their knowledge within the supply chain.	- Avoid employee resistance before communicating the change.
Approach	- Stabilisation of the company ecosystem reducing the resistant forces against change.	- Top-down development of actions towards change. - Work on individual intentions for change.	- Based in education and exchange of knowledge. - Learning by doing in iterations.	- Dealing with employees' emotions to help them accept the new way of doing things.
Strategy	- Communication plans emphasising the “why” of change. - Weaken the reasons for restraining forces (detractors).	- Raise awareness and build a coalition of stakeholders. - Reduce obstacles by setting short term wins.	- Instil the desire for change at the individual level. - Sustain change by creating a habit to develop skills to perform in the new environment.	- Active listening of emotions related to change. - Accompaniment during the low times while facing change and reinforcement of high moments.
Weakness	- The collective change might leave behind the individual needs of employees and stakeholders, causing resistance for future changes if not managed properly.	- The top-down approach might limit the generation of ideas from non-managerial roles. - Loss of interest by stakeholders given the long process to reach change.	- The “Knowledge” and “Ability” stages might overlap, causing confusion among stakeholders. - Demotivation in the process of acquiring the necessary skills to drive the change if not reinforced properly.	- Absorption of the emotional input from employees causing the loss of objectivity in the process of change. - Risk of getting stuck in coaching sessions without solid actions towards change.

Based on: Hicks, 2022; Belyh, 2015; whatfix, 2022; Bekmukhambetova, 2021.

2.8 ADKAR as the change management model towards circularity

As stated in the section 2.2.1, the main barriers towards circularity in SMEs are: The lack of synchronisation and awareness of the supply chain to drive changes, lack of financial support to implement quality processes to reuse, elimination and recycle; the reduced support of markets to invest in durable products and the centralisation of know-how to become circular by big companies. All of these factors are related to individual human-based barriers (Garcés-Ayerbe et al., 2019). Therefore, a human-based change management should be used in order to foster change by means of the identification of the drivers and obstacles of individuals towards change; as well as their motivations to adopt such an attitude. Thus, one of the goals

of a chosen change management model should help SMEs achieve an individual commitment to change to, therefore, be spread to their colleagues and society as a whole (Iles, 2022).

In the context of the circular economy (CE), the responsibility to eliminate waste, promote circulation, and encourage regeneration extends beyond companies alone. Every product used in people's daily lives has a supply chain history, representing a response to specific consumer demands. Therefore, the principles of the circular economy encompass more than just business practices; they reflect a broader philosophy regarding how society utilises and interacts with material possessions. There is a wide range of information about how to become circular with one's actions but not enough to encourage the facilitation of tools and feedback to reinforce the correct behaviour towards a more efficient use of resources (Takacs et al., 2022). For instance, local governments have set the rules but not enough feedback loops to understand if it is actually helping to contribute to more sustainable production processes.

The adoption and solid commitment to circular habits depend to a great extent on education. Training and knowledge have been seen so far as the major contributor to encourage CE (Iyer, 2022). Besides circular production, a change of behaviour on consumer consumption from purchasing to disposal activities of products can support to a faster implementation of circular economy in supply chains (van Dam et al., 2020). For example, designing a product for sustainable behaviour implies to reduce the environmental impact when it reaches the end of its life cycle. Although education is a well-known principle in companies of all sizes, a lack of awareness and information are still barriers to be overcome when acquiring the necessary skills to design interventions aimed to change not only consumer behaviours but those within the whole supply chain (Bhamra et al., 2011). The value of routines and rituals towards a circular economy has been analysed by several authors. Two of these examples are the educational aspects in communication strategies. Fassio, 2017 and Mugge et al., 2018 studied consumer and employee acceptance of circular practices by means of visual messages and gamification initiatives in order to make sustainable choices. In the first case, researchers developed an online intervention in the form of a website, which aimed at providing fine-grained information on food supply chains and simulating a sustainable behaviour when making choices regarding the supply chain (the selection of the type of irrigation in the farm or the ingredients to produce jam). The objective was to educate players and raise the awareness of the importance of purchasing food that has been produced into a circular economy approach (van Dam et al., 2020). In the second case, Mugge et al., 2018 emphasised the impact of information visual design as a successful strategy to change people's minds regarding alternatives of renewable energy consumption. Visualisation of complex variables in circular

economy in the form of story-based visual materials appeared to be more relevant to all stakeholders than posters or digital static graphics.

Based on the case studies provided and the comparative analysis in section 2.6, ADKAR methodology is the most suitable methodology to be applied given its approach on the individual change of mindset, education and constant development of skills through knowledge exchange towards circularity. ADKAR is a model based on Prosci's research on best practices from around 3000 organisations worldwide from the year 2000 (Creasey, 2020). Prosci, in turn, is a change management research company founded in 1994 by Jeff Hiatt. The Prosci research methodology has become a global guideline due to its high acceptance in projects towards change (Prasoon, 2021). It is based on a structured, adaptable, repeatable approach to enable individuals to successfully move through changes (Joseph Galli, 2018). Since the methodology is focused on individuals, the main premise is education and awareness as the foundation to introduce any type of change. Prosci approach promotes different frameworks and tools to help people in organisations embrace disruptive practices. One of those is ADKAR, known as an acronym for the five outcomes an individual needs to achieve for a change to be successful: Awareness, Desire, Knowledge and Reinforcement (Prosci, 2020). See *Figure 4*.

Figure 4.

The 5 stages of Prosci ADKAR Model.

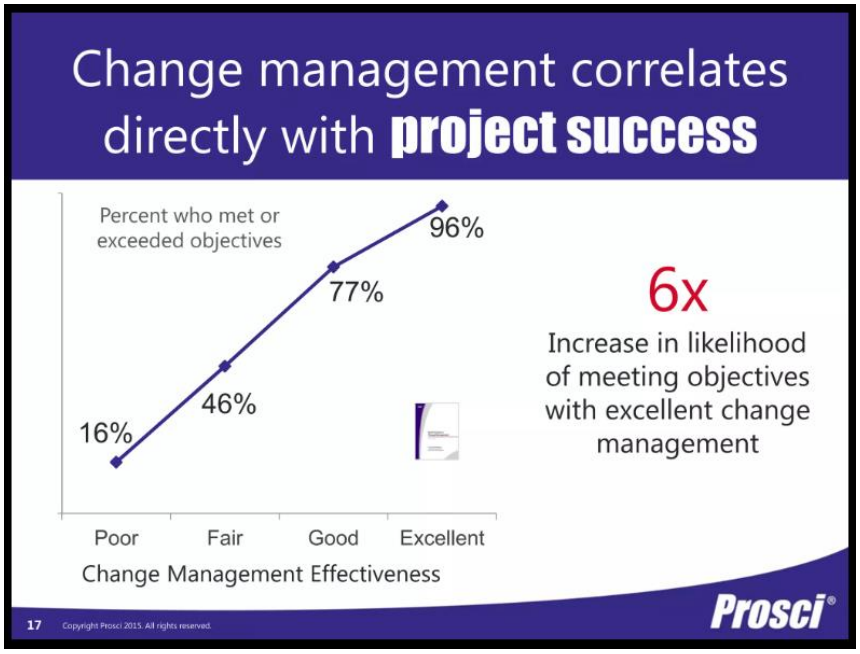
Source: "The Prosci ADKAR Model" by (Jones, 2023).

Prosci made a benchmarking survey from 2017 to 2019 to a sample of around 2000 respondents in leadership positions. This was composed by questions assessing how precisely they had applied ADKAR change management in projects. The questions were structured in a "Poor-Fair-Good-Excellent" scale. The results revealed that change management effectiveness correlates with meeting project objectives. Of the respondents who had implemented excellent change management programs 96% met or exceeded objectives.

That is to say, applying in a detailed way the ADKAR methodology, companies are likely to meet or exceed goals 6 times more. On the other hand, only 16%, or 1 in 6 respondents were able to achieve successful change with a poor methodology. Interestingly, it can also be seen that even applying the methodology in a “fair” way, companies are 3 times more likely to meet or exceed results (Prosci, 2020). See *Figure 5*.

Figure 5.

Project success according to the degree of excellence in change management



Source: (Prosci, 2017)

In order to implement this methodology, it is necessary to count with the leadership of change shapers or change management practitioners who are constantly innovating in the way of persuading their sphere to achieve disruptive goals. However, not in all organisations and especially in SMEs, head managers have the knowledge, soft skills and education to drive teams through a standardised and documented procedure of change. Changing the mindset of the workforce along the SMEs supply chain will not only improve how the companies project themselves as sustainable sources of income, but will instigate the desire of people to turn the circular economy as a living and working philosophy. Some successful cases have proved the validity of ADKAR in systematic transformation through the individual dimensions. During the COVID-19 pandemic, many hospitals in the USA faced unprecedented patient volumes. Texas Health nurses executives needed to apply a rapid-cycle change model to prepare for ongoing changing scenarios. By using ADKAR, they were able to enable and engage nurses to own the change as their individual challenge. The goal of the process was to adapt the hospital to

the unstable situation, to save agile patients staffing, while keeping the same team of nurses in place (Balluck et al., 2020). Over 80% of Fortune 100 companies have worked to improve their change management capability. Another successful case was the Microsoft adoption project that consisted of helping their customers to accept Microsoft technology faster, better and more completely. The company used ADKAR to: create a community of change practitioners, implemented a self-served playbook of the use of the products and provided training to external supporting experts to work directly in enabling a group of customers to feed the playbook (Jones, 2023). In 2020, the Microsoft playbook was released to all the community, improving the rate of adoption of the software updates by 80% (Kennedy, 2021). Organisations that are eager to drive change regarding environmental issues can rely on ADKAR. Such was the case of city officials in Graz, Austria who represent an example of enabling change through awareness-building over an audience which they did not have direct control (Hiatt, 2006). Their objective was to create a campaign to raise awareness about emissions from automobiles to encourage alternatives transportation methods and as a byproduct, incentivise the purchase of low-emissions vehicles. The main idea was to ensure that the parking lot for low-emissions cars decreases. The general public was educated about the type of vehicles that could have a discount so by the increase of this demand the local authorities issued a special parking sticker so the public would recognise the new brand that relates low emission to low parking rates

The previous cases are a clear example of awareness enabling the willingness to change from the individual. Although they are a brief summary of the application of ADKAR and their results, applying all the stages may lead to a powerful transformation in SMEs. In February 2020, research was undertaken to examine the influence of ADKAR on enterprise Changeability of Ghanaian based SMEs. The study used a qualitative and quantitative approach to analyse questionnaires and interviews to 166 respondents within 36 a SMEs sample. Respondents were asked questions related to assessing the status quo of implementation of each phase of ADKAR. Overall, after applying a linear regression analysis, researchers concluded a high R-value of 0.666, which represents a high degree of correlation between awareness, desire, knowledge, ability and reinforcement in a positive enterprise environment. Then, the respondents were asked questions to assess how the acceptance of ADKAR in the environment influences the probability to successfully adapt to changes in the future. Likewise the results of the correlation turned out to be positive with a R-value of 0.670, showing that ADKAR is able to support managers of SMEs to tackle changes faster and with the enough preparation to neutralise consequences of external changes (Owusu & Bonsu, 2020).

3. Methodology

ADKAR has proved to be applicable in SMEs as a comprehensive methodology to address individual change. Such personalisation of change makes it accurate for SMEs given their low hierarchisation and more likelihood to start by the collaboration of entrepreneurs aiming to break the rules of big corporations. With this example, SMEs in the EU could be also entitled to adopt the same approach. There is no existing literature that proves the potential of ADKAR towards CE economy in SMEs specifically. For that reason, this investigation will collect, first hand, the perception of change management practitioners who have had experience leading changes in different areas including sustainability for up to 10 years of experience.

The study is composed of secondary and primary research. The information has been collected and processed using both qualitative and quantitative analysis of the results. The secondary research was aimed to build the context of the questions of the semi-structured interviews used as the primary research method.

3.1 Secondary research

In order to understand the status-quo of the current relationship between SMEs in the EU context and circular economy, it was necessary to define the system boundaries of the study. The secondary research aimed to provide the theoretical and regulative context to therefore shape the limits of the primary research method in the study. The SDGs Agenda 2030 are the main umbrella under which every economical action should be performed. Then, the Circular Action Plan is the main regulatory framework on which the primary research questions will rely on; since it is one of the main building blocks of the European Green Deal and Europe sustainable growth objectives. According to the European Commission, SMEs are key drivers in the transition to a more sustainable business model. The TBL (Triple Bottom Line) of sustainability are backbone dimensions for a company to become sustainably successful. However, given the numerous challenges that SMEs currently face in the form of market failure, uncertainty, inflexible regulations, social and environmental concerns, it has been difficult to align to the sustainability standards displayed by the same Governments. In a study to analyse the enablers and barriers to circular business in Europe, the authors mentioned EU policy barriers, through the mention of 8 case studies, as the main cause to dissuade a comprehensive approach to implement circular businesses. The heterogeneous application of EU directives is driven by different interpretations of waste management regulation that may vary across EU countries (as mentioned by Bioelektra and Rehau) (Briguglio et al., 2021).

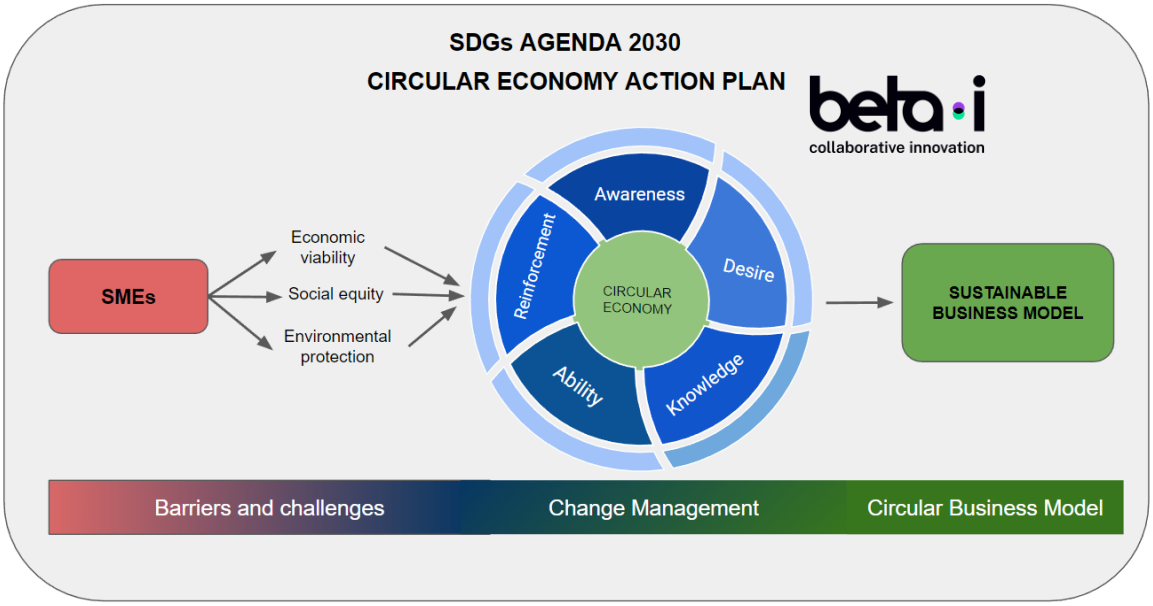
Moreover, another study reveals that many barriers for CE implementation are administrative processes, regulations and lack of human talent (Dey et al., 2022).

The transition towards a circular economy is a complex system that involves multiple stakeholders with diverse interests. To successfully navigate this transition, it is important to understand and address the interests, personal aspirations, career development, and motivations of these stakeholders. This requires a holistic and collaborative approach that involves all stakeholders in the design and implementation process, as well as effective communication, engagement, and participation. Incentives and support can also be provided to encourage stakeholders to take actions that align with the transition goals. Education and awareness-raising initiatives can help stakeholders better understand the concept of a circular economy and the opportunities it presents. Ultimately, people are at the centre of any transition, and understanding their needs and motivations is key to achieving a successful transition towards a circular economy.

For that reason, it was necessary to do extensive research of the most effective change management methodologies. ADKAR is presented as one of the best received change management strategies to reach a successful transition due to its individual approach to effect change. The methodology relies on the premise that collective changes can only be achieved by addressing individual expectations. Systems are created by individuals and each of them should be considered when designing a strategy that will be led by those individuals connected in a network. In that way an effective stakeholder engagement will be applied when persuading people to adopt a new change. Within the scope of CE, stakeholder engagement can help relevant stakeholders modify their behaviours and values, aligning them with the new model aimed at value creation in the long term (Salvioni & Almici, 2020). In this way, ADKAR will be the strategy to shift from linear business models to circular ones and reach a TBL accomplishment for sustainability in SMEs. See *Figure 6.*

Figure 6.

System boundaries of the research



Source: Thesis author

3.2 Primary research

After defining the system boundaries of the research, the primary method of data collection was semi-structured interviews. The participants were seven change management leaders, consultants and team members of previous business transformation processes carried out by companies of different sizes. Each of them holds diverse backgrounds and, on average, over five years of experience as change management practitioners and have helped small and medium-sized enterprises and innovation hubs transition to sustainable practices, improve their operations, and innovate. The criteria to select the seven interviewees was based on their participation in the One Sustainable Ocean conference held in Lisbon, Portugal in July 2022. Besides, some of them have been part of innovation hubs and team members of AspBan (Atlantic Smart Ports Blue Acceleration Network), a flagship project founded by the European Commission to encourage the development of innovation and circular ecosystems to incentivise a more sustainable Blue Economy across various ports in the Atlantic Ocean. The interviewees positions have been based in Portugal, Liechtenstein, Ireland and Austria. During their professional experience they have supported companies to shape sustainability transformation from within, through people, through their attitude and actions. The profile of each interviewee and their companies are shown as follows in *Table 2.*

Table 2.

Profile and company of interviewees

Profile interviewed	Company
Open Innovation Expert	Beta-i
AspBan Project Communication Leader	AspBan (Atlantic Smart Ports Blue Acceleration Network)
Change Management Analyst	Business School- University of Nova
Sustainable Business Consultant	ATW Management AG
Corporate Innovation Program Manager	EDP
Innovation and Entrepreneurship Consultant	United Nations Development Program
Managing Partner at b2g Kommunikation and Consulting	B2g

Source: Thesis author.

The interview questions were structured around the five stages of the ADKAR process. These questions have been tailored to address circular economy barriers using a deductive approach that takes general concepts of the change management methodology and adapts them to

investigate the circular economy perspective. Moreover, the main idea of the questions was built in order to address the common barriers to transition from linear to circular businesses mentioned in the section 2.2.1.

The set of interviews were undertaken in the period of two weeks. The participants from Portugal and Liechtenstein were interviewed remotely in a video call using Google Meets; while the ones from Austria were interviewed in person in the University of Continuous Education Krems. Each conversation lasted between 45 to 60 minutes. Overall, this approach yielded valuable insights into the challenges associated with adopting circular economy practices and identifying ways to overcome them. Finally, the interview outcomes will be analysed using the thematic analysis method, wherein codes will be assigned to represent each stage of the ADKAR methodology.

4. Results

The results were encoded using quantitative and qualitative deductive analysis methodologies, with a particular emphasis on the latter as the primary means of information processing in comprehending the interviewees' perception of ADKAR at each process stage. The questionnaire distributed among participants encompassed five distinct sections, aligning with each phase of the ADKAR process. The collected data was subsequently categorised into the predetermined sections, serving as the framework within which interviewees elaborated on their responses. Within such a framework a subclassification of stakeholders was given to the interviewees to reflect how each phase of ADKAR would impact each stakeholder and their interactions among them.

4.1 Analysis of ADKAR embracement per stakeholders' group

First, a quantitative analysis was used to define the frequency with which participants highlighted the importance of each phase of ADKAR and the actions that should be taken in order to influence each group of stakeholders. See *Figure 7*.

The selection of stakeholders to subcategorize the questionnaire was done according to the secondary research which emphasised four main stakeholders in the process of change management and who play the role of main actors in achieving successful transition in the circular economy:

- **Employees:**

Internal stakeholders are considered the engine of the transition towards circularity. They constitute the cultural context of the organisation. Their engagement is a key pillar to establish innovative processes that reduce negative impacts on the ecosystem (Salvioni & Almici, 2020). Moreover, they are the main drivers of institutionalisation of new practices in the organisational level of change.

- **Supplier/Corporate:**

Given the dependency of SMEs on bigger suppliers and retailers, the decision to shift to a circular economy must be supported from edge-to-edge in the supply chain. Without the correct engagement and support of dependencies in operations, it would not be possible to change effectively and the efforts to implement a new business model would be resource and time-

wise inefficient. Cultural values oriented to sustainable practices are also necessary in industry stakeholders to accelerate the transition. Besides, investors are an important part of this industry's stakeholders who contribute to the financial pillar of the development of circular business models. They directly impact the capacity of SMEs to set up new business and become more competitive.

- **Public institutions:**

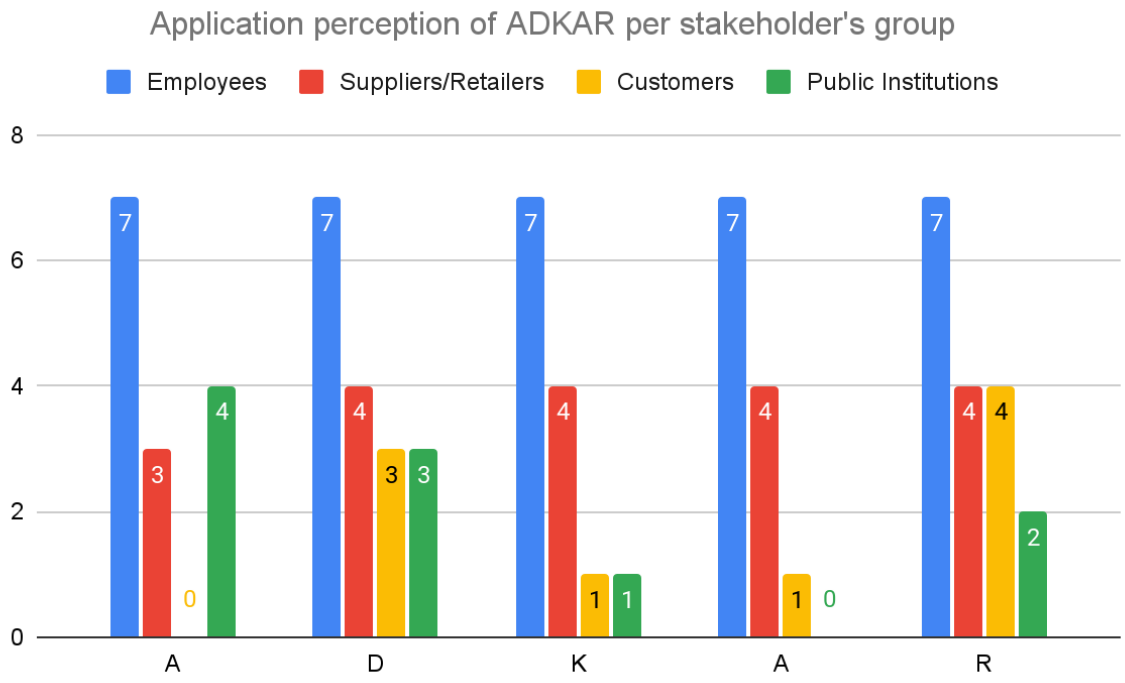
Organisational changes depend also on the legal framework. Companies are subject to their own policies and regulations and in the case of the European Union, the Green Deal and the Circular Economy Action Plan represent the main roadmap towards circularity as a measure of sustainability. The local Governments are entitled to implement both regulations in a way that productive sectors can integrate as part of their operational philosophy. To reach that goal, public servants need to be aware of their role to remove barriers by means of knowledge and guidance to elaborate robust strategies aligned with their own needs, from the market, companies and the Agenda 2030. In this context, the public administration can introduce specific measures (subsidies, incentives, tax breaks, and funding for SMEs (Salvioni & Almici, 2020).

- **Customers:**

The market plays one of the most important roles, being the income source of SMEs. Consumers and clients who have educated themselves and are aware of the emergent need to fight against climate change are more prone to value transparency from companies. Such a value is shaped from the communication of prices, environmental impact, fair trade, type of products and social responsibility. Nonetheless, customers that are not engaged enough with sustainable practices face hard times to solve choices and trade-offs when sustainability becomes less affordable. Transitioning to a circular economy implies a brand-new consumption culture that relies on circular products without threatening lifestyles (Corvellec et al., 2022). This involves adopting new stewardship of goods such as the change of ownership to rental, or the desire to buy products for more than one kind of use before their disposal.

Figure 7.

Respondents' perception of the application of ADKAR per stakeholder



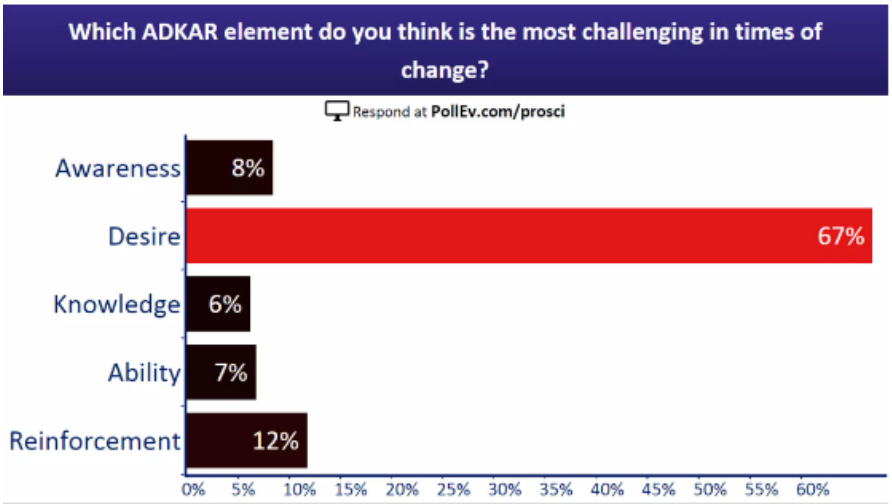
Source: Thesis author.

According to the interview's results, it can be seen that the "Employees" stakeholder's group is considered the most important in the ADKAR process group. (Rizos et al., 2016) reveals in their study that despite the various interventions of the government regarding the design of emergent policies, the persistent cultural barrier in SMEs to adopt CE is causing bottlenecks in terms of organisational setting to reach a more sustainable business model. Their own processes are still centred on linear economy-based objectives. According to the interviewees, CE concept in SMEs is limited to reduction of costs in logistics and the quality of products but a less conscious attitude to resource-efficiency and their environmental and social impact. Then, given the direct link as suppliers, retailers of investing corporations/ sponsors with SMEs and their mutual influence along the supply chain; this is the second group in which the whole process of ADKAR should be applied. However, up to 4 interviewees believe that the whole process should be developed in other companies in the supply chain. Interestingly, it was observed that awareness is not considered in this group as the most relevant stage. Instead, "Desire", "Knowledge", "Ability" and "Reinforcement", have more embracement while exercising change management. Likewise, public institutions are entitled to be present in almost all stages, except for the "Ability" stage. According to the comments of the interviewees, the local governments should be included in almost all the stages of the process, though with

minimum intervention in “Knowledge” and no involvement in “Ability”. Most of the opinions from the participants associate the public sector as a receptor of communication and involvement as knowledge providers. Whilst, it is ideal to count with their support to channel awareness towards the general public, they would really make the difference if they empowered their internal employees with the desire to support their individual willingness to change. Thus, such an approach would spread the culture of collaboration across supply chains. Finally, customers are not necessarily involved from the “Awareness' ' stage, but they should take part in the “Desire' ' stage to be willing to buy from SMEs that are committed to a truthful process of circularity. It is noteworthy that the "Desire" stage emerges as the most crucial phase for the majority of participants. Interestingly, these findings validate the results of a survey conducted by Prosci, which involved 2000 companies and emphasised being this stage the most challenging (Creasey, 2015) and therefore, should be addressed by all the stakeholders as possible. See *Figure 8.* Transparency was brought up as one of the main magnets to attract more customers, especially in the “Reinforcement” process. The market should be informed of the steps the company has taken in order to care about more sustainable practices in creative ways. The interviews provided insightful highlights on communication strategies such as social media campaigns that emphasise the importance of becoming circular, call for participation in new sustainable ideas for the products, or offering an open space for feedback regarding the design of a more circular business model.

Figure 8.

Survey on the most challenging ADKAR element in times of change

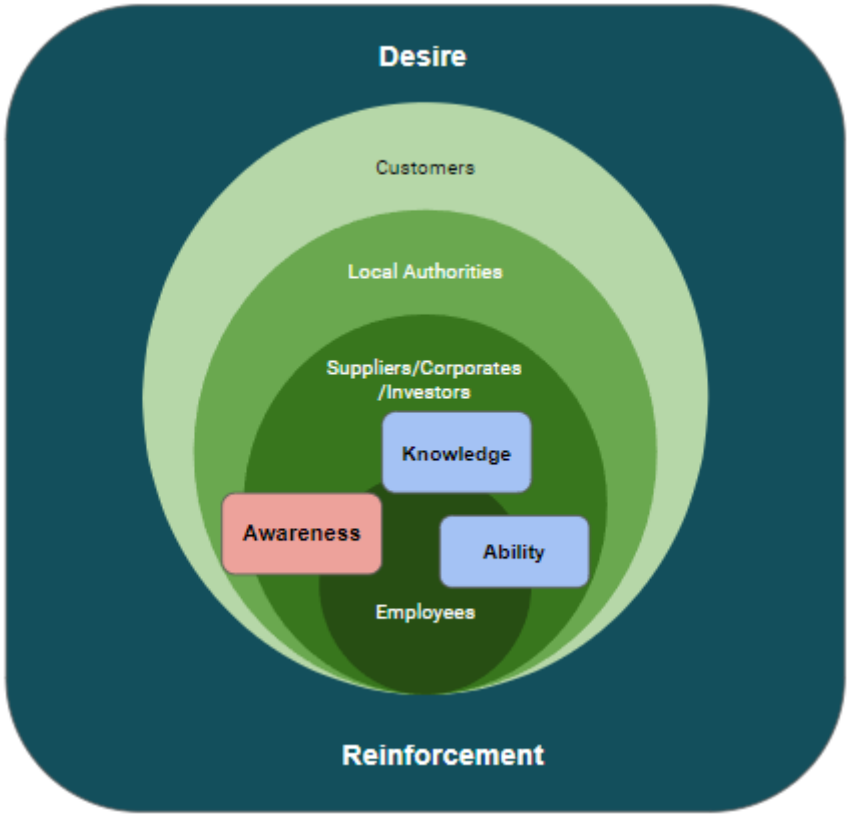


Source: (Creasey, 2020)

Although all stakeholders are capable of playing a role in each stage of the ADKAR process, the primary data collected showed a trend of having a role and relevance of participation in each stage. In order to visualise the interventions of each stakeholder through the ADKAR process it was necessary to graphically describe the span of intervention considered as relevant for the interviewees. For example, “Awareness” should be initiated including employees, people from the supply chain and local authorities. On the other hand, the “Desire” and “Reinforcement” stages are considered relevant to be applied comprehensively in all the stages of the change. See *Figure 9*.

Figure 9.

Stakeholders’ involvement in each stage of ADKAR



Source: Thesis author.

4.2 Identification of key principles and their values

Due to the semi-structured arrangement of the interview, it was possible to collect a detailed description of each participant about their experience in each section. Besides, It was possible to ask follow-up questions to identify their trends in specific moments of the conversation.

Those trends appeared as a reflection of the participants' mindset across the whole process. Therefore, their perspective patterns enabled an inductive qualitative analysis of the data that revealed specific principles of each interviewee regarding the process of ADKAR. Throughout the conversations, every participant shared their unique insights, encompassing various tactics, strategies, and tools related to their expertise in change management for sustainability and/or the circular economy. As a result, the data was meticulously analysed, incorporating these identified principles that will form the foundational values governing the Circular ADKAR methodology.

After carefully analysing each interviewee response, each stakeholders group was addressed by diverse kinds of interventions under the following consolidated principles in *Table 3*.

Table 3.

Values identified during the interview to be applied across the Circular ADKAR guideline.

	STAKEHOLDERS GROUP			
PRINCIPLE	**Employees**	**Suppliers/Corporates**	**Public Institutions**	**Customers**
Appreciating Inquiry	-Understanding the context -Ask about individual needs - Be aware of the present. -Celebrate in advance.	-Share needs and demands (pressure by power)	-Highlight their contribution.	
Challenge approach	- FOMO factor. -Visualise new opportunities. -Inclusive competition.	-Empowerment by co-ideation. -Address challenges		
Sense of community	-Take everyone on board - Support to find solutions. -The leader rises naturally. -Everyone has a role.	-Share platforms. -Learn together from the big ones.	-Align needs and concerns. -Imparting knowledge	-Open call to participate.
Constant feedback	-Peer learning -Reflection of knowledge. -Turn negative feedback into positive. -Recognition.	-Peer learning	-Informative communication.	-Open call for feedback

Commitment	-Allocation of budget for pilots. -Embed actions in KPIs. - Monitor progress	-Investment & financial support	-Political synergy	
Transparency	-Reason behind the change. -Open communication. -Top bottom engagement. -Traceability	-Traceability. -Align common strengths and weaknesses. -Open communication.	-Informative communication. -Traceability.	-Communication of intermediate and final results
Learning by doing	-Trial and error. -Iterations. -Experiments & labs. -Bottom-up approach -Space for research -Training. -Role's rotation.	-Team building		
Open Innovation	-Focus on co-design -It is all about a pilot!	-It is all about a pilot! -Brand the change. -Build partnership. -Co-creation.	-Brand the change.	-Primary collection of needs
Trust	-Safe space to ideate and speak out. -External help is welcome. -Nobody knows what will happen, but we are in this together!	-Vertical alliance towards change. -Networking. - Let's share the change together!	-Reinforcement of benefits provided by policies. -Networking.	-Safe space to ideate and speak out. -Networking
Patience	-Planning little steps -Quick wins. -Mind the gaps (constant training)			

Based on: Primary research during the interviews made to participants. Table created by the thesis author.

The identified principles are relevant across all stages, with their application and density varying depending on factors such as context, individuals involved, institutions, and the prevailing "momentum" of the strategy. As a matter of fact, the tactics shared by the participants may apply to one or more stages of the ADKAR process. Similarly, it is not necessary for all the principles to be incorporated into every stage simultaneously. For instance, the first principle, "Appreciative Inquiry," emphasises the importance of comprehending the unique needs of employees within a company and aligning those needs with their inherent strengths to drive change. Whilst, in the context of corporations and public

institutions, it entails constructively sharing needs and demands to facilitate mutually beneficial agreements for change. In the case of public institutions, emphasising their potential contributions based on past successful support initiatives within the industry can motivate them to strongly advocate for future changes.

5. Discussion

The present study aims to build a methodology that enables SMEs to shift from a linear business model to a circular one by means of the existing ADKAR change management methodology. Given that ADKAR is a process, the results will be embedded within the 5 stages of change management implementation, including 10 main principles when driving people towards this change. Each stage of the process will contain the strategies, tools and way of managing changes collected from the interviews and supported by relevant secondary research. The present section aims to support the building of a circular economy ecosystem where all the stakeholders committed to this strategy are able to adapt in their daily actions towards a circular business model construction.

5.1 AWARENESS

5.1.1 Understand the perception of circularity across the supply chain

In order to raise awareness, it is necessary to analyse first the level of understanding and knowledge people possess about CE topics. To gain insights into how individuals within both internal and external companies align with a circular economy (CE) business model, it is recommended to conduct a survey or a series of interviews. This approach will help in understanding people's perspectives and attitudes towards the CE model:

- What do you understand about the circular economy?
- How do you apply the CE concept in your daily life at your job or at home?
- Do you think this is a good way to fight climate change? If there is any other way you think is better, please explain to us!
- Do you know and understand the EU "Green Deal" and/or the Circular Action Plan"? If yes,
- Which of the points of the "Green Deal" attracts your attention the most or do they align with your work in the company?
- What would you need from the company in order to be more circular in your daily activities?

The CE might be conceived differently among employees, suppliers and retailers. Therefore, it is important to scan what is the current status of individual adoption of circular economy practices among people. In this way, it will be possible to identify in advance promoters, passives and detractors in the process of change.

5.1.2 Identifying Individual "Fears vs Powers"

After collecting the responses to the previous questions, then the individual needs to acknowledge, understand and manage the change to circular economy must be identified in

the anonymised data collected. Therefore, it will be necessary to gather the surveyed people to the same table (including external employees) and reveal the results in an informative way. During the round table conversation, there must be an educational space to fill the gap of the knowledge of CE from the existing objective external definitions. For instance, if people have not been familiar with sustainability or during the response analysis, a lack of understanding of circular economy regulations was detected, those grey areas must be quickly addressed in order to foster a more robust dialogue. Then, after levelling the attendants into the same page, it will be more efficient to understand their "Fears vs Powers" in order to embrace the CE concept:

Fears

An open listening communication approach must be used in order to create a safe space to talk about the concerns in a rounded table. Fear is one of the main causes of resistance to change among employees. Such fears may be rooted by the uncertainty of their own future regarding job position, responsibilities, career development and failure in past experiences towards change. Likewise, the fear of being observed arises when it comes to giving accountability of future actions. Such a burden of thoughts may be expressed as resistance to change when starting the transition and they must be identified from the beginning to avoid future pitfalls. Employees with longer tenures fear change more than newer employees because of the depth of their comfort with the old ways of doing things (Creasey, 2020).

Moreover, the fact of listening to their concerns before initiating the change increases the trust of employees in leaders and empower them to make decisions around the new implementations. Employees who are not included in the decision to change and the design of solutions often resist change. Particularly, employees who lead small groups feel unheard as well as threatened, betrayed, blind-sided or targeted by the change (Creasey, 2020).

Powers

After understanding the needs behind people's fears the next step is using an appreciative inquiry approach to stir-up ways to address fears and help them focus on how their current skills can contribute to the change. Appreciative Inquiry is commonly called an "asset-based" or "strengths-based" approach to systems change. Its main idea relies on overcoming the negative side of problem identification by turning them into beneficial opportunities for the participants. (Cooperrider, 2019). Dialogue generates ideas among employees. Its trigger must include questions that enable employees to identify possible actions to be on board with the change, while relying on previous success experiences and factors related to change:

- *What was the last time you managed to successfully change any personal/professional aspect in your life?*
- *What were the barriers you came across when you needed to change?*
- *What kind of skills did you use to thrive through that change?*
- *Can you remember two or more positive experiences you have managed to solve at the organisation by means of your abilities?*
- *What strengths or abilities would you use to shift to a more circular way of doing your job?*
- *Would you like to help or to lead upcoming changes in the company?*

The positive recognition of situations either in personal or professional life, help employees to appreciate what is already working when exercising their roles. Then, during the reflection of those peak moments (their leadership experiences, relationships, networking, motivation, learnings, etc.) the conversation must be guided in a way to find common success factors that can be applied in the upcoming change. Finally, people will be able to identify how their strengths will help them to address the new challenges.

5.1.3 Presentation and validation of challenges of CE

According to the experts, the collection of fears and powers will help the audience to define what are the challenges they are ready to embrace and the attitudes they will use to face them and propose actions by themselves. Currently and for the next 5 years, it is possible to classify the most relevant challenges of emergent SMEs in four main groups according to the global status quo of circularity in the world. Such groups will help to cluster the actions needed to adopt CE depending the type of the industrial sector of the companies:

a) Redesigning value chains

This is a prerequisite for industrial adoption of CE. Multiple actors are involved in the supply, production and distribution of value chains. Depending on the type of product and/or service processes have their own level of complexity that is not always aligned with the need of standardisation of circularity among companies. As of 2022, only 8.6% of the world economy is considered circular. Thus, it is an urgent need to mainstream to circular systems globally. This shift will require unprecedented collaboration between sectors and countries across the world (Rademaker, 2022). Therefore, the development of a symbiotic vertical relationship between chains would mean that the waste generated by one becomes the direct resource or material for another (Weetman, 2017). For example, the oil produced by a fast-food producer could be used to generate biodiesel for a car manufacturer. Although, European regulations are advocating and pushing for more sustainable operations, there are still inconsistencies

regarding standardisation of circular processes among chains across industries. There is an absence of a holistic framework when striving for circularity (Ranta et al., 2018).

b) Align circularity with competitive business models

CE products are designed to last longer than those in a linear economy. This situation would shadow the production of new products whose designs are not necessarily aligned with lasting longer or adapting to other companies in the vertical supply chain. Besides, the option of long-lasting products has brought up the leasing option in which customers would not own a good but would pay for receiving the service from that good. Such addition to business models implies new consideration in the income structure of companies, having to include the risk of losing profit when dealing with constant maintenance and repair of the deteriorated products (Roy et al., 2022). Moreover, apart from functionality, the market demands aesthetics in design. Some features might increase the complexity of the products in terms of design and would be even more costly to implement CE practices internally or by a third party (Halse & Jæger, 2019).

c) Promoting a circular behaviour

The acceptance of CE by the market is influenced by the complex casualties of the demand and offer economic system. The strategies of business models, whether propelled by market readiness or technological innovation, pose challenges in establishing a clear starting point to transform the mindset ingrained in the linear economy. Therefore, both companies and consumers need to push the shift of mindset from their actions. This is the case of planned obsolescence of products being outdated and designed to fail after a time. Consequently, novelties take over the fields and instil consumers to buy evolved versions of the product even if they are still functional. The industries' mindset to improve aesthetics, practicality, portability, among other features of products is partially taking into account the TBL of sustainability. Mass customisation of products aggravates the complexity of re-circulation of diverse materials and components that require separate methods to be re-inserted in the CE loop. (de Jesus Pacheco et al., 2019). This highlights the necessity for increased investment in order to establish a circular supply chain. Consequently, prices may rise, causing a lack of customer motivation to purchase circular products, particularly among those who cannot afford them or are unaware of the societal benefits offered by the circular economy (CE). This perpetuates a vicious cycle where market readiness declines, and companies are reluctant to produce goods that lack demand.

d) Comprehensive policy mix

Unfortunately, legislation also has shown its shortcomings lacking a global consensus that benefits more sectors. For example, non-renewable resources such as oil have taxation levels comparable to or lower than renewable ones. Another example is the price of products/services whose costs still fail to incorporate the costs of ecological damages (Rademaker, 2022). However, there are already punitive regulations to avoid the usage of toxic materials such as plastic. Germany passed legislation in late 2022 that will require goods containing single-use plastic to pay into a central fund managed by the government that will pay for litter collection. The initiative will be expected to raise €450m ($482.01m) in its first year after adoption in 2025 (Whiteaker, 2023). These political measures are still piloting and the future results are uncertain. Meanwhile, in the same topic of plastic, current regulations classify certain types of plastic eligible for recycling and if it is, they are of low quality or not trustworthy by the market. The current legislation and financial incentives are more focused on investing in recycling and transforming rather than reducing the use of plastic.

After presenting the four classifications of challenges, then a group of specific challenges are defined by brainstorming with the group. The number of challenges or the creation of new groups of them will depend on the type of industry and the specific needs of each company in the supply chain. Brainstorming and a voting point dynamic to select the challenges for change are useful to identify the potential change leaders, detractors and neutrals in the process.

5.1.4 Engage new change ambassadors and define the collective mindset

Change can only be done by change makers that are already motivated. After the natural leaders have emerged, they will have to define their expectations, goals, visions and personal motivations to lead the shift towards a circular economy. According to their skills, they will be part of a portion of the project of change and they will have to be empowered to design the communication strategy for the company and the stakeholders. Each of the leaders will have specific goals in different areas and companies and they will be able to rotate in different stages of the process.

After having scanned the collective mindset by means of the identification of Fears and Powers of people, leaders will identify the current status quo in people's mindset. This mapping will provide the collective mindset of the companies towards change and will serve as the starting point to co-design an adaptable communication strategy in the "Desire" stage of the process.

5.1.5 Involvement of public local authorities

After identifying the relevant challenges, they must be collected and founded by figures, facts, references and research that certifies their existence in the market. Given that CE is also a political decision across the globe, SMEs exist under a political framework that has been built based on the urgency to fight climate change proved by scientists. Nonetheless, policy making might struggle in adopting a comprehensive approach, especially because of prioritising known and urgent matters exposed by the majority of the population. Moreover, political and power interests might be behind the intention of policy making. Consequently, it is important to include the government from the beginning of the process of change as knowledge and legislation providers. In this way their role will be included in the further comprehensive communication strategy.

Lobbying is the first option to reach out to people in power. Leaders in the supply chain who have the knowledge, the willingness and the power to change are ones entitled to look for contacts that connect them to the relevant authorities. Once they are connected (by electronic means or personally), high authorities must be first called for a collective conversation (in a workshop, focus group, etc) with all the change leaders identified in the previous stages to ideate a more efficient, inclusive and realistic way to comply with legislations in CE matters. Including politicians' expertise in the conversation will help to understand their needs, concerns and intentions in order to foster a private-public collaboration. Altogether they will be able to exchange perspectives in the political, social and economic lens and reach consensus to help the supply chain to shift to a circular business.

Once this group of decision makers are aligned, a top-down approach should be agreed in order to spread the need for change in all institutions involved. This way, team members will experience the need to change by looking at the example of their leaders.

5.2 DESIRE

In the second stage, chosen leaders are entitled to communicate the need for change to their teams.

5.2.1 Celebration of the future success

When adopting a change, people like to feel that their previous work has been appreciated. This way, they will be able to adapt their best attitudes to support the upcoming change. According to the interviewees, people will experience emotions following the pattern of the

Kubler-Ross Change Curve. When the need for change appears, people will go through the 5 stages of grief (Belyh, 2015). See *Figure 10*.

Figure 10.

Kubler-Ross Change Curve

Source: (Belyh, 2015).

The first two phases “Fear/Uncertainty” and “Anger/Rage” were already addressed in the “Awareness” stage when aligning the challenges to face with their current skills (powers) to be on board of the changes. Moreover, the collective mindset was defined in order to tackle the main pain points in the further communication. The experts argue that before calling to action, there must be a ritual of closure of the past activities that they used to do well on behalf of the current linear model. Here, the leaders will take proper time to organise events of celebration (networking, small gatherings, parties, etc.) to thank people for their efforts and announce the new activities to come. Here, the leaders will communicate to their teams how they will unlock the opportunities that the new change will bring to their lives by means of using their strengths.

Moreover, in order to exemplify opportunities, it may be necessary to inspire team members by presenting as example other companies that are successfully shifting from linear to circular economy facing the same challenges. Those positive examples might be showcased in a workshop, or by pills of knowledge through recurrent emails, intranet of the company, digital wallpapers, etc.

5.2.2 Co-design a brand of the change

When facing changes in lives, people have the need to belong to a community. Using the sense of community principle, it is recommendable to brand the change so people feel identified individually with it.

Vision and values

Next, each employee will articulate their contributions to the company's transition period through their daily tasks. The objective is to shape the new identity of the business model in transition, gradually embedding a fresh philosophy into day-to-day operations. The Vision statement will outline the companies' envisioned actions to achieve the circular business model within the next five years. Concurrently, the values will be established based on the collective principles determined by the group to address the challenges of change effectively.

By branding the change initiative, co-creators will be encouraged to develop an ecosystem that attracts the attention of key stakeholders needed to propel the change, including investors, speakers, experts, research institutes, and potential sponsors who express interest in the vision.

5.2.3 Circular economy ecosystem

This is considered the core phase to indoctrinate all the stakeholders involved in the change. Here, all employees of the organisations in the supply chain will be called to take part of the circular economy ecosystem. Each stakeholder will have a role to perform within this space digitally or physically.

According to the interviews, it is important to support the change by keeping a spirit of positive feedback, peer learnings, as well as communications that stir up the stakeholders with a sort of FOMO (Fear of Missing Out) factor. That is to say, the transition will be seen as a community where different interests will be addressed.

Supply chain: The employees in the supply chain should be able to share their information in a shared digital platform or by analogical means such as weekly or biweekly meetings. Each company should have access to visualise the shared objectives, strategies and KPIs across the entire supply chain. Following the principle of transparency, each business will be able to track the actions to reach the goals of circularity. Some examples of circular indicators could be: percentage of waste generation/month, rate of reinsertion of materials in next chain operations, materials usage efficiency rate, circularity score from clients, percentage of recycled materials used in operations, etc.).

Public local authorities: Public servants engaged in the “Awareness” stage will be benefitted by the constant communication along with the companies in the supply chain. Within this space they may be able to: post pieces of information on how to better understand and address the policies, creation of funding programs to invest in circular initiatives (innovation programs,

subsidies, creation of programs that foster more circular jobs). Municipalities possess very powerful instruments in the circular economy, such as public procurement, economic support and zoning (Friedl, 2019). Furthermore, companies, within their marketing campaigns will offer a space to promote governmental actions on behalf CE. These dynamics will improve the closeness of both parties' collaboration and trust, resulting in a win-win situation.

Customers: Experts recommend involving both current and potential clients within the ecosystem. This strategic approach not only taps into a vast pool of partnership opportunities but also cultivates a community of enthusiastic customers who stand to gain significant advantages from the transition while simultaneously contributing to its success. One of the main approaches would be to create open calls for the general public to apply to different stages of the transition process. For example, opening periodically a bucket of focus groups and surveys directed to the market to understand their needs. Then, they will be able to participate in any compensation plan according to the strategic plan of the SMEs.

Furthermore, open innovation programs could be designed in order to engage other SMEs and even professionals related to sustainability or CE to take part in the co-ideation of solutions.

5.2.4 Co-design of communication strategy

A successful transition ecosystem requires a well-crafted communication strategy tailored to the specific audience involved. Every interaction should effectively convey the need for change, adapting the message accordingly. Once the ecosystem is established, it is crucial for the community to maintain a portfolio of communication channels, such as websites, social media platforms, and mass emails. This diversified approach allows for the collection of valuable insights from ecosystem interactions and ensures that the audience remains engaged. Besides, it will be important to prioritise information security while simultaneously fostering audience engagement. Such an approach is based on the communication strategy “Let others speak”, which intends to create an amplified message of the need for change. Thus, this will keep stakeholders and build networks that attract potential opportunities such as investors, research institutions or speakers that want to take part in the process and exchange benefits according to their roles in the community. Each communication channel will serve as a conduit for the "Knowledge" stage of the process.

5.3. KNOWLEDGE

Once the community has opened a solid planned space for the change to happen and stakeholders are convinced, they want to shift to circular business, they will need to understand the actual technical knowledge to change or modify their daily operations.

Create the school of circularity

According to the interviewees, constant education will be the first step to address the "Knowledge" face. Creating a space for learning and teaching would be useful to nourish the urgency of change by either relying on internal or external experts from research institutions, universities or independent CE enthusiasts. First the leaders will design a training agenda proposing the main topics related to circular economy. It will depend on the sector where the supply chain performs. In order to engage participants, it will be necessary to draw a roadmap of the learning objectives and align them with their personal and professional benefits. Each benefit must be linked to short term milestones of learning. According to the interviewees the following topics there are main topics that need to be addressed as bottom line:

a) <u>Social innovation:</u>

Although it is true, the circular economy seeks to generate profitability by the efficient use of resources and waste, but it also requires meeting environmental and social compliance requirements needed by regulations and market. The transition from linear to circular models is therefore a socially innovative change. Such initiatives then aim to address societal needs and challenges rather than focusing primarily on economic success and profit (Howaldt, 2019). Social Innovation initiatives are built by a variety of actors, including research institutions, companies, independent organisations and public local authorities. According to the interviewees, it will be imperative to include training in this area to ease the collaboration in the new design processes. In today's society, social Innovation is a variable of corporate social responsibility, which is a concept whereby companies implement actions to integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis (European Commission, 2001). Given that in the previous stages of the ADKAR process, the role of every stakeholder was defined, the ideation process will be expected to be smoother. The final objective of training in social innovation is to ideate the prototype of structures of business models and processes that lead to potential solutions in a sort of lab experience (design thinking, value proposition, innovation, or mind maps sessions). For example, planning an open innovation program directed to design a Product-as-a-service model of the new line of products. Another example would be the design of a

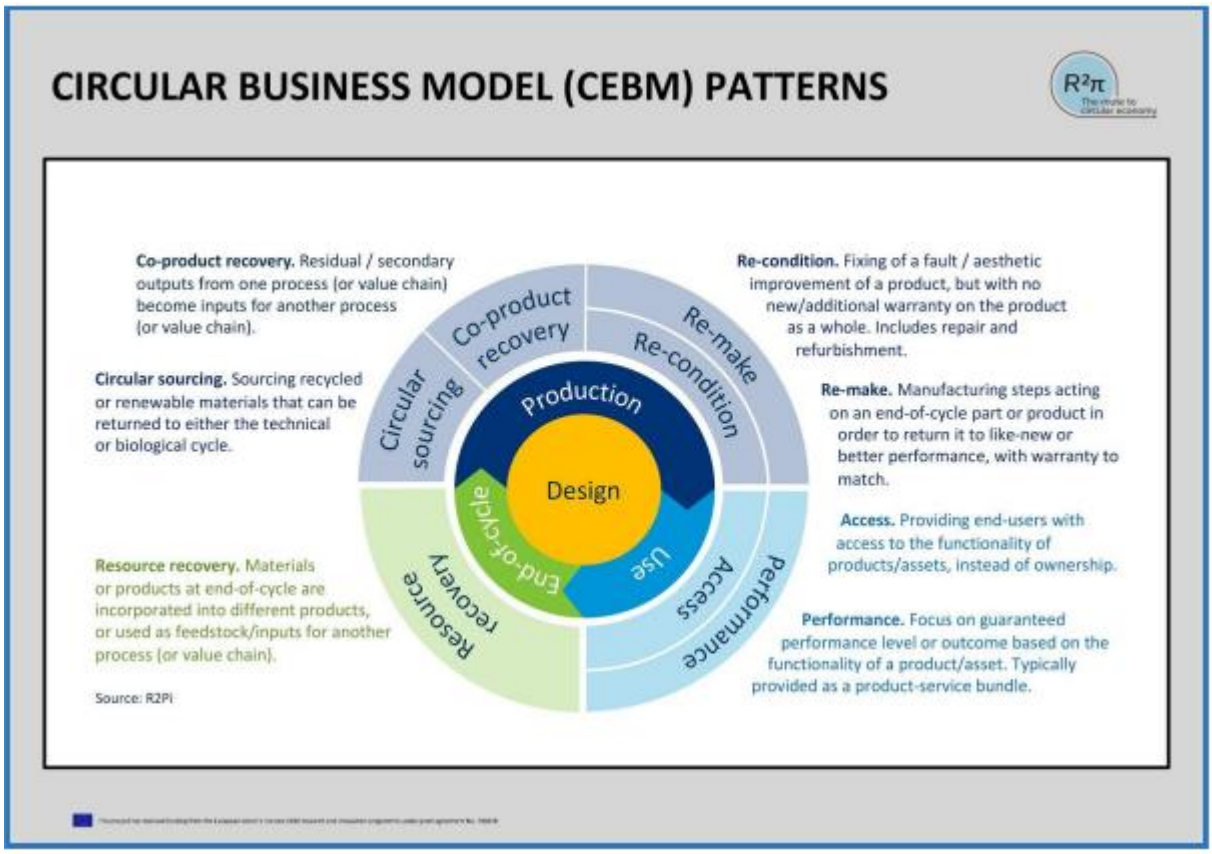
campaign to change market perception of second-hand clothes in cities where their embracement is still scarce.

b) Designing a circular canvas:

This will be the sketch of the circular supply chain. Companies should gather together and work in the new collaborative business model. Moreover, the experts pointed out that the European Commission has developed a “Circular Business Model Innovation Toolkit”, which is not necessarily friendly communicated and is still not completely embraced in SMEs aiming to become circular. The Circular Business Model (CEBM) Pattern is the joint of 7 independent canvasses including different perspectives that the business should rely on to be considered circular. *See Figure 11*. Such perspectives are: Co-product recovery, circular sourcing, resource recovery, Re-condition, Re-make, Access, Performance (McDermott et al., 2020).

Figure 11.

Circular Business Model (CEMB) Patterns.



Source: (McDermott et al., 2020).

c) Design their own processes:

One of the most effective strategies in adults is the experiential learning approach. It is based on learning by doing and it is initiated by a concrete experience based on real or simulated cases in which the individual reflects from their perspective. Then, they reach conclusions to conceptualise the meaning of the results (Kolb, 2023). Companies' operations rely on specific processes distributed along their value chain. They can be designed according to different notations such as BPMn (business process management notation), UML (Unified Modeling Language), or any operational representation of the core and support activities to produce goods and services. By identifying the resources, inputs, equipment, responsibilities and internal policies of the current processes, people will be able to visualise the “to be” version in a circular perspective. The leaders must guide their teams on circular reengineering of processes. In this way, people will be able to design their workflows based on the new circular objectives established in the ecosystem. Mapping the new processes needed to reach the circular patterns can only be completely understood by teaming up in multidisciplinary groups and designing the new circular business process architecture.

Following the principle of “Learning by doing”, collaborative teams will need to be motivated to simulate the workflow of the activities, in order to detect possible regulatory or operational bottlenecks in the process. Consequently, it will be important to always count with the constant feedback of counterparts in the case of transactional processes that require more than one company to work efficiently.

d) Communication strategies:

It is crucial for all participants within the circular ecosystem to acquire and enhance their communication skills. As leadership roles within the team will be rotating, providing training on various communication strategies to employees involved in the transition will empower them to take positive actions and foster empathy when sharing knowledge about the circular economy. Effectively communicating the company's new philosophy regarding the circular economy should be tailored to the cultural context. For example, implementing a weekly newsletter that includes concise information about how to execute their responsibilities, can help keep employees informed. Additionally, this space can serve as a reminder for new internal policies related to the circular economy.

Furthermore, it is essential to develop external communication tactics to keep local authorities and customers well-informed about the ongoing process of change. Relying on the principle of

"Trust," this approach will enhance the company's reputation and reliability among both current and potential clients.

5.4 ABILITY

The ability to shift from a linear business model to a circular one comes from the joint efforts from different actors contributing with specific skills and knowledge. Whilst in the “Knowledge” phase all the participants have to be trained in the same topics, past experiences, talents, and abilities coming from their background of values bring up their preferred roles in the transition. In the CE framework, it is inaccurate to talk about internal abilities in the SMEs due to their high dependence on bigger corporations, investors, market and government. Therefore, their capabilities to shift to a circular economy will be based on their constant exchange of benefits and challenges with their supply chain. In that line the ability to change is suggested to be implemented as follows:

5.4.1 Open innovation programs (OI)

According to numerous studies, companies in the EU (most of the SMEs), have classified the barriers to embrace a circular economy as technological, social, economic, environmental and legislative (Kumar et al., 2019). The technological barrier also limits the capacity to transform, optimise and innovate operations within organisations. Other studies reveal that the technological barrier is associated with a lack of appropriate technological devices, infrastructure and equipment needed to develop circular products (Jaeger & Upadhyay, 2020). Additionally, this fact unfolds the lack of skills, cultural mindset, knowledge and resources to implement a circular economy in one single unit of supply chains.

Open innovation is a concept that encourages businesses to use external and internal inputs to accelerate innovation processes (Chesbrough, 2017). In this model, there is an exchange of capabilities within which partners agree to contribute with what they are specialists or better at doing. Due to the nature of collaboration of these dynamics, the interviewees have strongly recommended implementing it as a modus operandi to reach circular objectives within areas, supply chains and communities. One example of this is a circular construction project in Europe where various actors participated in the design of supply experiences and capabilities for the development of highly energy efficient technologies, the research and use of biological materials and payment for use of construction services; such as elevators (Brown et al., 2021). Zucchella & Previtali, (2019) pointed out a circular ecosystem case in which farmers experienced a rice and wheat crop increase as a result of knowledge sharing and working with

collaborators from innovative companies. These examples show that lack of knowledge, capacity or expertise in technical solutions can be reduced significantly by applying open innovation to drive the transition to the CE.

Therefore, as part of the circular ecosystem planned in the “Desire” stage, OI programs would be launched to embody the knowledge acquired in the previous stage. Moreover, since market acceptance is one of the barriers for implementing CE in SMEs, customers will also be invited to participate in OI programs. The program will include an open call for applications to students, independent researchers, scientists and CE enthusiasts interested to learn about the sector and obtain CE related skills. Their work would contribute to the design of the circular business model and to the early feedback of minimum viable products. According to the strategic plan of the SME, the participants will receive in exchange the knowledge and the possibility to collaborate in the whole transition of the company. In this way, the shift to CE would tackle the TBL principles by raising the awareness of the market by decentralising knowledge and allowing entrepreneurs to intervene (social impact); optimising revenue streams (economic viability); and using research to manage existing resources (environmental impact). One example of this is Netx Lap program. This is a project developed in Portugal between Beta-i consultancy (innovation ecosystem builder), and Europe’s largest tyre granulator GENAN and Rubberlink innovators. The Program joined the innovation methodology consultancy services from Beta-i, the technology of GENAN and the Rubberlink solution research and development expertise to use devulcanised tyre rubber to produce shoes with 100% recycled rubber sole. According to data from Genan, using recycled rubber sole, less than 700 kg of carbon emissions are produced per each ton of tyre to fabricate the same amount of products based in virgin rubber (Brunn, 2021).

5.4.2 Debriefing

Following the principle of feedback, debrief should be a fundamental activity to internalise in people’s mindset every stage of the process of change especially when it comes to certifying that the people involved have understood and are performing their responsibilities according to the plan. Moreover, this step should create a space for reflection and assimilation of the activities already on track and the ones that might not be aligned towards a circular business model. It is important to mention that the feedback should have a 360 degrees approach in order to guarantee that all parties give and receive feedback on the same page. According to the experience of the interviewees, the following questions would be useful to start a discussion:

- *How could I (from my role) contribute to boost a seamless collaboration among stakeholders in the Circular Economy?*
- *How could we incentivise the active engagement in the network?*
- *How do you see maritime our company maximising our value proposition and strengthening their position in the global supply chain?*
- *The organisation and cultural transformation in SMEs are crucial in fostering CE. What is the status of your company in this matter?*
- *Would it be possible to include more actors in the policy making process aimed to facilitate the implementation of CE in SMEs?*
- *What do you think are the challenges of the future?*

5.4.3 Institutionalise changes

According to the interviewees, the process of change needs to be documented in order to be embodied in the DNA of the company and in this case, the whole supply chain participating in the transition. As mentioned before in the "Knowledge" stage, employees need to make sure the methods, lessons learned and any positive feedback is incorporated in the new business processes. In this stage it will be necessary to design a formal process architecture that describes the interaction between governance, operational and support processes in the value chain; as well as their actors. The new architecture would be in the form of workflows, process manuals, instructions or guidelines according to the level of details required by the organisation in order to make their operations iterative and easy to follow.

The importance of the institutionalisation of the processes is the capacity to measure them. By mapping and formalising the new processes as the new reality of the company will allow employees to identify future improvements and adapt to changes in a faster and flexible way. Moreover, as the processes are documented, their operations will not depend on the turnover of people given that any new human talent will be able to follow them and put them into practice regardless of the time they have worked in the company. This is also a way to institutionalise the know-how of the company and keep the traceability of changes.

5.4.4 Peer assessment of KPIs

Utilising peer learning to assess key performance indicators (KPIs) is an effective approach for gaining insights into the interconnections among different areas and chains within the value chain. This method allows for a comprehensive understanding of how various components within the value chain interact and impact each other. By leveraging the collective knowledge and experiences of peers, valuable insights can be gained to enhance the overall performance

and efficiency of the value chain. One valuable input to boost the change readiness is to rely on the customers feedback as well. It is important to understand if the company is meeting the market expectation in order to maintain the credibility of the ecosystem. This feedback can be collected by means of a NPS (Net Promoter Score) to find out if the products and/or services generated during and after the transition would be recommended to other market niches and to what extent they are willing to continue supporting the companies' actions towards sustainability.

The importance of this assessment is to analyse if the steps to transition to CE are fruitful. Following the principle of "Patience", the peer assessment is a tool to show participants that everyone has a pace to embrace the change and the transition can only be reached if all the gaps of knowledge, expertise and skills are balanced in a team. During the process of debriefing, it will be required that the participants set quick-wins among each other in order to set small common goals that contribute to the main one that is performing as a circular model. According to the interviewees, such little steps will enable a more attainable contribution in less time.

5.5 REINFORCEMENT

The reinforcement stage aims to close with a flourish the achievement during the process of change. When individuals effect a change in their lives there is a tendency to revert back to what they used to know very well. Even more, in companies, the resources spent to reach a whole successful change might be eclipsed by the sabotage of past well known activities. Making a rooted change is difficult, sustaining that change can be even more. That is why reinforcement is a critical component to secure a successful change and assure that the new way of doing things stays in place (Creasey, 2020).

As well as the "Awareness" stage all the stakeholders should be reinforced. Based on expert recommendations, the process of closing the process of change should encompass the following essential steps:

5.5.1 Celebrate was has happened so far

During this phase, celebrating is an important step to reinforce the achievements planned during the ecosystem built in the "Desire" phase. This step has to be planned in order to periodically support the alignment of teams on the CE transition. More than feedback, the celebration should happen after a significant milestone in the process of change; according to

the strategic plan of the company. During this event of celebration, the team leaders/ambassadors of change should draw a timeline to show their team how they started and the steps they have taken to reach the current state of change. Having visibility on what happened after they decided to embrace the change, they will be able to see where their actions are going and feel their efforts are taken into account.

Recognition of efforts is an important ingredient of this phase. All companies involved should co-organise an event where their counterparts and colleagues highlight the best moment while working together. At this point, it would be necessary to continue investigating the needs of people and how they can collaborate to meet them in different stages of the change. According to the interviewees, the use of dissemination channels for recognition, publicity of events and informing about them to the general public will motivate the people involved to keep their mindset iterative if not permanently, for at least the first two years of performance with the new business model.

5.5.2 Gamification of the change

According to the experts, introducing games in the learning environment is effective to encourage continuous commitment in activities. Gamification techniques help to motivate people's desires for socialising, learning, competition and self-fulfilment by playing a game (Deterding et al., 2011). Following the principle of "challenge", after every milestone, it would be recommended to test employees with short gamified quizzes about what they have learned being part of the CE ecosystem. The topics of the games will depend on the stage of ADKAR and the skills gap between participants during the transition. This technique can be extended to other stakeholders such as investors, other corporates and customers who would like to learn about the initiatives the ecosystem has taken towards CE.

5.5.3 Cross-communication of actions taken

When communicating with all the stakeholders, the message should contain all the actions taken during the process. This approach includes not only the positive results of successful actions but the failed attempts. For example, circular actions might bring unintended consequences like the increase of energy consumption during the newest acquired technology to transform recycled plastic. Likewise, a systematic change of responsibilities for workers that implied extra payments for them to be trained and therefore, more time and effort invested for employees to learn new skills.

Following the principle of “transparency”, the communication should be focused on reinforcing the values of the companies involved, the hard times they spent shifting to the new model and how they overcame them with their actions. The experts also suggest including customers in these iterations. By means of social media or the public channels available in the ecosystem created for the change, it would be important to showcase how customers have helped the company to become circular. Using the “let others talk” style of communication after a significant achievement would encourage other companies to follow the same course of action. On the other hand, spreading the “don’ts” or failures in the process would make smaller companies (for example startups) aware of what they need to avoid to not deviate from the way to become circular business from the beginning. In the context of CE, one of the most important objectives is to alter the market behaviour as well, so other companies, even potential partners, feel the pressure to acquire the same practices towards sustainability. Following the principle of trust, networking events are fundamental for the reinforcement phase. Local authorities, investors, suppliers, retailers and SMEs should be included as part of the accountability of the change. It is important to strengthen the bonds of collaborators that participated in raising the awareness from the beginning.

6. Conclusion

The present study focused on developing a methodology to facilitate the transition of small and medium-sized enterprises (SMEs) from a linear business model to a circular economy using the ADKAR change management methodology. The research was undertaken using semi-structured interviews as the primary method of data collection, involving seven experienced change management leaders, consultants, and team members who have been involved in previous business transformation processes. The data obtained from the interviews was analysed using the thematic analysis as qualitative method. Consequently, the information was classified in order to group the interviewees' perceptions of the ADKAR process in each phase.

The study coded the results according to the five stages of the ADKAR process: Awareness, Desire, Knowledge, Ability, and Reinforcement. Each stage was associated with specific strategies, tools, and approaches to drive the shift towards circularity in SMEs. In the Awareness stage, understanding the perception of circularity across the supply chain, identifying individual fears and powers, and presenting and validating the challenges of the circular economy were crucial. Engaging change ambassadors and involving public local authorities were also highlighted. In the “Desire” stage, leaders played a significant role in communicating the need for change and co-designing the brand of the transformation. The establishment of a circular economy ecosystem and the development of a communication strategy were emphasised. The “Knowledge” stage involved creating a "school of circularity" where stakeholders could gain the necessary technical knowledge to modify their operations.

Social innovation, designing circular processes, and implementing communication strategies were identified as key aspects. The “Ability” stage acknowledged the collaborative efforts of different actors, including SMEs, bigger corporations, investors, the market, and the government. Open innovation programs, debriefing, institutionalising changes, and peer assessment of key performance indicators were seen as vital for the successful implementation of circular practices. Lastly, the “Reinforcement” stage aimed to solidify the achieved changes and prevent individuals and organisations from reverting to their previous practices. Celebrating progress, gamifying the change process, and facilitating cross-communication of actions taken were recommended to ensure the sustainability of the circular economy transition.

By providing practical strategies and guidelines for each stage of the ADKAR process, this study contributes to enabling SMEs to boost their embracement of circular practices and shift away from linear business models. The findings highlight the importance of awareness,

effective communication, knowledge acquisition, collaborative efforts, and ongoing reinforcement to foster a successful transition to a circular economy. Implementing these guidelines can help SMEs navigate barriers and promote sustainable business practices in alignment with the principles of the circular economy.

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