Understanding Sustainable Transformation: Business Model Adaptation in the Cultural and Creative Industries

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Title	Understanding Sustainable Transformation: Business Model Adaptation in the Cultural and Creative Industries
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ABSTRACT

This dissertation investigates the intersection of business model adaptation and sustainability in the context of cultural industries. The study comprises three main parts. First, the various instances of business model dynamics are examined, demonstrating the potential effectiveness of Business Model Adaptation as a strategic response to changing environments. Second, the impact of the COVID-19 crisis on cultural industries, such as museums, monuments, theatres, music festivals, artists, and editorials, is analysed to better understand the adaptation of companies that managed to survive. The study highlights the importance of support from Open Innovation Ecosystems, such as professional associations, in fostering adaptation. Finally, the mechanisms influencing managers' intention to implement changes towards a more sustainable organization are explored through a quantitative study based on the responses of 122 managers from cultural and creative companies. The study reveals the importance of Open Innovation Ecosystems as an influencing factor on the attitude towards sustainability and the perceived easiness of adopting sustainable practices. Overall, this thesis contributes to understanding how managers can adapt their company's business models to become more competitive and, at the same time, more sustainable, particularly in the cultural industries.

Keywords

Business Models, Business Model Dynamics, Business Model Innovation, Business Model Adaptation, Open Innovation, Open Innovation Ecosystems, Strategic Improvisation, Dynamic Capabilities, Sustainability.

RESUM

Aquesta tesi investiga la intersecció de l'adaptació dels models de negoci i la sostenibilitat en el context de les indústries culturals. L'estudi es compon de tres parts principals. En primer lloc, s'examinen les diverses opcions que ofereix la dinàmica de models de negoci, demostrant la potencial eficàcia de l'adaptació de models de negoci com a resposta estratègica als entorns canviants. En segon lloc, s'analitza l'impacte de la crisi de la COVID-19 en les indústries culturals, com ara museus, teatres, artistes i editorials, per comprendre millor l'adaptació de les empreses que van aconseguir sobreviure. L'estudi destaca la importància del suport dels Ecosistemes d'Innovació Oberta, com ara les associacions professionals, en fomentar l'adaptació. Finalment, s'exploren els mecanismes que influencien la intenció dels directius per implementar canvis cap a una organització més sostenible, a través d'un estudi quantitatiu basat en les respostes de 122 directius d'empreses culturals i creatives. L'estudi revela la importància dels Ecosistemes d'Innovació Oberta com a factor d'influència en l'actitud cap la sostenibilitat i en la percepció sobre la facilitat d'adoptar pràctiques sostenibles a les seves empreses. En general, aquesta tesi contribueix a la comprensió de com els empresaris i directius poden adaptar els models de negoci de les seves empreses per fer-les més competitives i a l'hora sostenibles, especialment en les indústries culturals.

Paraules clau

Models de Negoci, Dinàmica de Models de Negoci, Innovació de Models de Negoci, Adaptació de Models de Negoci, Innovació Oberta, Ecosistemes d'Innovació Oberta, Improvització Estratègica, Capacitats Dinàmiques, Sostenibilitat.

RESUMEN

Esta tesis investiga la intersección de la adaptación de los modelos de negocio y la sostenibilidad en el contexto de las industrias culturales. El estudio consta de tres partes principales. En primer lugar, se examinan las diferentes opciones de la dinámica de los modelos de negocio, demostrando la efectividad potencial de la Adaptación del Modelo de Negocio como respuesta estratégica a entornos cambiantes. En segundo lugar, se analiza el impacto de la crisis de la COVID-19 en las industrias culturales, como museos, teatros, artistas y editoriales, para comprender mejor la adaptación de las empresas que lograron sobrevivir. El estudio destaca la importancia del apoyo de los Ecosistemas de Innovación Abierta, como las asociaciones profesionales, para fomentar la adaptación. Por último, se exploran los mecanismos que influyen en la intención de los directivos de implementar cambios hacia una organización más sostenible a través de un estudio cuantitativo basado en las respuestas de 122 directivos de empresas culturales y creativas. El estudio revela la importancia de los Ecosistemas de Innovación Abierta como factor de influencia en la actitud hacia la sostenibilidad y en la facilidad de adoptar prácticas sostenibles. En general, esta tesis contribuye a la comprensión de cómo los empresarios y managers de empresas pueden adaptar sus modelos de negocio y volverlas más competitivas a la vez que más sostenibles, especialmente en las industrias culturales.

Palabras Clave

Modelos de Negocio, Dinámica de Modelos de Negocio, Innovación de Modelos de Negocio, Adaptación de Modelos de Negocio, Innovación Abierta, Ecosistemas de Innovación Abierta, Improvisación Estratégica, Capacidades Dinámicas, Sostenibilidad.

PREFACE

It has always shocked me how some managers are unable to adapt their company's business models to changing market conditions and evolving societal needs. Businesses that were once leaders in their field often fade away and become irrelevant or die. That is why, for over 20 years, I have been dedicated to helping company managers transform their business models and adapt to the digital world. A few years ago, I decided to take a more academic approach to the issue to understand it better from a scientific perspective. Why is it so difficult to change a business model? Why do some managers let their companies die? How can third parties, such as governments, professional organizations, and technological clusters, influence the decision to change a business model and help them adapt?

However, the COVID-19 pandemic struck just as I was in the midst of creating my dissertation, disrupting my plans and forcing me to re-evaluate my research questions, methodologies, and even my entire approach to the project. As I navigated the uncertainty and disruption caused by the pandemic, I began to realise that the crisis was giving me the opportunity to analyse Business Model Adaptation from an extreme perspective. At the same time, the crisis was revealing some crucial insights about business models and sustainability.

It quickly became clear that businesses with more sustainable models were better equipped to survive the pandemic. Those heavily reliant on long supply chains disrupted by the pandemic or with high overhead costs struggled to stay afloat. Meanwhile, companies that invested in local supply chains, sustainability, and flexible, adaptable business models could pivot and respond to the crisis more effectively.

Moreover, the importance of sustainability as a society was no longer just a passing trend but a growing movement, with many people prioritising it. Consumers were quickly shifting their focus towards sustainability, prompting companies' managers to follow suit and prioritise it for their businesses.

This realisation led me to focus my research on the intersection of sustainability and Business Model Adaptation, specifically **on the mechanisms that influence managers to adopt more sustainable practices in their businesses and how they can be supported to make this transformation**. By understanding these factors, we can identify strategies to promote sustainability adoption and help company managers adapt their business models to meet current and future challenges.

In my research, I have centred on Small and Medium-sized Enterprises (SMEs), including Creative and Cultural SMEs in later studies, given their crucial role in local economies and unique standing within the Spanish business landscape. SMEs confront challenges such as resource

limitations and vulnerability to market disruptions like the COVID-19 pandemic. My choice to emphasise SMEs arises from their importance and the lack of comprehensive research on their Business Model dynamics, especially regarding sustainability. Due to their limited resources, SMEs are particularly susceptible to the impacts of changes in the competitive landscape. Moreover, Creative and Cultural Industries, often consisting of SMEs, operate within dynamic and rapidly evolving sectors where innovation and adaptability are paramount. This focus aligns with my longstanding commitment to aiding businesses in transformation and contributes to vital discussions on sustainable business practices.

The resulting work is this dissertation: a compilation of three studies and conclusions with my contribution to the fields of Business Model Dynamics, Open Innovation, and Sustainability.

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I would like to express my heartfelt gratitude to all those who have directly and indirectly contributed throughout my academic, professional, and personal journey.

First and foremost, I am deeply grateful for the unwavering support and understanding provided by my husband, Jaume. He has played an indispensable role in my challenging journey of completing a doctoral thesis, providing me with the necessary support and complicity. I extend my appreciation to my children, Jaume, Mireia, and Georgina, for their respect, understanding, and well wishes. They have proofread the articles and made significant contributions to ensure the content is clear and accurately expressed in English. I am immensely grateful for their assistance and patience, especially during weekends and holidays when I needed dedicated time for my work.

In addition, I would like to acknowledge the delightful presence of my two grandchildren, whose companionship and innocent joy have provided welcome distractions during moments of difficulty. Their presence has brought solace and renewed energy to my journey.

I must express my gratitude to my mother, whose invaluable support and encouragement have played a crucial role in my academic journey. Her constant presence, thought-provoking questions, and unwavering belief in my abilities have pushed me to excel and persevere. While I deeply mourn the loss of my father during the pandemic, I am certain he would have been immensely proud of my achievements. I would also like to acknowledge the academic legacy of my grandparents, particularly Joan Farell, who holds a PhD himself. Their influence has inspired and motivated me throughout this process.

I am truly fortunate to have such a supportive and understanding family whose determined encouragement and assistance have made this journey possible. Their love, patience, and contributions have been instrumental, and I am deeply grateful for their presence in my life.

I am incredibly fortunate to have worked under the guidance of Dr. Francesc Miralles, my esteemed tutor. Working alongside him has been an exceptional experience, as he is undeniably one of the most intelligent and kind individuals I have ever encountered. His untiring dedication to the university and his genuine commitment to supporting his students have been truly inspiring. Collaborating with him throughout this thesis journey has been a privilege, and I am deeply grateful for his guidance, expertise, and relentless pursuit of academic excellence. I owe him an outstanding debt of gratitude, as this thesis's quality and success would not have been possible without his invaluable contributions.

I would also like to extend my heartfelt appreciation to all my colleagues from the CREITM research group. Their advice, guidance, and support throughout my doctoral journey have been invaluable. Among them, I would like to express special thanks to Dr. Maryam Vaziri, a dear friend and an exceptional collaborator. Her wisdom and insights have played a significant role, especially during the creation of the third article. I sincerely appreciate her contributions and the enriching discussions we have had.

Furthermore, I am deeply thankful to my colleagues at Quadrant Alfa, S.L., Helena, Alba, Mireia and Maria Teresa. Their understanding and support have been crucial throughout my PhD journey. I am truly grateful for their willingness to go above and beyond, covering for me and allowing me the necessary time and flexibility to focus on my research. Their collaboration and understanding have alleviated much of the stress that comes with balancing work and academia, and I am truly thankful for their support.

Last but certainly not least, I would like to express my sincere gratitude to all the professors and other professionals who have played a significant role in shaping my education and cultivating my curiosity about the world around us. Their guidance, knowledge, and passion for teaching have been instrumental in shaping me into the person I am today. Their commitment to fostering intellectual curiosity and encouraging a deep understanding of the "whys" and "hows" has inspired me throughout my academic journey.

I am indebted to all those who have contributed to this dissertation, and I express my sincere gratitude to each and every one of them. Throughout the journey of my life, they have supported me generously and selflessly, providing invaluable assistance and encouragement. Thank you.

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ACRONYMS

BM - Business Model

BMA - Business Model Adaptation

BMD - Business Model Dynamics

BME - Business Model Evolution

BMI - Business Model Innovation

CCI - Cultural & Creative Industries

COVD-19 - Coronavirus Disease 2019

ICT - Information and Communication Technologies

IOT - Internet of Things

IT - Information Technology

JOITMC - Journal of Open Innovation Technology, Market and Complexity

OI - Open Innovation

OIE - Open Innovation Ecosystems

PhD - Philosophical Doctor

PLS - Partial Least Squares

PLS-SEM - Partial Least Squares and Structural Equation Modelling

R&D – Research and Development

TPB – Theory of Planned Behaviour

SBM - Sustainable Business Model

SBMI - Sustainable Business Model Innovation

SEM - Structural Equation Modelling

SME – Small and Medium Enterprises

VUCA - Volatility, Uncertainty, Complexity, and Ambiguity

1. INTRODUCTION

Disruptive shocks are common in today's market environment and competitive VUCA (Volatile, Uncertain, Changing and Ambiguous) landscape. Global disruptors like Amazon, Netflix, Airbnb and Uber, new technologies such as Big Data, IoT, Blockchain, Metaverse, Artificial Intelligence, and worldwide events like the COVID-19 pandemic can significantly impact SMEs and their competitive environment. In response to these changes, managers must adapt their operations, relationships with stakeholders, partnerships, market positioning, value proposition, and all other business model components.

In the context of this thesis, the term ‘manager’ refers specifically to individuals within an organisation who possess the authority and decision-making power to initiate, guide, and implement significant changes to the business model. These individuals, often found at the top levels of the organisational hierarchy, include top executives, senior leadership teams, and individuals with the capacity to influence and adapt the fundamental structure and strategy of the business model.

Changing a business model can be challenging for a manager: the resistance to change by employees, stakeholders, and customers makes it difficult for companies to pivot their existing business model (Chesbrough, 2007; Foss and Saebi, 2016); inertia is another reason managers may be reluctant to change it, even if the current business model is no longer viable (Chesbrough, 2007; Foss and Saebi, 2016); risk aversion can be another factor in being hesitant to take risks associated with changing their business model (Mezger, 2014), especially if they have been successful with their current model; also, companies may struggle to clearly define their new business model and the changes they need to make to achieve it. At the same time, changing a business model often requires significant resources, such as time, money, and personnel, that companies may not have. On top of that, company managers may not have the knowledge, skills, or experience to change their business model successfully (Chesbrough, 2007).

To overcome these challenges, managers must be proactive and intentional in their approach to business model adaptation. This can include building a culture of innovation, investing in research and development, and creating a clear roadmap for the transition (Chesbrough, 2007; Dottore, 2009). They must also be willing to take calculated risks and make difficult decisions while keeping a close eye on the market and being prepared to pivot when necessary (Mezger, 2014).

Managers' attitudes towards changing their business models can vary greatly, depending on their level of experience, the size and complexity of the company, and their overall comfort with risk and uncertainty. Some managers may be more open to change and eager to embrace new opportunities, while others may be more resistant and prefer to stick with what has worked in the

past (Chesbrough, 2007). Managers from Cultural and Creative Industries (CCI) are not an exception.

CCI are a group of economic activities based on creating, producing, and distributing cultural and creative goods and services (Pratt, 1997; Throsby, 2008). CCI are broadly defined for this dissertation as audio-visual creation and management, popular culture and traditions, management of cultural heritage (museums, monuments, singular houses, etc.), books and press, musical production, creation and performance, services related to culture (advertising, consultancy, ticketing, digitisation, etc.), and other industries that produce or use creative content or intellectual property. Table 1 lists the European Union Designated Cultural and Creative industries.

Table 1: European Union Designated Cultural and Creative Industries

Category	Description
Cultural Heritage	Museums, libraries, archives, cultural sites, heritage preservation.
Audiovisual and Multimedia	Film, television, video games, digital media, multimedia content.
Visual Arts and Crafts	Painting, sculpture, photography, crafts, and visual arts.
Publishing and Print Media	Books, magazines, newspapers, digital publishing.
Music	Music production, distribution, live performances.
Performing Arts	Theatre, dance, opera, live performances.
Architecture	Architecture-related activities (may or may not be included)
Design	Industrial design, fashion design, graphic design.
Advertising	Advertising agencies, creative services in advertising.
Other Creative Services	A broad category includes various creative services.

This study scope includes the artists, skilled technicians, and support infrastructure (material and organisational) necessary to reproduce these cultural endeavours. These industries are diverse and can vary significantly in size, business models, and markets, but they all play a crucial role in shaping and reflecting cultural values and identities (European Union Commission, 2010). On regard of the Architecture-related activities, the UE classification states that they “may or may not be included”. We have chosen not to include Architecture. This decision is based on our specific research focus and objectives, which primarily center on other domains within the Creative and Cultural Industries.

As revealed in the interviews conducted in the second study of this thesis, the majority of cultural and creative industry managers genuinely appreciate the arts and culture and comprehend the significance of maintaining cultural heritage (Peñarroya-Farell and Miralles, 2022). They consider commercial factors and cultural values while making decisions that benefit their organisation and the broader cultural community. They are dedicated to their work and are committed to making a positive impact on the cultural landscape. They are also sensible about sustainability and climate change problems.

As the cultural and creative industries are constantly evolving, CCI managers must be able to adapt to change and find new opportunities. Nevertheless, Schiuma and Lerro (2017) pointed out that one of the main obstacles to embracing a change in their business model is "the lack or/and misunderstanding of the language" used in strategic business management. Indeed, some cultural and arts organisations consistently proclaim that they are not businesses; therefore, business principles do not apply to them. As a result, they affirm that they do not have a proper "business model" (Schiuma and Lerro, 2017).

Similar results were obtained in the third study of this dissertation (Peñarroya-Farell et al., 2023); 636 companies were reached via email between May and October 2022 to gain insights into their plans to transition to a more sustainable business model within the next eighteen months. A definition of both "business model" and "sustainability" was provided in the email. However, some companies declined the invitation and responded by indicating that they were non-profit organisations and did not have a business model. The notion that business models are exclusively for businesses is incorrect. The business model may not necessarily be evident but implicit (Schiuma and Lerro, 2017). Any organisation that aims to remain significant, offer substantial value, and maintain its existence over time, must clearly express and adapt its business model (Chesbrough, 2007).

If a company is unaware of the specific instances for changing its business model, it may not realize that doing so is a valid strategic option. For example, a company can change its business model through radical innovation, incremental innovation, minor adaptations, or even without

innovation at all. This highlights the importance of knowing the options available when considering a business model change.

In fact, any organization that wants to remain relevant, offer substantial value and sustain its existence over time must clearly express and adapt its business model, regardless of whether it is evident or implicit (Schiuma and Lerro, 2017).

As such, company managers need to understand their options when they need to change their business model, especially in extreme situations like the COVID-19 pandemic, where the survival of companies is at stake due to market disruptions.

The first study (Peñarroya-Farell and Miralles, 2021) aimed to clarify and distinguish the different terms representing various strategic responses when a company wants to change its business model. We aimed to disambiguate terms like "Business Model Innovation" and "Business Model Adaptation", which are often used interchangeably but represent different approaches to business model transformation.

One of the study's key findings was the importance of Business Model Adaptation (BMA) as an option for companies looking to change their business model. BMA is a strategic response that involves changing the existing business model to improve its performance or address changing market conditions. BMA can be innovative or not, but it does not necessarily involve radical changes, making it well-suited for incumbent companies that may not have the resources or flexibility to pursue more disruptive strategies (Peñarroya-Farell and Miralles, 2021).

Business model adaptation is crucial for the Creative and Cultural Industries (CCIs) due to their distinctive characteristics and challenges. These industries heavily rely on creativity, allowing them to effectively harness creative potential for crafting products and services that deeply resonate with audiences. Moreover, CCIs operate in dynamic markets marked by swiftly shifting trends, needing ongoing adaptation.

The digital transformation of these sectors has revolutionised content creation, distribution, and monetisation. Adapting business models not only empowers CCIs to reach broader audiences but also to explore innovative revenue streams.

Overall, our research underscores the importance of understanding the different options available to companies when they want to change their business model and the potential benefits of Business Model Adaptation as a viable and accessible strategy for companies of all types and sizes.

The second study aims to understand how managers react to unexpected events that significantly impact their businesses, such as the COVID-19 emergency and the posterior crisis. The study

takes an interpretative approach, meaning that it seeks to understand the perspectives and experiences of the managers themselves (Peñarroya-Farell and Miralles, 2022).

One of the study's key findings is the importance of improvisation capability for managers. In other words, the ability to quickly adapt and make decisions on the spot can be critical for companies to survive an emergency. Additionally, the study emphasizes the role of professional organizations in supporting managers during challenging times by providing resources and facilitating knowledge sharing among members. During this study, we also realised the importance of sustainable business models (Peñarroya-Farell and Miralles, 2022).

The third study investigates the factors influencing cultural company managers' intentions to implement more sustainable practices (Peñarroya-Farell et al., 2023). In particular, the study focuses on the role of open innovation ecosystems in fostering managers' inclination to adopt sustainable business models.

The study employs a quantitative approach to achieve this goal, which involves collecting and analysing data from 122 managers from cultural and creative companies. The study seeks to identify the key factors that affect managers' intentions to adopt sustainable practices, such as their attitudes towards sustainability, their perceived control over the adoption process, and the perceived benefits and costs of adopting sustainable practices (Peñarroya-Farell et al., 2023). The study also highlights the role of open innovation ecosystems in promoting sustainable practices in cultural companies.

On top of that, sustainability is a pressing concern, given that CCIs often work with finite resources like cultural heritage or natural materials. Business model adaptation fosters sustainability practices, promoting responsible resource utilisation in line with environmental and social responsibility priorities.

Economic viability is equally vital. Despite their cultural contributions, CCIs must maintain economic sustainability. Through business model adaptation, CCIs can diversify revenue streams and maximise their economic impact, ensuring they thrive in a rapidly evolving landscape.

These three points are what this dissertation addresses: the options managers have, the critical factors for a successful adaptation, and finally, what influences managers to adapt and make their companies more sustainable, and, therefore, how governments and other entities, such as professional organisations (open innovation ecosystems), can help facilitate this change towards competitiveness and sustainability. Overall, this work focuses on the intersection of sustainability, managers' inclination to adapt a firm's business model to become more competitive, and the role of open innovation ecosystems in supporting managers' efforts.

The dissertation adds value to the Creative and Cultural Industries (CCIs) by providing insights into the challenges and opportunities related to sustainability and business model adaptation. It offers practical guidance for CCIs to navigate these issues effectively, equipping managers and decision-makers with valuable knowledge. Additionally, the research may inform policy development and contribute to the academic understanding of CCIs, sustainability, and business model adaptation, benefiting industry professionals and future researchers.

The dissertation is developed as a compilation of publications and is structured into ten sections:

- Section 1, this section, introduces the research idea and the purpose of the dissertation.
- Section 2 presents the research strategy with research questions and objectives.
- Section 3 analyses the theoretical background.
- Section 4 describes the methodology of each study.
- Sections 5, 6 and 7 develop the three major studies with the results and the compilation of publications.
- Section 8 evaluates the ethical aspects.
- Section 9 incorporates the discussion and implications of the research.
- Section 10 includes the conclusions and future research lines.

The contribution of the author of this dissertation as a compilation of publications has been as follows:

Publication 1: Peñarroya-Farell, M. and Miralles, F. (2021) "Business Model Dynamics from Interaction with Open Innovation". Journal of Open Innovation Technology, Market and Complexity. The article belongs to the Special Issue "Business Model Innovation".

Under the supervision of Dr. F. Miralles, the PhD candidate has made a valuable contribution by disambiguating and presenting a precise explanation of the different strategic responses that involve altering the business model confirming that Business Model Adaptation can be a valid response to the need to change a business model. The systematic literature review and meta-synthesis method were employed in this endeavour.

Publication 2: Peñarroya-Farell, M. and Miralles, F. (2022) "Business Model Adaptation to the COVID-19 Crisis: Strategic Response of the Spanish Cultural and Creative Firms". Journal of Open Innovation Technology, Market and Complexity.

Under the supervision of Dr F. Miralles, the PhD candidate has contributed significantly by examining the various strategic responses of cultural and creative companies in Spain to the COVID-19 crisis. The study is an interpretative approach to understanding managers' reactions to competitive shocks. The research highlights the significance of strategic improvisation and

network-based open innovation. It was carried out using a multiple-case study approach, analysing the interviews of ten CCI managers.

Publication 3: Peñarroya-Farell, M.; Miralles, F. and Vaziri M. (2023) "Open and Sustainable Business Model Innovation: an intention-based perspective from the Spanish Cultural firms". Journal of Open Innovation Technology, Market and Complexity.

The PhD candidate, under the guidance of Dr F. Miralles and Dr M. Vaziri, examined the factors that affect managers' intention to embrace innovative and sustainable practices by modifying business models. The study is a quantitative approach to understanding managers' inclination to adopt sustainable business models. The research highlights the importance of open innovation ecosystems influencing the attitude and the perceived ease of implementing the changes necessary to become more sustainable. The approach utilised in this quantitative investigation involves partial least squares structural equation modelling (PLS-SEM) and draws data from 122 CCI managers.

2. RESEARCH STRATEGY

The introduction of this dissertation highlights the difficulty of changing a business model. It emphasises the importance of doing so for companies to remain competitive and thrive in an environment characterised by constant change and a growing need towards sustainability. Although changing a business model may be daunting, managers must confront this challenge head-on by adopting innovative strategies to adapt to evolving market trends and customer demands. Failure to do so may result in a loss of market share and diminished profitability. Therefore, it is crucial for managers to proactively seek out new opportunities, explore alternative business models, and leverage emerging technologies to stay ahead of the curve and maintain a competitive edge while transforming their businesses into more sustainable ones.

The research strategy follows the scheme stated in the introduction chapter. Figure 1 graphically illustrates this process.

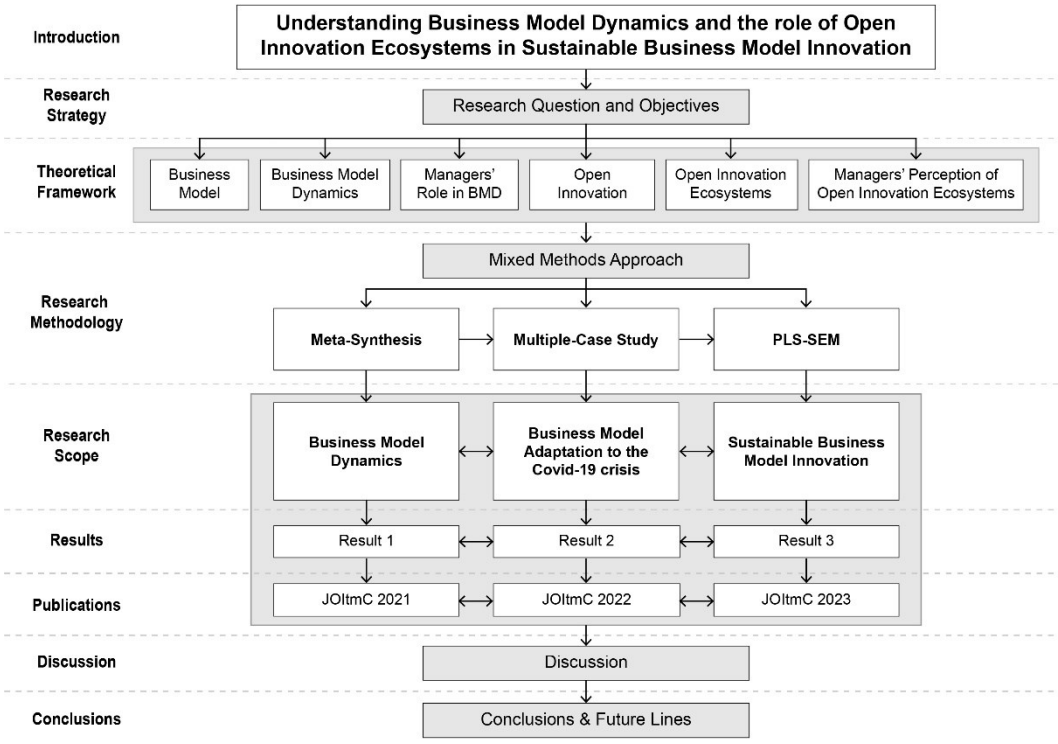

Figure 1: *Research Strategy of this dissertation by compilation*

2.1 RESEARCH QUESTIONS

At the outset, the thesis aimed to investigate the process of business model adaptation and the factors that hinder or facilitate it for managers from a Business Model Dynamic perspective. However, the COVID-19 pandemic brought a new dimension to the Study by highlighting the importance of sustainability in business. As a result, the main research question of the thesis evolved to address both issues:

“To what extent can a Business Model Dynamics perspective explain the managers’ decisions, within the Cultural and Creative industries, to adapt their company’s business model in response to competitive challenges such as sustainability?”

The main research question provides a clear and compelling focus for our study, even though it is inherently broad and ambitious. To enhance the specificity of our inquiry, we introduce a more detailed sub-question, honing in on the nuanced understanding of business model adaptation.

1. "To what extent does a Business Model Dynamics perspective explain managers’ reactions to competitive challenges that may impact their company’s business model?"

Study 1 addresses this question.

Drawing on the foundation laid in Study 1, we delve into the primary factors shaping managers' choices in business model adaptation. In this context, we introduce Study 2, which presents questions 2 and 3.

2. “Are contextual circumstances affecting managers’ decisions to adapt their companies’ business model? “
3. “To what extent do managers adapt business models when their business is affected by competitive challenges? “

As a final effort in this study, although not the last in completing the research question, we consider the role of the companies’ ecosystem. In the second study, it became clear that managers received support from their ecosystem for some decisions, and due to the green trend in sustainability in the CCI, we enquired:

4. “To what extent are managers affected by open innovation stakeholders to consider including sustainable efforts in their companies’ business models?”

This question concludes this study, but not the complete answer to the overarching research question, which may give rise to further studies (all of them have been included in the further research section).

Each secondary question explores a specific aspect of business model dynamics and its relationship with various factors. They address different dimensions of the overall research question.

2.1.1 Study one research questions

From the outset, it was evident that when companies face competitive challenges, one of their options is to change or adapt their business model. This led to the question: To what degree is radical innovation indispensable for competitiveness? Can business model adaptation serve as a competitive alternative alongside radical innovation? Can be business model adaptation a competitive option besides radical innovation? From these questions, others related to a company's different options arose; a gap was identified in understanding and using the terms of different instances of business model dynamics, such as Business Model Innovation, Business Model Adaptation and Business Model Evolution.

Some researchers and practitioners used these terms as synonyms, as was observed during the preliminary literature review (Peñarroya-Farell and Miralles, 2021). New questions arose: How can a clear differentiation between Business Model Adaptation (BMA) and Business Model Innovation (BMI) provide a stronger theoretical foundation for Business Model Dynamics and enhance understanding of its role in organisational strategy? To what extent should one be used and not the other to provide a sound strategic value appropriation? How can this differentiation help practitioners and decision-makers in competitive settings to make better decisions, and what new approaches can be obtained? Study one addressed all these questions.

These research questions can be summarised as follows: **"To what extent does a Business Model Dynamics perspective explain managers' responses to competitive challenges that could influence their company's business model?"**

2.1.2 Study two research questions

COVID-19 came, and with it, a very hostile environment with extreme conditions for cultural and creative companies. There was a need for a deeper understanding of how companies can develop organizational capabilities to adapt to crises such as the one caused by the pandemic. While dynamic capabilities have been extensively studied in the literature as a key driver of business success, there has been limited research on how these capabilities can be applied explicitly in an extreme crisis that has affected businesses in multiple ways, including supply chain disruptions, changes in consumer behaviour, and significant shifts in the macroeconomic environment. It was clear that contextual circumstances affected managers' decisions to adapt their companies' business models. Questions arose: What factors explain the firms' ability to adapt to a hostile

environment while gaining competitive advantages? Can surviving strategies be identified? What is improvisation's role in successfully adapting business models on SMEs in very hostile environments? What is the role of open innovation ecosystems in adapting a business model? What is the role of ICT implementation? All these questions were addressed in the second study.

These research questions can be summarised in two: **"Are contextual circumstances affecting managers' decisions to adapt their companies' business model?"** and **"To what extent do managers adapt business models when their business is affected by competitive challenges?".**

2.1.3 Study three research questions

The pandemic was almost over, and companies were adapting their business models to "The new normal". It became clear that sustainability was necessary for businesses' success and competitiveness. More questions arose: What factors influence managers' intention to adopt and implement sustainable business practices in their companies? How can these factors be leveraged to increase the adoption of sustainability initiatives? How do open innovation culture and partnerships influence the adoption of sustainable business models? What are the challenges and opportunities for SMEs in the cultural and creative industries to adopt sustainable business models through open innovation partnerships? To what extent are managers affected by open innovation stakeholders to consider including sustainable efforts in their companies' business models? How can government policies and programs be leveraged to promote the adoption of sustainable business models by companies in these industries? All these questions were addressed in study three.

These questions can be summarised in: **"To what extent are managers affected by open innovation stakeholders to consider including sustainable efforts in their companies' business models?"**

2.2 RESEARCH OBJECTIVES

As the research objectives are attained jointly by analysing the content of three studies that form the compilation, this section has been organised following the six theoretical frameworks proposed in this dissertation instead of the three studies.

2.2.1 Business Model as a theoretical framework

From the Business Model theoretical framework, the following has been analysed:

- What is a business model?

- From the business model point of view, the competitive challenges incumbent companies face in VUCA environments.
- How does a business model change over time?

This part of the research aims to better understand how companies can use business models as a fundamental aspect of their strategic planning.

2.2.2 Business Model Dynamics

From the Business Model Dynamics (BMD) perspective, the following has been analysed:

- What is the relationship between the different BMD and strategic responses to market changes?
- The different BMD strategic options for companies have been identified.
- Business model adaptation has been confirmed as a valid strategic response and a possible alternative to business model innovation.

The concepts related to BMD have been disambiguated in Study 1 to provide a better connection between strategic value appropriation and changes in business models. Moreover, both concepts have been defined from an organisational learning point of view and have different dimensions.

The final goal of this chapter is to provide a conceptual framework that integrates the concepts of business model dynamics and the different strategic responses from a business model perspective.

2.2.3 The Manager's Role in BMD

This chapter aims to examine the role of managers in the process of changing a business model. Specifically:

- It aims to understand how managers are motivated to make decisions to pursue business model changes in the organisation and how their understanding of the building blocks in the business model impacts the early stage of change.
- It aims to explore the manager's role in guiding the organisation through the trial and error process of refining the new business model in the exploration stage and their role in optimising and scaling the new business model in the exploitation stage.

By better understanding the manager's decision-making process and motivation for pursuing business model changes, the research aims to help managers successfully implement changes in business models.

2.2.4 Open innovation

This chapter explores the concept of open innovation, which involves collaborating with external individuals, organisations, and partners to generate and implement new ideas, products, and processes.

The research objectives are:

- To better know the benefits of implementing open innovation practices in firms.
- To better understand how access to broader knowledge and expertise helps companies stay competitive, adapt to changes in the market, and generate new ideas and products that better meet customer needs.

2.2.5 Open innovation ecosystems

This chapter explores the concept of open innovation ecosystems and their potential benefits for organisations. Especially the role of professional organizations as open innovation ecosystems.

The research objectives are the following:

- To know how firms can access and leverage external knowledge and capabilities by embracing open innovation and collaborating with external partners to enhance their innovation efforts.
- To better understand how a common objective can help to create a robust foundation that encompasses both the focal firm and its partners to ensure the success of such ecosystems.

The research aims to provide insights into the benefits and challenges of open innovation ecosystems and their potential for creating value and accelerating innovation. At the same time, it analyses how managers' perceptions on behalf of certain behaviours, such as the transition to more sustainable business models, can be modelled.

2.2.6 Manager's perception of open innovation ecosystems

This research explores the various benefits managers associate with open innovation ecosystems and how their perceptions of these benefits may influence their attitudes towards changing their business model. The objectives are the following:

- To understand the factors influencing the creation of a perception of the benefits of being part of an open innovation ecosystem.
- To identify the benefits managers associate with open innovation ecosystems.

- To better understand the factors influencing the managers' intention to change a business model, in general. Moreover, to better understand how managers' attitude towards participating in an open innovation ecosystem influences their intention to change a business model.

By understanding these benefits and their impact on managers' attitudes and behaviours, the research aims to provide insights that can help firms successfully navigate the challenges of open innovation ecosystems and realise the full potential of collaborative innovation.

3. THEORETICAL FRAMEWORK

SMEs, in general, and the cultural and creative industries, in particular, are undergoing significant changes, and the ability of managers to effectively change their business models is a critical factor in determining the success of these companies future.

To understand how to handle the effects of disruptions, this work proposes using the business model perspective. What a Business Model is, is defined in section 3.1

Companies must adjust their business models to the new market conditions and competitive forces as time passes. Business Model Dynamics is defined in section 3.2.

Managers play a crucial role in implementing the business model changes and ensuring the adaptation succeeds. They must identify the need for change and make strategic decisions to alter the business model to keep the company competitive and sustainably deliver value to customers, stakeholders, and society. Their role is analysed in section 3.3.

However, not all innovations come from inside a company. Open innovation is a collaborative and networked approach that involves the integration of external ideas, knowledge, and resources into the innovation process. This concept will be further analysed in section 3.4.

The networked approach to innovation involves creating and managing a diverse ecosystem of internal and external stakeholders to generate, develop and commercialise innovative ideas. Open Innovation Ecosystems will be described in section 3.5.

Managers can benefit from participating in open innovation ecosystems by accessing a broader range of ideas, expertise, and resources, leading to increased innovation and competitiveness. A closer examination of their viewpoint will be presented in section 3.6, which delves into the role of open innovation ecosystems in facilitating the transition of business models towards sustainability.

Figure 2 illustrates the interconnectedness of the three studies:

- Study 1 is focused on Business Models and Business Model Dynamics through the lens of Open Innovation.
- Study 2 delves into the role of Managers in Business Model Dynamics, analysing how Cultural Industries (CCI) adapted to the challenges posed by the COVID-19 pandemic while also considering the influence of Open Innovation Ecosystems.
- Finally, Study 3 is centred on the manager's perspective regarding the impact of Open Innovation Ecosystems on the transformation of their current business models into more sustainable ones.

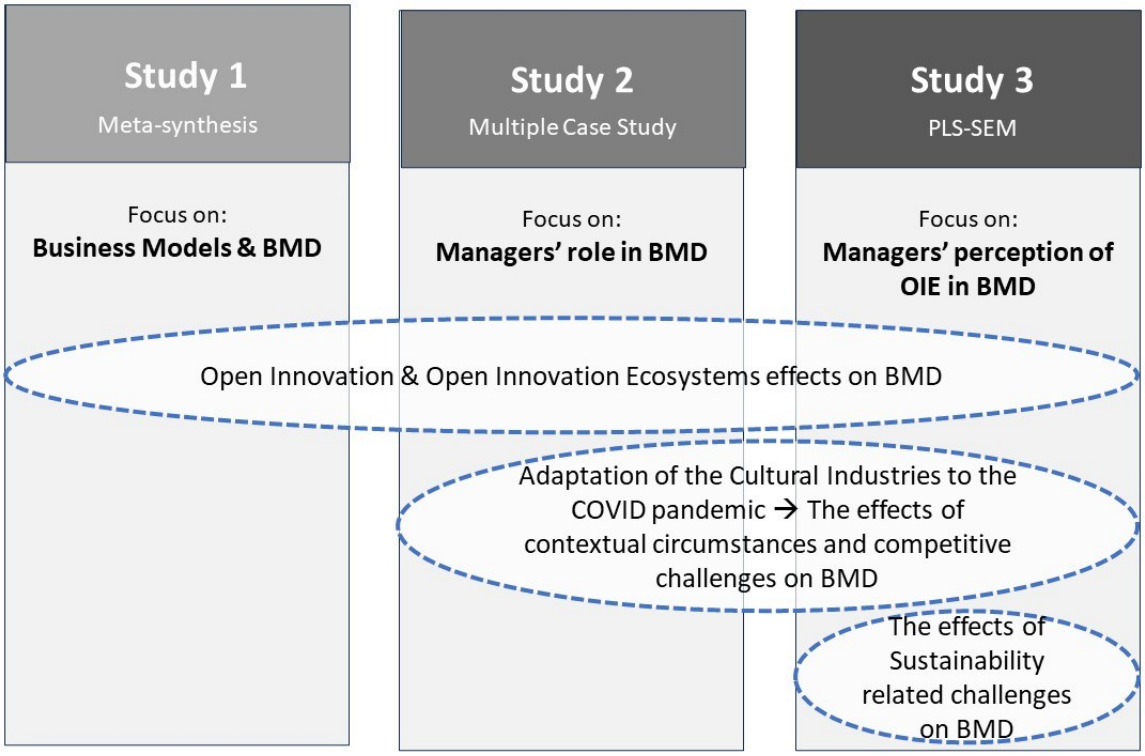

Figure 2: Interconnectedness of the 3 Studies

3.1 BUSINESS MODEL

The concept of business models is a relatively recent development and has become a growing area of focus in the literature over the past two decades (DaSilva et al., 2013; Osterwalder and Pigneur, 2010; Zott and Amit, 2007). However, there is no generally agreed-upon definition; many contributions to the literature defined it as a plan or framework that describes the firm's value proposition and target market segments, the necessary structure of the value chain to deliver the value proposition, the methods of value capture utilised by the firm, and the interconnection between these elements in a value architecture (Casadesus-Masanell and Zhu, 2013; Chesbrough, 2010; Osterwalder and Pigneur, 2010; Bernd W. Wirtz et al., 2016). We adopt this definition throughout this thesis.

Business models vary widely depending on a company's industry, size, and goals. In the cultural industries, some standard business models include commission-based, co-production, membership-based, and non-profit models. All these business models can also be combined with different revenue streams like ticket sales, merchandising, sponsorships and partnerships, crowdfunding, grants and donations, licensing and distribution, and selling intellectual property, among others, to create a sustainable and profitable strategy for the organisation (Weill et al., 2005).

The business model framework has been proven helpful by academics researching business strategy and innovation (Casadesus-Masanell and Ricart, 2007; Chesbrough and Rosenbloom, 2002; Jensen and Sund, 2017); e-commerce (Amit and Zott, 2001; Bouwman and MacInnes, 2006; Bryant et al., 2018; Osterwalder and Pigneur, 2010; Remane B.; Hanelt, A.; Kolbe, L. M., G.; Chattanooga; et al., 2016), technology management (Amit et al., 2011), and specifically on business strategy and sustainability (Bocken et al., 2015; Bohnsack et al., 2014; Jung and Jin, 2016; Nosratabadi et al., 2019; Thomas and Lamm, 2012; Wu et al., 2021).

3.2 BUSINESS MODEL DYNAMICS

Business Models are not static constructs; they can be a source of innovation and competitive advantages (Chesbrough, 2007; Saebi et al., 2017) and evolve and pivot over time in response to internal and external factors. In this vein, a research strand derived from the evolving changes in business models has flourished under the label of "Business Model Dynamics" (BMD) (Saebi et al., 2017). It is "how companies change and develop their business models to achieve sustained value creation through time" (Achtenhagen et al., 2013; Foss and Saebi, 2017).

BMD is an essential concept because it recognises that a company's business model is not static but is constantly evolving. As the company grows and changes, its business model may need to be updated to reflect new realities or opportunities.

These changes may be innovative or not, incremental or radical, and internal or external factors can drive them. Different patterns of BMD have been proposed to delineate different levels of strategic responses (Peñarroya-Farell and Miralles, 2021), including business model innovation, business model adaptation and business model evolution. Study one of this thesis will further develop the specific strategic value appropriation of each BMD instance and will disambiguate the terms.

3.3 MANAGER'S ROLE IN BMD

The role of managers in business strategy and economic performance is crucial as they are responsible for developing and executing the company's strategy, allocating resources, managing operations, and making decisions that can significantly impact the organisation's success (Teece, 2014). Managers play a critical role in developing and implementing the dynamic capabilities that the company will need to survive the ever-changing environment (Ricciardi et al., 2016; Teece, 2018, 2007).

Dynamic capabilities refer to a company's ability to adapt and respond to changing market conditions and customer needs (Augier and Teece, 2009). Moreover, as seen in study two of this

thesis, dynamic capabilities are critical to surviving in hostile environments like the COVID-19 crisis (Peñarroya-Farell and Miralles, 2022).

On the other hand, the manager's role, over time, is to help the company stay competitive and relevant in an ever-changing business landscape (Teece, 2014). From the perspective of business model dynamics, managers are also responsible for identifying and responding to market, industry, and customer-changing needs that can impact the company's business model.

Changing a business model occurs in stages, with the initial stage being the awareness of the need for change (Jensen and Sund, 2017). In this early stage, managers must identify and evaluate opportunities and initiate actions (Jensen and Sund, 2017; Teece, 2010). The quality of leadership and managers' understanding of the building blocks in the business model plays an essential role in this stage. While awareness may come from different parts of the organisation, top management is assumed to provide the necessary support during this stage, according to Sosna et al. (2010).

The second stage of changing a business model is driven by exploring new possibilities identified in the awareness stage (Jensen and Sund, 2017). This stage has significant trial and error and ongoing business model refinement. The organisation goes through a process of unlearning old ways of doing things while acquiring new knowledge and skills. Managers shift from sense-making in the awareness stage to sense-giving in the exploration stage as they guide the organisation through the change process (Bogers et al., 2015).

The third stage of changing a business model is known as business model exploitation (Jensen and Sund, 2017). During this stage, the focus shifts from questioning why or how the business model needs to change to optimising the new model. The organisation implements the new business model, resulting in a new collective perception of organisational frameworks and lower perceived uncertainty (Bogers et al., 2015). In this third stage, the role of managers is critical to ensure that the new business model becomes scalable and that the performance expectations in value increase significantly (Sosna et al., 2010).

Therefore, it is crucial to understand better how managers are motivated to make decisions to pursue business model changes in the organisation to succeed in its implementation (Anthony Swaim et al., 2016). Study three will deeper analyse this decision-making process.

3.4 OPEN INNOVATION

Open innovation is a business approach in which a company collaborates with external individuals, organisations, and partners to generate and implement new ideas, products, and processes (Chesbrough, 2006).

In his book "Open Innovation: The New Imperative for Creating and Profiting from Technology" (2003), Henry Chesbrough argues that the abundance of knowledge available externally to a company can be leveraged to generate new ideas and drive innovation. Traditionally, companies have relied on internal R&D efforts to develop new products and services, but Chesbrough suggests that this approach is no longer sufficient in today's fast-paced and complex business environment. Instead, companies must adopt an "open" approach to innovation, actively seeking out and utilising external sources of knowledge and expertise, such as customers, suppliers, universities, research institutions, or peer competitors, to generate new ideas and drive innovation.

Implementing open innovation practices in firms can bring benefits such as: including access to broader knowledge and expertise that may not be available internally (Chesbrough and Bogers, 2014); increased speed and innovation efficiency (Chesbrough, 2006; Crespin-Mazet et al., 2013); reduced R&D costs as companies can leverage external resources and partnerships to reduce the cost of research and development (Chesbrough and Bogers, 2014; Crespin-Mazet et al., 2013; Saebi and Foss, 2015a); enhanced creativity and idea generation (West et al., 2014; Yun et al., 2016) as open innovation encourage the generation of new and creative ideas, leading to the development of innovative products and services; improved market responsiveness as collaborating with external partners can help companies better understand customer needs and preferences (Crespin-Mazet et al., 2013), leading to the development of products and services that better meet those needs (Yun et al., 2016); and expanded network and partnership opportunities as open innovation can lead to the development of new and valuable relationships with external partners (Crespin-Mazet et al., 2013; Saebi and Foss, 2015a), expanding a company's network and creating new opportunities for growth and innovation.

Overall, implementing open innovation can help companies stay competitive, adapt to changes in the market, and generate new ideas and products that better meet customer needs. In the context of business models, open innovation can help companies identify new opportunities for creating and capturing value and can help them develop and test new business models more quickly and effectively (Chesbrough, 2010). By collaborating with external partners, companies can tap into new sources of revenue, leverage complementary skills and capabilities, and explore new markets and customer segments. For example, a company might work with one or several partners to develop a new platform-based business model that leverages digital technologies and data analytics to create value for its customers in new and innovative ways. By collaborating with external partners, the company can bring together the necessary skills and resources to develop and implement this new business model and reduce the risk and costs of innovation.

In Study One, the concept of Open Innovation plays a supporting role. As a broader framework, Open Innovation highlights the importance of external collaboration and integrating external

knowledge sources into a firm's innovation processes. In the context of Business Model Dynamics, particularly Business Model Adaptation and Business Model Innovation, adopting Open Innovation practices can be seen as a mechanism through which firms acquire external insights, technologies, and ideas that may trigger the need for business model adjustments. For instance, exposure to external innovations or market shifts can prompt a firm to consider changes in its business model to remain competitive.

Open Innovation is a broad and generic concept; this interpretation of the term is essential within the context of Business Model adaptation. Additionally, Open Innovation encompasses practices associated with non-internal R&D policies that are intricately connected with the broader innovation ecosystem. It embodies the idea of exploring external boundaries to access external knowledge and fresh ideas. In contrast, Closed Innovation primarily hinges on internal resources, adopting a more insular approach. For the purposes of this dissertation, Open Innovation is employed in its broad sense, encompassing the full spectrum of its definition.

Building upon the foundation laid in Study One, Studies Two and Three delve deeper into the relationship between Business Model Dynamics and Open Innovation. Study Two, which focuses on case studies of cultural and creative SMEs, examines how these firms strategically leverage Open Innovation practices to adapt their business models in response to the COVID-19 challenges and other competitive pressures. This study explores instances where SMEs collaborate with external partners, such as other firms, government agencies, or research institutions, to integrate innovative practices into their business models.

Study Three, which employs Structural Equation Modeling (SEM), assesses quantitatively how Open Innovation practices influence the intention of managers in cultural and creative firms to implement sustainable business models. We uncover statistical relationships between Open Innovation-related variables and business model adaptation intentions by analysing the survey data.

3.5 OPEN INNOVATION ECOSYSTEMS

Open innovation ecosystems (OIE) are collaborative networks of organisations, individuals, and communities that generate new ideas, products, and services by exchanging knowledge, skills, and resources (Chesbrough, 2003; Ferras-Hernandez and Nylund, 2019; Teece, 2007; Yaghmaie and Vanhaverbeke, 2020). These ecosystems can provide a fertile ground for generating new ideas, solving complex problems, and creating new opportunities for growth and value creation.

In an open innovation ecosystem, various stakeholders, such as companies, academic institutions, research organisations, start-ups, and even customers, come together to share their knowledge and

collaborate on innovation projects. Innovation ecosystems are built around a common cause, a joint objective that should be shared among the partners (Yaghmaie and Vanhaverbeke, 2020).

This collaborative approach allows organisations to leverage external expertise and resources to create value through knowledge transfer and accelerate innovation. Knowledge transfer is a crucial aspect of OI ecosystems (Crespin-Mazet et al., 2013), emphasising the importance of leveraging external knowledge to create organisational value. As stated in Chesbrough, 2003, the abundance of knowledge must be readily utilised to generate new ideas and drive innovation. The external knowledge flow is often a significant motivating factor for business organisations to adopt Open Innovation practices.

The ecosystem approach offers a broader perspective on OI, encompassing the incentives and challenges of both the focal firm and its partners (Zhang and Wang, 2021). Combining research at both the firm and ecosystem levels can establish a more robust foundation to ensure the success of OI ecosystems (Yaghmaie and Vanhaverbeke, 2020).

3.6 MANAGERS' PERCEPTION OF OIE BENEFITS

The perceived benefits varied depending on the firms' level of engagement in the ecosystem and their specific goals and strategies.

As seen in the benefits of open innovation, some benefits include access to external expertise and knowledge, increased innovation capacity, and reduced innovation costs and risks. However, there are some more benefits that managers may specifically associate with open innovation ecosystems:

- **Enhanced competitiveness**: Open innovation ecosystems can help firms stay competitive by facilitating the exchange of best practices and new ideas (Scaringella and Radziwon, 2018; Scuotto et al., 2020). By collaborating with external partners, firms can gain new perspectives on their products and services and insights into emerging trends and technologies. This can help firms to identify new market opportunities and develop innovative solutions that meet the evolving needs of their customers.
- **Access to complementary skills and expertise**: Open innovation ecosystems provide a network of partners with complementary skills and expertise, which can help firms overcome internal knowledge gaps and develop new products and services more efficiently (Scaringella and Radziwon, 2018). By leveraging their partners' strengths, firms can expand their innovation capacity and create products and services that they may not have been able to develop independently. This can give firms a competitive advantage

by offering unique and innovative solutions that differentiate them from their competitors (Saebi and Foss, 2015a).

- **Improved brand image**: By participating in an open innovation ecosystem, firms can enhance their reputation as innovative and collaborative organisations, which can attract new talent, customers, and partners. Participating in an ecosystem makes a firm willing to collaborate and seek new ideas and perspectives, which can signal to customers, partners, and employees that the firm is forward-thinking and committed to innovation. A strong brand image as an innovative and collaborative organisation can also help a firm attract new talent, customers, and partners who can ultimately contribute to its industry's success and competitiveness (Bucherer et al., 2012; Chesbrough, 2003). For example, talented professionals may be more likely to seek job opportunities with firms known for their innovative and collaborative culture.

The manager's perception regarding open innovation partnerships is vital because it can influence their attitude towards changing a business model. According to Ajzen's Theory of Planned Behavior, an individual's attitudes, subjective norms, and perceived behavioural control can all impact their intention to perform a particular behaviour, which can influence their actual behaviour (Ajzen, 1985).

In the context of open innovation partnerships, a manager's perception of the benefits and challenges of collaboration with external partners can shape their attitude towards changing their business model (Peñarroya-Farell et al., 2023). If managers believe that open innovation partnerships can bring new ideas, perspectives, and resources to their business, they may be more willing to consider joining them.

3.7 SUMMARY

Table 2 displays the conclusions of this section, establishing the gaps in the existing research, which this Study aims to help fill.

Table 2: Theoretical frameworks and existing gaps

Theoretical Frameworks	Existing gaps
Business Model and Business Model Dynamics (BMD)	We identified a gap in the understanding and use of these terms in the field of business model dynamics.
Managers' role in BMD	There is a need for a deeper understanding of how companies can develop organizational capabilities to adapt to crises such as the COVID-19 pandemic. We also identified the lack of understanding about the phases of business model adaptation during the COVID-19 crisis. Before this research, there may not have been a

	clear framework or understanding of how company managers can navigate this global crisis. After the interviews of the second Study, we identified the need to better understand the importance of manager's improvisation in business model adaptation during environmental turbulence and hostility, such as the COVID-19 pandemic.
Open innovation ecosystems (OIE)	Our research contributes to a more comprehensive understanding of open innovation ecosystems' significance in business model adaptation during the COVID-19 emergency and posterior crisis. Additionally, beyond the pandemic, we explore the potential of these ecosystems to drive the implementation of innovative behaviours, such as to achieve a more sustainable business model.
Managers' perception of OIE	The dissertation explores the relationship between open innovation ecosystems and CCI company managers under the lens of the Theory of Planned Behaviour. The authors note a lack of research on implementing sustainable business models in these industries and on the role of open innovation partnerships in promoting sustainable practices.

4. RESEARCH METHODOLOGY

This dissertation comprises three studies employing diverse qualitative and quantitative research methodologies. The first study utilizes a systematic literature review meta-synthesis approach (Bair, 1999), examining 22 articles to gather comprehensive insights. The second study adopts a multiple case study design (Cameron, 2009), an in-depth investigation of ten cultural and creative companies. Lastly, the third study employs Structural Equation Modeling (SEM) (Hair et al., 2019) to develop a model based on data collected from 122 managers of cultural and creative companies.

The complementarity between these methodologies lies in their sequential arrangement. The literature review guides the formation of the case study design, which subsequently shapes the development of the SEM model. In concert, they yield a holistic and triangulated viewpoint on the research issue. Qualitative investigations yield nuanced, context-specific insights, while quantitative inquiries contribute statistical credibility and broader applicability. Figure 3 illustrates the complementarity.

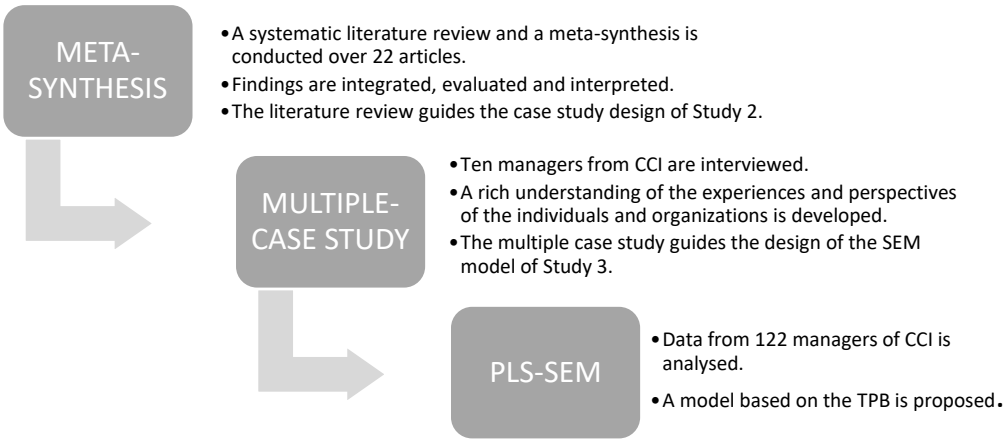

Figure 3: Complementarity between the methodology of the three studies.

This section will provide an overview of the methodologies used in each study. However, it is important to note that a more in-depth analysis of each methodology will be presented in the dedicated section for each study.

4.1 FIRST STUDY: META-SYNTHESIS OF 22 ARTICLES

The primary objective of this exploratory research was to enhance the understanding of the concept of "Business Model Adaptation" and "Business Model Innovation" and their relationship with the "Business Model Dynamics" literature.

To accomplish this, a systematic literature review and a meta-synthesis were conducted to investigate how previous research had used these concepts in the field of strategic management. Meta-synthesis is an integrative method for qualitative synthesis used to "integrate, evaluate and interpret the findings of multiple qualitative research studies" (Saini and Shlonsky, 2012) in order to transform individual findings into conceptualisations and interpretations (Polit and Beck, 2010).

Twenty-two articles published between 2009 and 2021 were eligible for this meta-synthesis. The articles were analysed, and their content was classified into eight categories based on their usage of the Business Model Dynamics concepts.

An organisational learning approach was applied to examine the papers in each category. Different dimensions of each instance were identified and analysed. This analysis delineated the nature of Business Model Adaptation and its differentiation from Business Model Innovation in seven dimensions, providing a theoretical basis for BMD.

Chapter 6 of this thesis offers more details about the first study methodology.

4.2 SECOND STUDY: A MULTIPLE-CASE STUDY OF 10 CCI COMPANIES

For this second study, a multiple qualitative case study design (Yin, 2009) based on Glaser and Straus's grounded theory perspective (Glaser and Strauss, 1967) was adopted to develop a theory grounded in systematic data collection and analysis (Noble and Mitchell, 2016). The research methodology followed the approach of deriving theory from observations (Corbin and Strauss, 2012). The grounded theory approach helps understand complex social phenomena and is often used in qualitative research (Noble and Mitchell, 2016). It allows researchers to develop a rich understanding of the experiences and perspectives of the individuals and organizations involved and to generate new theories that can inform future research and practice.

The methodological aim of this study was to collect rich and detailed descriptions of the strategy and actions of decision-makers in micro and small organisations in the Spanish cultural and creative industry to understand how they adapted their business models to survive the COVID-19 crisis. Ten managers from CCI were interviewed, and their responses were carefully analysed to understand better the phenomenon of firms' adaptation to the pandemic. The observations

gathered in this study served as a starting point to develop a conceptual model (Kincheloe and Mclaren, 2011; Miles and Jozefowicz-Simbeni, 2019).

Chapter 7 of this thesis offers more details and an in-depth description of the second study methodology.

4.3 THIRD STUDY: PLS-SEM BASED ON DATA FROM 122 CCI MANAGERS

For the third study, a PLS-SEM (Hair et al., 2022, 2019) methodology was chosen to analyse the intention of 122 managers from the cultural and creative industries to change their business model to a more sustainable one in the next 18 months. PLS-SEM stands for Partial Least Squares Structural Equation Modelling. It is a statistical method for analysing the relationships between latent variables in a structural equation model. PLS-SEM is often used in fields such as business management to analyse complex models with multiple independent and dependent variables (Hair et al., 2022, 2019).

636 companies were contacted via email between May and October 2022. 136 did answer the online form, 15.7% of the total. Respondents that were mere employees were discarded. Respondents from companies with more than 50 employees were discarded too. They left a total of 122 valid responses.

The collected data supported most of the hypotheses in the model except for one. The analysis highlighted the significant influence of being part of open innovation ecosystems in mediating the managers' attitude towards sustainability and the influence of their perceived behavioural control over the changes needed to implement a more sustainable business model.

Chapter 8 of this thesis offers more details and an in-depth description of the third study methodology.

5. RESEARCH MODEL

Our research perspective is strategically focused on understanding changes in the strategic value appropriation of a firm's business model from various angles. Each study of this compilation analyses a different perspective of Business Model Dynamics.

5.1 THE FIRST STUDY

Titled "Business Model Dynamics from Interaction with Open Innovation" (Peñarroya-Farell and Miralles, 2021), this study delimitates the terms and concepts related to the different possible instances of BMD. This study tries to respond to research question one, and it was published in the Journal of Open Innovation Technology, Market and Complexity in 2021 as part of a special "Business Model Innovation" issue.

The research was initiated in 2019 upon noticing that some researchers and practitioners used the distinct primary instances of Business Model Dynamics interchangeably. As the scholarship in the field of BMD progresses, the lack of maturity in these fundamental concepts poses challenges to advancing the field. Therefore, the first study aimed to disambiguate the terms Business Model Innovation, Business Model Adaptation, and Business Model Evolution. At the same time, it aimed to validate BMA as a valid strategic answer to environmental changes.

5.2 THE SECOND STUDY

With the onset of the COVID-19 pandemic, companies faced the challenge of adapting their business models to cope with the hostile environment created by the different lockdowns and normative turbulence. The Cultural and Creative Industries were selected to investigate this phenomenon as they were significantly affected by these lockdowns. The researchers were working hand in hand with government officials and industry managers to help recuperate this industry; therefore, many companies' contact data were available to them.

The paper "Business Model Adaptation to the COVID-19 Crisis: Strategic Response of the Spanish Cultural and Creative Firms" (Peñarroya-Farell and Miralles, 2022) investigates how cultural and creative firms in Spain responded to the challenges posed by the COVID-19 pandemic. While addressing the first two research questions, the study emphasises the importance of dynamic capabilities, strategic improvisation, information and communication technologies (ICT) and network-based open innovation.

This second study analysed the behaviour of companies that successfully adapted their business models and identified various adaptation phases. Furthermore, the analysis revealed the factors influencing Business Model Adaptation (BMA). Strategic improvisation was studied in depth, and the role of open innovation ecosystems in facilitating BMA was emphasised.

The article was published in the Journal of Open Innovation: Technology, Market, and Complexity in 2022.

5.3 THE THIRD STUDY

"Open and Sustainable Business Model Innovation: an intention-based perspective from the Spanish Cultural firms" (Peñarroya-Farell et al., 2023) analyses the factors influencing the intention to adopt innovative practices by changing a business model to a more sustainable one in Spanish cultural firms.

The study emphasises the importance of open innovation ecosystems and tries to respond to research questions two and three. This study was conducted when companies implemented the adaptations they had previously planned to deal with the COVID-19 crisis.

As sustainability became essential to business value propositions during the pandemic, our research team sought to examine the factors influencing sustainable business model innovation. We adopted the Theory of Planned Behaviour (Ajzen, 1985) as the framework for analysis, using the managers' intention to change the business model to a more sustainable one as the unit of analysis. In addition, the proposed model for understanding sustainable business model innovation integrates the role of open innovation ecosystems, which was highlighted in previous studies.

In April 2023, it was published in the Journal of Open Innovation Technology, Market and Complexity.

5.4 OVERVIEW OF THE RESEARCH MODEL

Figure 4 illustrates the research model of this dissertation by compilation.

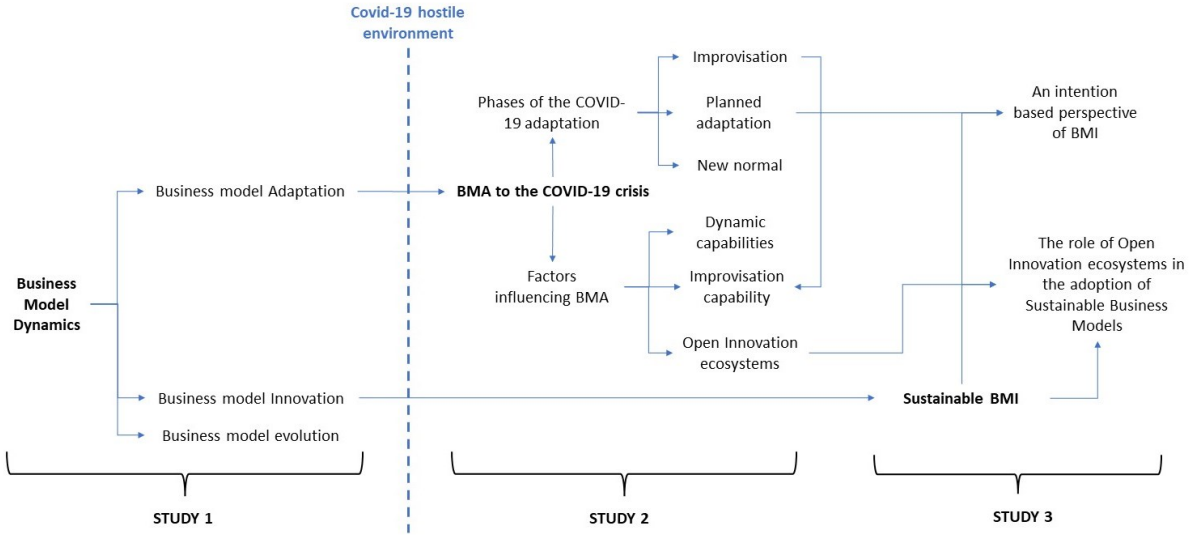

Figure 4: *Research Model*

6. STUDY 1 - BUSINESS MODEL DYNAMICS

6.1 GOAL OF THIS STUDY

The primary objective of this study (Peñarroya-Farell and Miralles, 2021) is to gain a better understanding of how business models evolve over time and how they can be aligned with strategic goals and implementation settings in order to help companies respond to the challenges of the volatile, uncertain, complex, and ambiguous (VUCA) environment and capture the new value that emerges.

The study explores the key terms used in the Business Model Dynamics (BMD) research strand to achieve this objective: Business Model Adaptation, Business Model Innovation, and Business Model Evolution. By clarifying the definitions of these terms, the study aims to prevent conceptual incoherence and incorrect use of these terms as synonyms.

Additionally, the study provides a clear and rigorous definition of each term in seven dimensions from a strategic point of view. This is important because it helps to establish a stronger connection between strategic value appropriation and changes in business models. By providing a more precise and nuanced understanding of these key terms, the study aims to offer valuable insights and guidance for researchers and practitioners interested in the field of Business Model Dynamics and to contribute to the academic and practical literature on this topic. Moreover, at the same time, the study supports Business Model Adaptation (BMA) as a valid response to face the competition in a VUCA environment for incumbent SME companies.

The broad research question of this study is: "**To what extent does a Business Model Dynamics perspective explain managers' reactions to competitive challenges that may impact their company's business model?**". The question can be divided into three more specific research questions:

1. How can a clear differentiation between Business Model Adaptation (BMA) and Business Model Innovation (BMI) provide a stronger theoretical foundation for Business Model Dynamics and enhance understanding of its role in organisational strategy?
2. To what extent should one be used and not the other to provide a sound strategic value appropriation?
3. How can this differentiation help practitioners and decision-makers in competitive settings to make better decisions, and what new approaches can be obtained?

6.2. STATE OF THE ART

6.2.1 Challenges faced by incumbent companies and SMEs

In today's fast-paced and highly competitive market, incumbent companies and SMEs face many challenges, including disruptive shocks from global disruptors like Amazon, Netflix, AirBnB and Uber, emerging technologies like Big Data, Blockchain, IoT, Metaverse, Artificial Intelligence and unexpected global events like the Covid-19 pandemic. These external factors often lead to significant changes in the local competitive environment, which, in turn, require local SME firms to adapt their strategies to stay competitive.

To effectively react to these imported effects, local SME firms must fine-tune their strategy implementation components, including operations, stakeholder groups, alliances, positioning, value proposition, and other logic components behind their strategy implementation (Achtenhagen et al., 2013; Hossain, 2017). However, achieving coherence and aligning these changes to the strategic settings is critical to ensure correct value appropriation (Demil and Lecocq, 2010).

6.2.2 What Is a Business Model?

The concept of the Business Model has been developed to represent how a company generates, delivers and captures value. It is considered the logic and reasoning behind implementing a firm's strategy. In the literature, the study of Business Models has gained increasing attention in the last twenty years. Although there is no commonly accepted definition, many scholars define Business Models based on the firm's value proposition and target markets, the structure of the value chain necessary to deliver this value, the mechanisms used by the firm to capture value, and how these elements are interconnected in a value architecture (Casadesus-Masanell and Ricart, 2011, 2007; Bernd W Wirtz et al., 2016). The definition adopted in this study follows this approach.

6.2.3 Business Model Dynamics

Following the works of Saebi et al., the studies that refer to the changes occurring in existing firms' business models over time, often in response to an external trigger, can be categorised under the research stream of 'Business Model Dynamics' (Achtenhagen et al., 2013; Foss and Saebi, 2017).

Various types of Business Model Dynamics (BMD) have been classified based on the level of strategic changes in firms in response to internal and external factors (Achtenhagen et al., 2013; Foss and Saebi, 2017). Business Model Adaptation (BMA) involves incorporating strategic adjustments to address external factors and ensure the firm's economic sustainability. On the other

hand, Business Model Innovation (BMI) involves a radical reconfiguration of a firm's competencies to disrupt the market. Lastly, Business Model Evolution entails an incremental reconfiguration of some business model components to tackle the strategic challenges arising from internal and external factors. Each instance of BMD corresponds to a specific strategic value appropriation.

6.2.4 What Is Business Model Adaptation?

The term 'Business Model Adaptation' was first used by Andries and Debackere in 2007 to refer to the process of adapting a business model over time to ensure economic sustainability (Andries and Debackere, 2007). Before this, authors used various terms such as 'evolution', 'change', 'transformation', 'learning', 'erosion', and 'life cycles' to describe the adaptation of business models. The 'Business Model Adaptation' concept was not a well-established process in Business Model Dynamics before Andries and Debackere introduced it.

Some authors have emphasised the importance of adapting business models to ensure economic sustainability, stating that the initial business model is often a hypothesis sequentially adapted to new information and possibilities (Chesbrough and Rosenbloom, 2002).

6.2.5 What Is Business Model Innovation?

Business Model Innovation (BMI) refers to developing and implementing new and disruptive methods of value proposition, creation, and capture, intending to disrupt market conditions (Casadesus-Masanell and Zhu, 2013; Markides, 2006) and ecosystems (Snihur et al., 2018) or enter new international markets (Landau et al., 2016). Although for many years, BMI has been used as a global concept encompassing all business model dynamics aspects.

While technological and product innovations have long been recognised as essential components of innovation, Chesbrough argues that business model innovation is equally important for achieving disruptive innovation (Chesbrough, 2007). In this context, open innovation can be a powerful tool for developing new business models (Chesbrough and Bogers, 2014). Open innovation is a distributed innovation process that leverages knowledge flows across organisational boundaries to develop new products, services, or business models. It has tremendously impacted research and practice (Yun, 2017a; Yun and Zhao, 2020).

Various active business model-building processes can facilitate the development of new business models. Yun and Yang have identified four such processes: the customer open innovation-based business model developing circle, the user open innovation-based business model developing circle, the social entrepreneurship-based business model developing circle, and the engineer open innovation-based business model developing circle (Yun et al., 2016).

Feller, Finnegan and Nilsson have analysed the impact of open innovation on the business models of public authorities and identified four emerging typologies of governmental transformation based on open innovation (Feller et al., 2011).

Chesbrough introduced the concept of "open business models" to illustrate that closed business models can be seen as a "starting point" and open business models as the "desirable end state of firm transformation" (Chesbrough, 2006). Saebi and Foss identify and describe four types of open business models (Saebi and Foss, 2015a): a business model for market-based innovation strategy, a business model for crowd-based innovation strategy, a business model for collaborative innovation strategy, and a business model for network-based innovation strategy.

Mezger defines BMI as a distinct dynamic capability that involves a firm's ability to sense business model opportunities, seize them by developing valuable and unique business models, and reconfigure the firm's competencies and resources accordingly (Mezger, 2014).

Five main areas of research have been identified during our literature review on Business Model Innovation:

- Definitions of BMI from the lenses of different theories (Casadesus-Masanell and Ricart, 2010; Casadesus-Masanell and Zhu, 2013; Lungu, 2018; Teece, 2014; Turner and Lee-Kelley, 2013).
- Tools to represent and design business models and conceptual models (Osterwalder and Pigneur, 2010; Täuscher and Abdelkafi, 2017).
- Different archetypes and typologies of business models based on various criteria (Täuscher and Laudien, 2018; Timmers, 2007; Wirtz et al., 2010; Yip and Bocken, 2018)
- The processes and phases to implement Business Model Innovation (Chesbrough, 2007; Johnson and Christensen, 2008; Wirtz and Daiser, 2018).
- Changing and adapting business models through time. This group of studies refers to Business Model Dynamics, the evolution and adaptation of business models. Academics agree on a general feeling that a better understanding of the evolution of a Business Model through time is needed (Chesbrough and Rosenbloom, 2002; Osterwalder et al., 2005; Osterwalder and Pigneur, 2010; Pateli and Giaglis, 2004; Saebi et al., 2017)

We realised that BMI is a very consolidated concept with more than 1.100 articles on the Web of Science. In contrast, BMA, with only 17 articles, requires an ad hoc study as, based on the hypotheses of this study, BMA and BMI are different concepts that refer to different phenomena, and, consequently, the differentiation of both terms can help with the understanding of strategic perspectives.

Disruptive Innovation Theory has significantly impacted management practices and sparked much academic discussion (Markides, 2006). Differentiating between the two concepts is vital to avoid confusion. Through this theory, a company can be seen as intending to disrupt the market, being affected by the market disruption, or being neutral towards the market, such as changing its business model to promote sustainability (França et al., 2017). From the Disruptive Innovation Theory lens, BMA and BMI are opposites. Therefore proper disambiguation is necessary, as confusion in the terms that define the planned outcome of the processes of BMA and BMI can lead to unwanted scenarios.

6.2.6 Business Model Evolution

A third term arises from this literature review: Business Model Evolution. It is a recurrent and continuous process of adaptation of an actual Business Model to new internal or external information made available to the business (Andries and Debackere, 2007; Chesbrough, 2017). It implies minor changes in different components of a Business Model (Lungu, 2018) and often is part of the fine-tuning of a broader process of Business Model Innovation (Bohnsack et al., 2014).

6.2.7 Strategic Connection of Business Models Dynamics Instances

Adapting Business Models should be aligned with implementing a company's strategy. It is essential to learn to adjust strategic settings and develop the logic of strategy implementation that Business Models embody (Argyris and Schon, 1978; Greenwood et al., 1997).

If the terms that describe the intended outcomes of Business Model Adaptation (BMA) and Business Model Innovation (BMI) are misunderstood, undesired scenarios may arise.

Learning efforts must be tailored to meet strategic challenges. Learning for disruption differs from learning for adaptation. Argyris and Schön's (Argyris and Schon, 1978) approach can link BMA and BME to a firm's theory-in-use changes. As a result, implementing BMA and BME single-loop learning efforts are necessary. However, BMI must be linked to changes in a firm's espoused theory, and double-loop learning efforts will be necessary.

The Organizational Learning theory will help clarify these different roles for each instance related to the implementation of the strategy.

6.3 METHODOLOGY

The method chosen for this study is meta-synthesis research. Meta-synthesis is an integrative method for qualitative synthesis used to “integrate, evaluate and interpret the findings of multiple qualitative research studies” (Saini and Shlonsky, 2012), transforming individual findings into

conceptualisations and interpretations (Polit and Beck, 2010). This research method combines and interprets the findings from multiple qualitative studies to create new conceptualisations and interpretations.

Meta-synthesis begins with a predefined research problem, a priori strategies for data collection, inclusion and exclusion criteria, data analysis, dealing with possible sources of bias, and synthesis of findings (Thorne et al., 2004).

6.3.1 Why Meta-Synthesis?

Three methods can be used in a systematic literature review: aggregative, integrative and interpretive (Saini and Shlonsky, 2012).

Integrative and aggregative methods are focused on summarising the findings of multiple qualitative research studies. Similarly, concepts employed to summarise data are assumed to be sufficiently predetermined and well-specified. Aggregative methods produce effect sizes or percentages across studies (such as meta-summary), and integrative methods create taxonomies of the range of conceptual findings and provide the foundation for the development of conceptual descriptions of phenomena across studies (Sandelowski and Barroso, 2007).

Complementarily, interpretive methods involve considering findings across studies to generate a new inductive understanding of the phenomena, events or experiences (Saini and Shlonsky, 2012). Unlike aggregative and integrative methods, which rely on predetermined questions to guide the analysis, interpretive methods use an iterative process to explore what might be involved in similar situations and to understand how things connect and interact (Thorne et al., 2004).

Given that we already have research questions “To what extend are BMI and BMA different?” and “When should one be used and not the other?” and also given that both concepts in focus are related to the field of Business Model Dynamics, or “how companies change and develop their business models to achieve sustained value creation through time” (Achtenhagen et al., 2013; Saebi et al., 2017), where works exist; meta-synthesis, an integrative method, is the most appropriate method for a systematic comparison of the terms BMI and BMA.

6.3.2 Data Collection, Inclusion and Exclusion Criteria

Meta-synthesis requires three steps for integrating findings: selecting studies, extracting, and abstracting findings (Sandelowski and Barroso, 2007), each explained in the following.

Articles were considered eligible for meta-synthesis based on the following criteria: published between September 2000 and December 2019; full-text article; English language; any country of the world. The searches were conducted on the main collection of the Web of Science.

As our study is concerned with the differences and similarities of the concepts' business model innovation' and "business model adaptation", the articles chosen for the data collection are articles that include the terms "Business Model Adaptation", studies that include the terms "Business Model Innovation" and the word "adaptation" or "to adapt" to refer specifically to the adaptation of a business model without using the term BMA. Moreover, all articles that include the terms "Business Model Evolution" and "Business Model Innovation" (see Table 3) have been included. We excluded those studies solely focused on 'business model innovation' from a non-dynamic perspective.

Table 3: Keywords included in the article's selection

Keywords		Number of Articles
Business Model Adaptation		17
Business Model Innovation	Adaptation/to adapt	25
Business Model Innovation	Business Model Evolution	5

After analysing its content and the application area's scope, 22 articles have been found eligible for this meta-synthesis. All the articles have in common that, despite their differences, the processes of BMI and BMA use the Business Model concept in a dynamic, transformational manner (Saebi, 2014), not as a static construct. The excluded articles were either duplicates or articles using the terms BMI and the keyword 'adaptation' but not referring to the 'adaptation of a Business Model'.

The core contributions of this meta-synthesis are displayed in Table 4. The articles have been ordered by year of publication and the number of citations reported on Google Scholar. The table also includes whether the authors use BMI, BMA or other related terms. In the rest of the research work, this list of papers and their authors are referred to as core contributions and authors.

Table 4: Core Contributions

Title	Author	Term Usage	Citations	Publication
The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies	(Chesbrough and Rosenbloom, 2002)	BMI + adaptation	5.092	Industrial and corporate change

A research framework for analysing eBusiness models	(Pateli and Giaglis, 2004)	BMI + 'to adapt a BM'	484	European journal of information systems
Adaptation in new technology-based ventures: insights at the company level	(Andries and Debackere, 2006)	BMA	122	International Journal of Management Reviews
Reinventing your business model	(Johnson and Christensen, 2008)	BMI + adaptation	3.032	Harvard Business Review
Capabilities and radical changes of the business models of new bioscience firms	(Brink and Holmén, 2009)	BMI + adaptation	68	Creativity and Innovation Management
Business Model Adaptation as a dynamic capability: a theoretical lens for observing practitioner behavior	(Dottore, 2009)	Uses both BMI + BMA	15	BLED 2009 Proceedings
Business model innovation: Opportunities and barriers	(Chesbrough, 2010)	BMI + adaptation	3267	Long Range Planning
Strategic development of business models: Implications of the web 2.0 for creating value on the internet	(Wirtz et al., 2010)	BMA	701	Long Range Planning
Business model dynamics and innovation: Re-establishing the missing linkages	(Cavalcante et al., 2011)	BMI + adaptation	480	Management Decision
Dynamics of Business Models – Strategizing, Critical Capabilities and	(Achtenhagen et al., 2013)	BMA	366	Long Range Planning

Activities for Sustained Value Creation				
Business models for sustainable technologies: Exploring business model evolution in the case of electric vehicles	(Bohnsack et al., 2014)	BMI + Business Model Evolution	425	Research Policy
The changing university business model: a stakeholder perspective	(Miller et al., 2014)	BMI + Business Model Evolution	164	R and D Management
Toward a capability-based conceptualisation of business model innovation: Insights from an explorative study	(Mezger, 2014)	Uses both BMI + BMA	125	R and D Management
From refining sugar to growing tomatoes: Industrial ecology and business model evolution	(Short et al., 2014)	BMI + Business Model Evolution	88	Journal of Industrial Ecology
Business Model Adaptation and the Success of New Ventures	(Balboni and Bortoluzzi, 2015)	Uses both BMI + BMA	11	Journal of Entrepreneurship Management and Innovation
Business Model Adaptation for emerging markets: a case study of a German automobile manufacturer in India	(Landau et al., 2016)	Uses both BMI + BMA	27	R&D Management
Design leaps: Business Model Adaptation in emerging economies	(Sharma et al., 2016)	Uses both BMI + BMA	4	Journal of Asia Business Studies

What Drives Business Model Adaptation? The Impact of Opportunities, Threats and Strategic Orientation	(Saebi et al., 2017)	Uses both BMI + BMA	92	Long Range Planning
Adapt and strive: How ventures under resource constraints create value through business model adaptations	(Dopfer et al., 2017)	Uses both BMI + BMA	7	Creativity and Innovation Management
Valuing energy futures; a comparative analysis of value pools across UK energy system scenarios	(Wegner et al., 2017)	Uses both BMI + BMA	5	Applied Energy
User-centred sustainable business model design: The case of energy efficiency services in the Netherlands	(Tolkamp et al., 2018)	Uses both BMI + BMA	15	Journal of Cleaner Production
The typologies of power: Energy utility business models in an increasingly renewable sector	(Bryant et al., 2018)	Uses both BMI + BMA	5	Journal of Cleaner Production
An Ecosystem-Level Process Model of Business Model Disruption: The Disruptor's Gambit	(Snihur et al., 2018)	BMI + adaptation	3	Journal of Management Studies
Business Model Adaptation in response to an exogenous shock: An empirical analysis of the Portuguese footwear industry	(Corbo et al., 2018)	BMA	2	International Journal of Engineering Business Management

Investigating the current business model innovation trends in the biotechnology industry	(Horvath et al., 2019)	BMI + Business Model Evolution	7	Journal of Business Economics and Management

6.4 DATA ANALYSIS

Two researchers carefully read each study, and the findings were highlighted. As meta-synthesis is primarily "concerned with understanding and describing key points and themes contained within a research literature on a given topic" (Bair, 1999), shortly after beginning to read and to analyse each document, it was possible to categorise data using in vivo and metaphorical codes. Two researchers performed coding, and a third independent one reviewed the proposal. As organising categories emerged, the data was placed into a matrix, and two dimensions and nine main key points were identified. See Table 5 and points 6.4.1 and 6.4.2.

Table 5: Key points and themes that emerged from the coding strategy

Dimension	Key Points and Themes
The nature of BMA	1. Is Business Model Adaptation a specific process or a form of BMI?
	2. Is Business Model Adaptation innovative per se?
	3. How many business components must change to be considered a Business Model Adaptation?
	4. Is BMA a continuous change, or is it infrequent?
	5. Is BMA for start-ups or for incumbents?
	6. What is the attitude towards the market?
Theories to explain BMA	1. Business Model Adaptation through the lenses of Dynamic Capabilities theory
	2. Business Model Adaptation through the lenses of the Resource-Based View

6.4.1 DIMENSION 1: About the Nature of BMA

1. **Is Business Model Adaptation a specific process or a form of BMI?** Some authors believe that BMA is a form of BMI, while others think it is an entirely different process. In Section 1 of the synthesis, the different opinions are analysed and summarised.

2. **Is Business Model Adaptation innovative per se?** The authors discuss the innovativeness of the BMA processes and the degree of radicalness. Section 2 compares the different opinions regarding the degree of innovation of both processes.
3. **How many business model components must change to be considered a Business Model Adaptation?** The authors discuss the scope of the change based on the different components of a business model that are affected. Section 3 summarises the author's beliefs from the point of view of how narrow or wide the changes in the Business Model components are.
4. **Is BMA a continuous change, or is it infrequent?** Several authors discuss the frequency of change in the process of BMA. In this section, the occurrence of BMA and BMI is analysed.
5. **Is BMA for start-ups or for incumbents?** Authors debate to what extent the BMA and BMI process suits different types of companies. Section 5 summarises the conveniences of BMA and BMA for start-ups and incumbents.
6. **What is the attitude towards the market?** Authors deliberate about the planned outcome of BMA and BMI. Section 6 illustrates the different outcomes of these two processes.

6.4.2 DIMENSION 2: Theories to Explain BMA

1. **Business Model Adaptation through the lenses of the Dynamic Capabilities Theory**. Different authors analyse the BMA phenomena from the point of view of the Dynamic Capabilities theory. Section 8 summarises their findings.
2. **Business Model Adaptation through the lenses of the Resource-Based View**. Section 9 summarises the authors' findings that analyse BMA from these other lenses.

In every key point, we compare what the core contributing authors state about that theme, synthesising findings in each point and offering a final complete synthesis of findings at the end of the study.

6.4.3 Comparing and Synthesizing (I): Stating the Nature of BMA

This chapter compares the extent and degree of changes of the seven dimensions that flourished in the meta-synthesis about BMA and BMI nature.

6.4.3.1 Is BMA a specific process or a form of BMI?

A “process” is a “sequence of events or activities that describes how things change over time, or that represents an underlying pattern of cognitive transitions by an entity in dealing with an issue” (Van de Ven, 1992). Following this definition and given the definitions of BMI seen at the

beginning of this research work, BMI is clearly a process, but is BMA a component of BMI? Or is BMA a form of BMI? We have found some discrepancies among the analysed authors: some of the authors consider the adaptation of a business model just a component of a greater BMI process (Brink and Holmén, 2009; Chesbrough, 2010; Johnson and Christensen, 2008; Pateli and Giaglis, 2004), while others consider the adaptation just a form of BMI (Dopfer et al., 2017; Landau et al., 2016; Mezger, 2014) even an independent phenomenon (Saebi et al., 2017; Wegner et al., 2017).

Table 5 displays the statements of authors who believe that the adaptation of a business model is a component of a greater process of BMI.

Table 6: Business Model Adaptation as a component of BMI

BM Adaptation as Part of a Process of BMI	Findings	Author
'Research to date is yet to satisfy the need for methods that can structure a firm's change endeavour either towards adopting a new business model or extending a current one to include new dimensions.'	Adaptation of a BM is part of the BMI process.	(Pateli and Giaglis, 2004)
'(…) The third is to compare that model to your existing model to see how much you'd have to change it to capture the opportunity.'	First, you create a new model concept, and then you adapt your actual business model.	(Johnson and Christensen, 2008)
This makes a 'radical' change empirically and analytically distinct from the slight alteration or adaptation of the initial business model which frequently occur within entrepreneurial ventures.	Adaptation of a business model is different from radical changes in Business Models, even if they all are part of a BMI process.	(Brink and Holmén, 2009)
'Business Model Innovation is not a matter of superior foresight ex-ante—rather, it requires significant trial and error and quite a bit of adaptation ex post. In fact, it is the product of extensive experimentation.'	Adaptation is part of the process of BMI.	(Chesbrough, 2010)

Without using the term “Business Model Adaptation”, authors like Chesbrough and Rosenbloom examine the need to adapt an existing business model in established (incumbent) companies to achieve “a sequential adaptation to new information and possibilities” (Chesbrough and Rosenbloom, 2002).

For these authors, adapting a business model is just a component of a superior process of Business Model Innovation. This is widespread in start-ups or companies searching to disrupt the market. Furthermore, this affirmation is consistent with the actual knowledge on business models such as Teece that affirms that “once articulated, the logic of the business model is subjected to the market test and needs to be modified and retested in the face of changing environmental conditions” (Teece, 2010).

Figure 5 represents the concept where adaptation is part of the main BMI process.

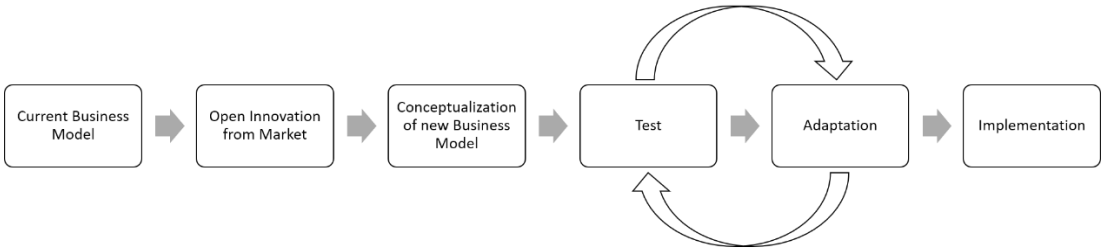

Figure 5: BMI process adapted from Chesbrough and Rosenboom (2002)

This same phenomenon is labelled with the term ‘Business Model Evolution’ (BME) in articles written after 2014 like Bohnsack et al. (Bohnsack et al., 2014), Short et al. (Bocken et al., 2014), Miller et al. (Miller et al., 2014), Balboni and Bortoluzzi (Balboni and Bortoluzzi, 2015) and Horvath et al. (Horvath et al., 2019), and in a book chapter by Tina Saebi (Saebi, 2014) describes three different forms of business model dynamics, namely ‘business model evolution, adaptation and innovation’, and analyses them under the lenses of the dynamic capabilities theory.

In this study, from now on, the term ‘Business Model Evolution’ (BME) will be used to refer to minor adaptations of a Business Model to avoid misunderstandings and confusion with the broader phenomenon labelled as Business Model Adaptation by some of the analysed authors.

See Table 5 to read the definitions of Business Model Evolution.

Table 7: Authors that define Business Model Evolution

Business Model Evolution	Findings	Author
'Business model evolution shows a series of incremental changes that introduce service-based components (…)'	BME is the creation of new BM through a series of incremental changes.	Bohnsack et al. (2014) (Bohnsack et al., 2014)
'(…) technology transfer office staff and government support agency representatives have led to the university business model evolving not as a process of co-creation but rather in a series of transitions (…)'	BME is a series of transitions on the Business Model.	Miller et al. (2014) (Miller et al., 2014)
'New ventures dynamically adapt and re-configure their business model'	BMs adapt and evolve.	Balboni and Bortoluzzi (2015) (Balboni and Bortoluzzi, 2015)
'The research employs a circular evaluation method to detect which parts of the applied business structures show model evolution of an innovative and knowledge-intensive industry, biotechnology. '	Different parts of the business model show evolution.	Horvath et al. (2019) (Horvath et al., 2019)

On the other hand, some other authors think that adapting a Business Model is a form of BMI as it addresses the changes of an actual Business Model to fit a new environment better (Dopfer et al., 2017; Landau et al., 2016; Mezger, 2014).

See Table 8 for the statements of authors who believe BMA is a form of BMI.

Table 8: BMA is a form of BMI

BMA is a Form of BMI	Findings	Author
'For established firms, BMI could be either the adaptation of its existing (core) business model or the development and introduction of a new business model adjacent to its core business.'	BMA is a form of BMI.	Mezger (2014) (Mezger, 2014)

'Business Model Adaptation is a form of Business Model Innovation that addresses the development of a business model to better fit a new context'	BMA is a form of BMI.	Landau et al. (2016) (Landau et al., 2016)
'The process of continuous search, selection, and improvement of a Business Model based on the surrounding environment.'	The role and nature of Business Model Adaptation as a coping mechanism with resource constraints.	Dopfer et al. (2017) (Dopfer et al., 2017)

Apart from the two groups mentioned above, a third group of authors think that, by definition, BMA could not be BMI as the nature and objectives of both concepts are different. For Saebi et al. (Saebi et al., 2017), BMA is "the process by which management actively aligns the firm's business model to a changing environment" (Saebi et al., 2017) and Wegner et al. share the same belief (Wegner et al., 2017). We will attempt to explain the nature and the objectives of BMA, BMI and BME in the following points.

Summary

We have realised that the longitudinal nature of any process enables us to consider the adaptation of a Business Model from two different viewpoints: as a phenomenon by itself where the objective is to adapt an existing business model to environmental changes; and as a component of a superior process to assess the viability of new business initiatives. Both views are accepted among most researchers, but we realised that a new term had been coined to define the incremental adaptation of a Business Model through a series of little changes in articles written after 2014. The new denomination is Business Model Evolution.

From this meta-synthesis, we could conclude that three terms arise to describe different nuances of the processes of change in a Business Model through time:

- **Business Model Innovation**: the broader process of creating a new Business Model.
- **Business Model Adaptation**: a process to adapt a current Business Model, which can be a form of BMI if it becomes innovative.
- **Business Model Evolution**: as a component of a more comprehensive process of transformation that seeks the change of the Business Model through small incremental changes in the current model.

6.4.3.2 Is BMA innovative per se?

In the section above, authors like Saebi, Lien, and Foss consider the BMA process different from BMI (Saebi et al., 2017). Not even a part of it. This is because they consider that a business model can be adapted without innovation "Business Model Adaptation and innovation differ in important ways. (..), while the kind of novelty implied by the notion of an 'innovation' might be a likely outcome of business model adaptation, it is not a necessary requirement. Business Model Adaptation can be non-innovative" (Saebi et al., 2017).

Moreover, authors like Sharma et al. state that BMA does not have to be innovative either and affirm that it is "quite common and a normal way of doing things" for entrepreneurs in emerging markets (Sharma et al., 2016). For them, the process consists of adapting a model originated in a developed market to an emerging market to better fit the environment. No innovation in the business model is needed.

For some other core authors, adapting a business model in a non-innovative way could be done, but it is a mistake "pursuing a new business model that's not new or game-changing to your industry or market is a waste of time and money" (Johnson and Christensen, 2008).

Table 9 summarises the statements about BME, BMA and BMI regarding innovation.

Table 9: Innovation in BME, BMA and BMI

BMA and Innovation	Findings	Author
'The strategic potential of business model innovation thus lies in identifying new sources of value creation, based on innovations of the different components of a business model and/or the interactions between these components.'	BMI is based on the innovation of the different components of a Business Model.	Bohnsack et al. (2014) (Bohnsack et al., 2014)
'Entrepreneurs interested in exploring and exploiting opportunities in these markets need to overcome multiple innovation challenges to activate and sustain interest in what they have to offer.'	BMA can be innovative	Sharma et al. (2016) (Sharma et al., 2016)
'This article clarifies the relationship between business model innovation enabled by 3D printing technologies and	BMI is innovative (by definition) but can be either incremental or radical.	Rayna and Striukova (2016) (Rayna and Striukova, 2016)

the resulting innovative effect, whether radical or incremental.'		
'Business Model Adaptation is a form of Business Model Innovation that addresses the development of a business model to better fit a new context'	BMA is innovative, as it is a form of Business Model Innovation.	Landau et al. (2016) (Landau et al., 2016)
'Business Model Adaptation and innovation differ in important ways. (..), while the kind of novelty implied by the notion of an 'innovation' might be a likely outcome of business model adaptation, it is not a necessary requirement. Business Model Adaptation can be non-innovative.'	BMA can be innovative and non-innovative, while BMI is always innovative.	Saebi et al. (2017) (Saebi et al., 2017)

From the perspective of its innovation, authors like Brink and Holmén state that there is a distinction between radical and incremental changes in business models. Radical business model innovation arises when the business model has changed "simultaneously within more than one aspect or dimension" (Brink and Holmén, 2009). They also declare that "this makes a radical change empirically and analytically distinct from the slight alteration or adaptation of the initial business model which frequently occurs within entrepreneurial ventures" (Brink and Holmén, 2009).

In Table 10, we analyse the degree of innovation of BME, BMA and BMI from the perspective of our core review authors.

Table 10: Degree of Innovation in BME, BMA and BMI

BMA and Innovation	Findings	Author
'In spite of these similarities, the finding that adaptation in new ventures can imply gradual as well as radical business model changes goes against the traditional view on dynamic capabilities.'	BMA can imply gradual as well as radical changes.	Andries and Debackere (2006) (Andries and Debackere, 2006)
'The process of business model evolution involves important learning activities in which the	The process implies incremental innovation in the firm.	Short et al. (2014) (Bocken et al., 2014)

firm develops new skills and abilities, the mind-set of innovation and adaptation, and an appetite for searching out new value creation opportunities.		
'Business model evolution shows a series of incremental changes that introduce service-based components, which were initially developed by entrepreneurial firms, to the product.'	In BME the changes are incremental	Bohnsack et al. (2014) (Bohnsack et al., 2014)
'AutoLux adapted its business model in a sequential manner to step-by-step overcome the challenges of operating in an emerging market and to design a model that fits the new context'	Adaptation can be sequential to overcome step-by-step the challenges of operating in an emerging market and to design a model that fits the new context.	Landau et al. (2016) (Landau et al., 2016)
'Involving the user requires facilitation of opportunities for interaction in multiple components of the business model and can lead to both incremental and radical business model innovation ex-post.'	BMI can be either incremental or radical.	Tolkamp et al. (2018) (Tolkamp et al., 2018)
'Any component of the business model can change after involving the user; however, most changes tend to be incremental changes to the value proposition and components that enable the value proposition (key activities, -resources and -partnerships).'	When adapting a BM to become user-centred, changes tend to be incremental and target value proposition components.	Tolkamp et al. (2018) (Tolkamp et al., 2018)

Summary

While Business Model Innovation is innovative by definition, Business Model Evolution and Business Model Adaptation can be innovative or non-innovative, depending on the nature of its changes.

On the other hand, Business Model Evolution and Business Model Adaptation are similar because they usually entail organizational processes that bring about incremental adjustments to the business model.

At the same time, Business Model Innovation tends to be based on the business model's radical innovation. Although BMA can be radical sometimes if the adaptation is innovative to the point that nothing like it has been in any other company before, and BMI can be incremental in a few cases when different phases of change are defined through the years.

Figure 3 illustrates the different types of business model dynamics and their relation.

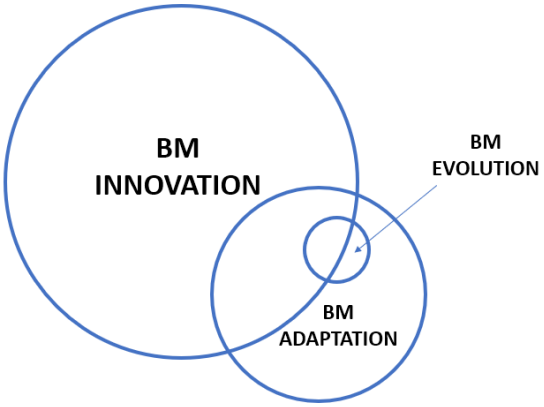

***Figure 6**: Instances of business model dynamics*

6.4.3.3 How many components must we change to consider BMI and not just BMA or BME?

The authors examined the extent of change in the process of BMA and BMI by analyzing the number of components involved. However, Balboni & Bortoluzzi, Wirtz et al., and Landau et al. contend that the specific number of components altered in the BMA process is irrelevant (Balboni and Bortoluzzi, 2015; Landau et al., 2016; Wirtz et al., 2016). Some even argue that "continuous adjustments of all components are necessary" in the final phase of BMA (Landau et al., 2016).

Table 11 shows the statements of core review authors regarding the magnitude of the changes in the three processes.

Table 11:Changes in the Business Model Components

Changes in Business Model Components	Findings	Author
'Customer needs, market misalignments and the ability to sense new technological potential have been the major common drivers of the dynamics of these firms' BMA processes'	To succeed with the adaptation process, some components of the BM should change.	Balboni and Bortoluzzi (2015) (Balboni and Bortoluzzi, 2015)
'Firms are increasingly confronted with fundamental environmental alterations, such as new competitive market structures, governmental and regulatory changes, and technological progress, which often require managers to significantly adapt one or more aspects of their business models.'	The number of aspects does not change the fact that the process is BMA.	Wirtz et al. (2010) (Wirtz et al., 2010)
'In each phase of the Business Model Adaptation process, firms emphasize different components of the business model, before they enter into continuous adjustments of all business model components. '	Different phases of the BMA require the adaptation of different components. At the last phase of BMA continuous adjustments of all components are required.	Landau et al. (2016) (Landau et al., 2016)

The core review analysis confirms that when doing BMA, some elements of a business model should be adapted.

In our literature review, none of the authors specifies the number of components that change when the process is Business Model Evolution and is part of a broader BMI process. Nevertheless, as seen on the first point of this meta-synthesis, as this adaptation is a minor adjustment of a few components of the Business Model, and Brink & Holmen state that BME is the "slight alteration or adaptation of the initial business model which frequently occurs within entrepreneurial ventures" (Brink and Holmén, 2009), therefore, we can affirm that BME implies recurrent changes in a few components.

Summary

There is no difference between the number of components that must be changed in a Business Model in the BMI process and the BMA process. All components can be changed simultaneously if necessary, although this will lead to radical innovation.

As per BME, few changes are made to the components of a Business Model but with higher frequency, as we will see in the next point.

6.4.3.4 What is the frequency of the BME, BMA and BMI changes?

Compared to BME and BMI, business model adaptation "takes place periodically and is likely to affect a number of business model dimensions simultaneously" (Saebi, 2014).

Regarding BMA, Landau et al. believe that "in each phase of the business model adaptation process, firms emphasize different components of the business model, before they enter into continuous adjustments of all business model components" (Landau et al., 2016). Again, we can observe that the authors refer to BME as "continuous adjustments". We could argue that BME is based on continuous and gradual changes in a few components of the Business Model.

Table 12 shows the statements of core review authors regarding the frequency of the changes in the three processes.

Table 12: Frequency of the processes of BMI, BMA and BME

Changes in Business Model Components	Findings	Author
'Several studies characterize business model innovation as a continuous, evolutionary process, and emphasize the role of learning in business model innovation.'	BMI is an evolutionary process.	(Landau et al., 2016) (Landau et al., 2016)
'Business model adaptation involves a process of continuous search, selection, and improvement in value creation, value proposition, and value capture, based on the surrounding environment.'	BMA is a continuous process.	(Dopfer et al., 2017) (Dopfer et al., 2017)

Authors like Landau et al. and Dopfer et al. argue that BMI and BMA are continuous and evolutionary processes (Dopfer et al., 2017; Landau et al., 2016). In both cases, this is a vision of BMI and BMA from the lenses of Dynamic Capabilities, not from the process point of view. Non-core authors agree that managers avoid radical change and leave their "comfort zone" "since such changes would require them to question their mental models and the dominant logic" (Markides, 2006). Markides (2006) explains the tendency of managers to resist radical changes. 'Mental models' refer to the established ways of thinking, beliefs, and assumptions managers hold about their company and industry. Managers may avoid radical changes because doing so would require them to challenge and potentially revise these deeply ingrained mental models and the conventional ways of doing business.

Sosna et al. (Sosna et al., 2010), another non-core-reviewed author, divides the business model development process into the two fundamental phases of exploration and exploitation. These two phases can be applied to BMI and BMA as the authors only refer to the business model development process and do not differentiate between creating a new business model (BMI) or de-adapting the existing one (BMA). We can argue that the exploration phase of different Business Models requires extended trial-and-error-based learning, but the exploitation phase requires stability as "a firm cannot afford to continuously uproot, deconstruct and innovate its extant business model" (Saebi, 2014).

Summary

Business Model Evolution and Business Model Adaptation are similar because they both entail organizational processes that bring about adjustments (as opposed to disruptions) to the business model. However, they differ in how BME processes occur more naturally and incrementally over the lifespan of the firm's business model, while BMA occurs periodically.

On the other hand, Business Model Innovation infrequently occurs, as companies need a certain stability in their Business Models. However, from the dynamic capabilities perspective, BMI and BMA should be part of the strategic actions seeking sustained value creation in companies.

6.4.3.5 Is BMA for start-ups, or is it for incumbents?

Core review authors analyze BMA from different perspectives regarding who is the target for such a process. Some authors consider adaptation a fundamental process for all new businesses: "Innovative business models start with an entrepreneurial idea and imagination of an offering that will serve novel value to customers" (Dopfer et al., 2017). Meaning that new ventures go through an iterative, non-linear, and feedback-driven process to transition from the initial idea to successful implementation, aiming to align their offerings with the wants and needs of the market.

In this same line, authors like Andries & Debackere state, "Changes to its original business model are thus needed as initially, unavailable and unknown information becomes known" (Andries and Debackere, 2007). Balboni and & Bortoluzzi agree, "In this study, we explore the connections between Business Model Adaptation and the success of new ventures" (Balboni and Bortoluzzi, 2015).

Adapting their business model is a crucial success factor for start-ups. Moreover, Andries & Debackere state, "Especially for new technology-based firms, defining an appropriate business model from the beginning is difficult, and adaptation of the initial business model is therefore crucial for success" (Andries and Debackere, 2007). However, when these authors refer to "adaptation", they are not referring to business model adaptation but rather to the evolution of the original business models to minor adaptations.

Authors such as Chesbrough & Rosenbloom (Chesbrough and Rosenbloom, 2002) consider adaptation a part of a BMI process, even stating that incumbents are not very likely to adapt their business model "the process of adaptation appears to be either more highly motivated or more easily implemented in independent ventures than in established firms. Several of our cases suggest that the realities trigger the adaptation process in the context of an independent business enterprise, which enables search processes for models far from the familiar business model of the parent company. Entrepreneurs securely employed in a large enterprise with a strong culture—including its beliefs and dominant logic derived from a successful and well-established business model—may feel little incentive to search for alternatives outside that successful model" (Chesbrough and Rosenbloom, 2002).

In Table 13, we address authors analysing "adaptation" from the point of view of start-ups.

Table 13: BMA is a process for start-ups

Changes in Business Model Components	Findings	Author
'The process of adaptation appears to be either more highly motivated or more easily implemented in independent ventures than in established firms. '	New companies are highly motivated to change their business model.	Chesbrough and Rosenbloom (2002) (Chesbrough and Rosenbloom, 2002)
'Entrepreneurial firms are less constrained by path dependencies which makes them more flexible in designing more radical business models from scratch'	Entrepreneurial firms design more radical BM.	Bohnsack et al. (2014) (Bohnsack et al., 2014)
'Especially for new technology-based firms, defining an appropriate business model from the beginning is difficult, and adaptation of the initial business model is therefore crucial for success'	BME is needed for start-ups.	Andries and Debackere (2006) (Andries and Debackere, 2006)
'Companies tend to avoid major business model revisions (..) the focus on current profitable customers inhibits the exploration of emergent technologies in new commercial segments; in consequence, new business opportunities have often not been realized by incumbents, but by new ventures'	A change of BM is more likely to be done by a start-up that by an incumbent.	Cavalcante et al. (2011) (Cavalcante et al., 2011)

‘A key success factor for emerging businesses of new ventures in turbulent and uncertain environments is, therefore, business model adaptation, characterized by rapid learning and adaptation to market changes’	Adaptation is a key success factor for new businesses.	Dopfer et al. (2017) (Dopfer et al., 2017)
‘(…) to reduce uncertainty about ecosystem participants’ needs, entrepreneurs can adapt their business model in an effort to better meet ecosystem needs ‘	Adaptation is the way entrepreneurs evolve their business model to meet ecosystem needs.	Snihur et al. (2018) (Snihur et al., 2018)
‘In this study, we explore the connections between Business Model Adaptation and the success of new ventures’ ‘The ability to dynamically adjust the business model to changing environmental conditions and emerging market opportunities is a key capability expected to increase a start-up’s likelihood of survival in the short term and to support its growth in the medium and long term’	BMA is a key factor for the success of new ventures.	Balboni and Bortoluzzi (2015) (Balboni and Bortoluzzi, 2015)
‘We derived a model detailing the implications of different components of disruptive innovation and unveiling how incumbents can react through BMA.’	BMA is the response of the incumbents to disruptive innovation.	Cozzolino et al. (2018) (Cozzolino et al., 2018)

Dopfer et al. (Dopfer et al. 2017) cite Bhide, who coins the term “opportunistic adaptation” (Bhide, 2000) to refer to the phenomena where entrepreneurs adapt their business model to unexpected circumstances in an “opportunistic” fashion as they have limited funds and have little reason to devote much effort to prior planning and research due to the high uncertainty of their business. The author states, "Their response derives from a spur-of-the-moment calculation made to maximise immediate cash flow” (Bhide, 2000).

Other authors consider that BMA is ideal for incumbents. This latter is the case described by Landau et al., stating that when incumbent firms enter a new market, “Firms have to innovate and adapt their business models better to fit the specific context of these international markets” (Landau et al., 2016). Moreover, it is also described by Cavalcante et al. affirming that “the focus

on current profitable customers inhibits the exploration of emergent technologies in new commercial segments" (Cavalcante et al., 2011).

Table 14 addresses the authors that refer BMA specifically to incumbent companies.

Table 14: BMA for incumbents

Changes in Business Model Components	Findings	Author
'This is an important step as there is mounting evidence of multiple threats to utility firms which require long term business model transition and adaptation to address'.	BMA is a long-term key success factor for well-established firms.	Wegner et al. (2017) (Wegner et al., 2017)
'Firms have to innovate and adapt their business models to better fit the specific context of these international markets'.	BMA is a success factor when incumbents enter a new market.	Landau et al. (2016) (Landau et al., 2016)
'For established firms, BMI could be either the adaptation of its existing (core) business model or the development and introduction of a new business model adjacent to its core business'	In established firms, BMA is part of BMI.	Mezger (2014) (Mezger, 2014)

Other core authors believe that BMA is necessary either for start-ups or incumbents. "Put together, our study provides specific pointers to managers and entrepreneurs looking to create opportunities in emerging markets through business model adaptation" (Sharma et al., 2016).

Cavalcante et al. state that "radical change is recognizably more difficult and stressful" (Cavalcante et al., 2011) and remind us that decades ago, Joseph Schumpeter emphasized the role of the entrepreneur in "promoting new combinations which trigger economic development, and which in turn may lead to episodic instances of creative destruction" (Schumpeter, 1942).

As seen in the previous point, non-core authors like Markides agree that managers of incumbent companies do not welcome radical changes and tend to avoid leaving their "comfort zone" (Markides, 2006). The academic literature suggests three exceptions to this generalization. Specifically, established firms would, on average, find it advantageous to create disruptive business-model innovations in the following circumstances:

1. When they enter a new market where entrenched competitors and have first-mover advantages (e.g., Canon entering the copier market), in such a case, the new entrant must attack by breaking the rules (Markides, 2006)).

2. When their current strategy or business model is inappropriate, and the firm faces a crisis (e.g., Kresge introduced the discount retail concept in the 1960s and renamed itself K-Mart) (Markides, 2006).
3. When they are attempting to scale up a new-to-the-world product to make it attractive to the mass market (Markides, 2006).

Summary

- Business Model Evolution implies minor adjustments in Business Models and can be applied to start-ups or incumbents.
- Business Model Adaptation is suitable for all types of companies, although extant literature shows that incumbents tend to adapt their business models when changes come from an evolution of the market instead of changing it radically.
- Business Model Innovation is suitable for all types of companies. However, young companies are more motivated to make radical changes and to try new and disruptive ways of attacking a market to find competitive advantages, as established firms have many other alternatives to consider, including "investing its limited resources in adjacent markets or taking its existing business model internationally" (Markides, 2006).

6.4.3.6 The market makes you change, or are you changing the market?

It is well known that established and successful business models cannot be understood as permanent (Chesbrough, 2010, 2007; West et al., 2014). In times of environmental change, continuous changes to the business model and the development of new business models are critical aspects of sustained value creation and capture (Achtenhagen et al., 2013). Otherwise, the misfit between the new context and the firm's business model would weaken the firm. Firms neglecting to adapt their business model in reaction to changes in the competitive situation or new contexts run an increased risk of failure (Doz and Kosonen, 2010).

Disruptive Innovation Theory has significantly impacted management practices and aroused plenty of rich debate within academia (Markides, 2006). As seen on the state-of-the-art at the beginning of this study, from the lenses of the Disruptive Innovation Theory, a company can have the will to disrupt the market, can be the victim of a market disruption or can be neutral towards the market (França et al., 2017). In our research, we have realized that this is precisely what some authors consider the main difference between BMI and BMA. While BMI is "the process by which management actively innovates the business model to disrupt market conditions" (Saebi et al., 2017), BMA is the reaction to a market change (Dopfer et al., 2017; Saebi, 2014; Saebi et al., 2017).

Furthermore, Saebi et al. affirm that "BMA and BMI differ in important ways. (…) while Business Model Adaptation is a response to external causes, Business Model Innovation may be driven by internal as well as external factors" (Saebi et al., 2017) and state that "In adapting the business model to changing external conditions, the firm aims to attain alignment with the environment" (Saebi et al., 2017) while an important motivation for Business Model Innovation is to "shape markets or industries by means of creating disruptive innovations" (Saebi et al., 2017).

Core-reviewed authors also state that firms are increasingly confronted with fundamental environmental alterations, such as new competitive market structures, governmental and regulatory changes, and technological progress, requiring managers to adapt their business models (Landau et al., 2016; Wirtz and Daiser, 2018). Other studies have linked changes in business models to unusual events in an established market. Adapting the business model of all industries is required; this is the case, for example, of the Portuguese footwear industry after China entered the WTO in 2001, analyzed by Corbo et al. (Corbo et al., 2018).

Nevertheless, not all adaptations are due to disrupting changes; the perception of opportunities in a new market can also engage a BMA process. Wegner et al. state that "the combination of low barriers to entry (for incumbents) and a robust, sizeable value pool suggests adapting utility business models to capture this revenue would be an attractive option" (Wegner et al., 2017). Achtenhagen declares that "when companies succeed in the market with their business model and realize that there is further potential to expand, strategizing actions often lead to adaptations in the value creation logic" (Achtenhagen et al., 2013).

Landau et al. specify that "Being able to adapt business models to different institutional settings and customer preferences are key capabilities required for firms seeking to benefit from doing business in emerging markets" (Landau et al., 2016); therefore, not only the adaptation should be as a result of market changes but also to fit a new context better. In this same line, we found Sharma et al. stating that "our main thesis of Business Model Adaptation is based on the premise that localization is necessary, and therefore, firms need to adapt the models adopted from developed markets" (Sharma et al., 2016).

In Table 15, we show the different motivations that drive the adaptation of a business model.

Table 15: BMA motivations

Definition	Findings	Author
'Firms are increasingly confronted with fundamental environmental alterations, such as new competitive	BMA is the reaction to environmental changes such as	Wirtz et al. (2010) (Wirtz et al., 2010)

market structures, governmental and regulatory changes, and technological progress, which often require managers to significantly adapt one or more aspects of their business models.'	market, regulations and technological progress.	
'Business Model Adaptation is a form of Business Model Innovation that addresses the development of a business model to better fit a new context'	Adaptation can be sequential to overcome the challenges of operating in an emerging market and design a model that fits the new context.	Landau et al. (2016) (Landau et al., 2016)
'The process by which management actively innovates the business model to disrupt market conditions.'(…) 'BMA is the reaction to a market change'	BMI is a way to disrupt a market, while BMA is the reaction to a market change.	Saebi et al. (2017) (Saebi et al., 2017)
'Business Model Adaptation involves a process of continuous search, selection, and improvement in value creation, value proposition, and value capture, based on the surrounding environment.'	BMA is based on the changes in the surrounding environment.	Dopfer et al. (2017) (Dopfer et al., 2017)
'While innovation, when attached to business models, is defined as the process by which firms actively innovate their business model to disrupt market conditions, the focus of this article is on how business models change in response to an external trigger. These changes have been defined as business model adaptation, that is, the process by which firms align their business model with a changing environment'	BMI aims to disrupt a market, while BMA is how firms align their business model to changing environments.	Corbo et al. (2018) (Corbo et al., 2018)

'The combination of low barriers to entry (for incumbents) and a robust, sizeable value pool, suggests adapting utility business models to capture this revenue would be an attractive option.'	The perception of opportunities in a market can drive BMA.	Wegner et al. (2017) (Wegner et al., 2017)
'When companies succeed in the market with their business model and realize that there is further potential to expand, strategizing actions often lead to adaptations in the value creation logic.'	The perception of opportunities leads to BMA.	Achtenhagen et al. (2013) (Achtenhagen et al., 2013)
'Our main thesis of Business Model Adaptation is based on the premise that localization is necessary, and therefore, firms need to adapt the models that are adopted from developed markets.'	BMA firms need to adapt the models from developed markets to better fit local environments.	Sharma et al. (2016) (Sharma et al., 2016)

Summary

When the technology push acts as an internal driver for innovation and the opportunity to disrupt the market leads to a change in the business model, the phenomenon can be tagged as Business Model Innovation.

Instead, when the shift in focus goes from product solutions to customer solutions, and there are external pressures for change, that is to say, the market pulls to change the business model, the phenomenon can be tagged as Business Model Adaptation.

Regarding Business Model Evolution, the need to change could be internal or external, as minor changes arise when unavailable or unknown information appears (Dopfer et al., 2017).

6.4.4 Comparing and Synthesizing (II): Findings on Theories to Explain BMD

This chapter summarizes the theories raised from analysing the different instances of Business Model Dynamics by the core review authors.

6.4.4.1 BMA and BMI as dynamic capabilities of a firm

Dynamic capabilities are specific and identifiable processes and routines (Eisenhardt and Martin, 2000) that enable business enterprises to create, deploy, and protect the intangible assets that support superior long-run business performance (Teece, 2007).

Several non-core authors adopt the dynamic capabilities framework as a theoretical lens for observing BMI (Casadesus-Masanell and Ricart, 2010; Nailer and Buttriss, 2020; Teece, 2014; Zahra et al., 2006; Zott and Amit, 2007) and also to analyze the adaptation of business models (Andries and Debackere, 2006; Newbert, 2007; Teece, 2018, 2007) stating that "if routines can be identified, then it would suggest that adaptation is indeed a dynamic capability" (Andries and Debackere, 2006).

As shown in Table 16, in our core review, five of the papers make use of the dynamic capabilities view to explore deeper on BMA: Dottore (Dottore, 2009), Cavalcante et al. (Cavalcante et al., 2011), Achtenhagen et al. (Achtenhagen et al., 2013) and Balboni & Bortoluzzi (Balboni and Bortoluzzi, 2015).

Table 16: Dynamic capabilities view of BMA by core review authors

Dynamic Capabilities	Findings	Author
'The dynamic capabilities framework appears to hold significant prospect for aiding the research into Business Model Adaptation and innovation.'	BMA is a determinant of sustained superior performance in fast-moving and high-technology markets.	Dottore (2009) (Dottore, 2009)
'If understood as part of a firm's dynamic capabilities, the adaptation of the business model to a firm's innovation activities assumes key strategic importance.'	BMA can be understood as part of a firm's dynamic capabilities.	Cavalcante et al. (2011) (Cavalcante et al., 2011)
'We employ an activity-and capability-based view on what is needed to achieve business model change.'	BMA can be analyzed from the lens of dynamic capabilities.	Achtenhagen et al. (2013) (Achtenhagen et al., 2013)
'The ability to dynamically adjust the business model to changing environmental	The dynamic adaptation of the business model acts as a driver of the success of the new venture.	Balboni and Bortoluzzi (2015) (Balboni and

conditions and emerging market opportunities is a key capability expected to increase a start-up's likelihood of survival in the short term and to support its growth in the medium and long term.' 'The firms' dynamic capabilities have been critical in keeping them alive and kicking in three highly dynamic business environments.'	The authors analyze how three firms implemented BMA in an agile way.	Bortoluzzi, 2015)
'Firms create a new business model by combining, integrating and leveraging internal resources with the capabilities and resources of the ecosystem'	BMA depends on the ecosystem's internal resources, capabilities, and resources.	Sharma et al. (2016) (Sharma et al., 2016)

Summary

It seems clear that both processes, BMI and BMA, have in common that have been studied through the dynamic capabilities' theoretical lens. This is even more so for the authors that consider BMA a form of BMI and therefore consider BMA a form of dynamic capability. "The findings demonstrate that BMI can be conceptualized as a distinct dynamic capability. This capability can be disaggregated into a firm's capacity to sense business model opportunities, seize them by developing valuable and unique business models, and reconfigure the firms' competencies and resources accordingly" (Mezger, 2014).

6.4.4.2 BMA and BMI and the Resource-Based View (RBV)

Dopfer et al. (Dopfer et al., 2017) analyze BMA through the lens of the resource-based view (RBV) theory. This theory, rooted in evolutionary economics, originates in the idea that a firm's sustained competitive advantage relates to exploiting its available resources (Penrose, 1959). The authors answer the question, "How do new ventures organize their business model components in order to meet their available resources?" and state that new ventures face enormous challenges "as they adapt the business model based on limited resources in order to find the product-market fit" and that "the venture needs to go through an iterative process of adaptation to achieve complementarity between business model components and a firm's available resource base" (Dopfer et al., 2017).

In another of the core reviewed articles, Wegner et al. (Wegner et al., 2017) also adopt a resource-based view of the firm to argue, while analyzing the evolution of the energy market in the U.K., that "quantifying the relative size of the markets created and destroyed by energy transitions can provide useful insight into firm behaviour and innovation policy" (Wegner et al., 2017).

Furthermore, Landau et al. declare, "The activity system-based view addresses business model adaptations due to institutional factors and lack of external value creation partners" (Landau et al., 2016). Furthermore, Sharma et al. state, "Firms create a new business model by combining, integrating and leveraging internal resources with the capabilities and resources of the ecosystem" (Sharma et al., 2016).

Table 17 shows the authors that have analysed BMA under the lens of the RBV theory.

Table 17: BMA and the Resource-Based View

BMA, the Resource-Based View	Findings	Author
'The activity system-based view addresses business model adaptations due to institutional factors and lack of external value creation partners.'	This is an excellent view to analyze BMA.	Landau et al. (2016) (Landau et al., 2016)
'Firms create a new business model by combining, integrating and leveraging internal resources with the capabilities and resources of the ecosystem'	BMA depends on the ecosystem's internal resources, capabilities, and resources.	Sharma et al. (2016) (Sharma et al., 2016)
'New ventures face huge challenges 'as they adapt the business model based on limited resources in order to find the product-market fit' 'the venture needs to go through an iterative process of adaptation to achieve complementarity between business model components and a firm's available resource base'	BMA depends on the use of the limited resources of a company.	Dopfer et al. (2017) (Dopfer et al., 2017)
'Quantifying the relative size of the markets created and destroyed by energy transitions can provide useful insight into firm behavior and innovation policy'	The Resource-Based View helps understand a firm behaviour when adapting its business model.	Wegner et al. (2017) (Wegner et al., 2017)

Summary

The firm's Resource-Based View (RBV) is the proximate antecedent of the dynamic capabilities framework (Dottore, 2009), so BMA can be analysed from its lenses.

6.5 DISCUSSION

BMA and BMI are complex concepts and, as we have realized in our literature review, poorly defined terms. The use of multiple historical definitions of Business Model Innovation (BMI) causes logical inconsistencies, self-contradictions and conceptual ambiguity, that is to say, conceptual incoherence in the use of this term. On top of that, some authors use the term "adaptation of a Business Model" to refer to minor and recurrent changes to the Business Model, and this can be the source of confusion with the phenomenon called "Business Model Adaptation".

Furthermore, our literature review allows proposing different roles for each instance related to the implementation of the strategy.

In the following sections, both aspects are delimitated.

6.5.1 Conceptual Coherence of BMD Instances

The results of our meta-synthesis of extant literature have shown that three terms can be defined from different nuances of the changes that can take part in Business Model Dynamics: Business Model Evolution, Business Model Adaptation and Business Model Innovation.

Business Model Evolution

It is a recurrent and continuous process of adapting an actual Business Model to new internal or external information made available to the business (Andries and Debackere, 2006; Chesbrough, 2007). Its final objective is maintaining and constantly adapting a Business Model; it does not seek to disrupt the market; it aims to preserve its relevance (Balboni and Bortoluzzi, 2015). It implies minor changes in different components of a Business Model (Miller et al., 2014) and often is part of the fine-tuning of a broader process of Business Model Innovation (Bohnsack et al., 2014). All types of business can implement processes of Business Model Evolution, and, from the perspective of the dynamic capabilities theory, it is advisable to continuously "search for competitive advantages thanks to the changes on the Business Model" the constant adaptation of a Business Model should be part of the strategic actions seeking sustained value creation in companies (Balboni and Bortoluzzi, 2015; Cavalcante et al., 2011).

Business Model Adaptation

It is a change in an actual Business Model that searches the alignment with environmental changes (Achtenhagen et al., 2013; Dopfer et al., 2017; Foss and Saebi, 2016; Sharma et al., 2016; Wegner et al., 2017; Wirtz et al., 2010). BMA can be innovative or not, depending on the degree of novelty of the changes implemented (Foss and Saebi, 2016; Sharma et al., 2016). If it is innovative, it can be incremental or radical (Andries and Debackere, 2007; Brink and Holmén, 2009). In this process, many components of the Business Model are changed and adapted (Balboni and Bortoluzzi, 2015; Landau et al., 2016; Wirtz and Daiser, 2018). Business Model Adaptation is a process suitable for all types of companies, but incumbents are more motivated to adapt their actual Business Model than to change it radically and create a new one (Cavalcante et al., 2011; Landau et al., 2016).

Business Model Innovation

It is the process of creating a new Business Model to disrupt the market (Chesbrough, 2010; Dopfer et al., 2017; Saebi et al., 2017) or its ecosystem (Snihur et al., 2018). The degree of innovation is often radical, although it can sometimes be incremental (Brink and Holmén, 2009). Often, the process of Business Model Innovation implies changes in many components of the Business Model and entails the creation of new core activities and processes (Landau et al., 2016). BMI is for all types of companies, but young companies are more motivated to implement radical changes and to try new and disruptive ways of attacking a market to find competitive advantages, as established firms have many other alternatives to consider (Markides, 2006).

Table 18 summarizes the main characteristics of each instance of Business Model Dynamics: Business Model Evolution, Adaptation and Innovation using the dimensions that appeared in the literature review.

Table 18: Summary of all main characteristics of each instance of Business Model Dynamics

	Dimensions	**Business Model Evolution**	**Business Model Adaptation**	**Business Model Innovation**
1	Process or component	Component of BMI process	A process by itself but could be a form of BMI if innovative	A process by itself
2	Type of Business Model Change	Non-innovative & Innovative	Non-innovative & Innovative	Innovative
3	Type of innovation	Incremental	Incremental & Radical	New BM and sometimes Radical

4	The magnitude of the changes	Few BM components are changed	Many components are changed	Many components are changed
5	Frequency of change	Continuous	Periodically	Infrequently
6	Type of companies that benefits from the process	All	All can, but incumbents could be more motivated	All can, but young companies could be more motivated
7	Attitude towards market disruption	Neutral	Victim of disruption	Seeks the disruption

6.5.2 Connection of BMD Instances to Strategy Implementation

Our research is grounded in the strategic perspective that Business Model Dynamics requires multiple viewpoints to comprehensively understand changes in a firm's business model and value capture. In the preceding section, we clarified the delimitation of various terms used for instances of BMD. Each BMD instance refers to a unique concept related to the effects of strategic settings on a firm's business model. In essence, each BMD instance represents a different level of participation in implementing the business model, and therefore, all instances are necessary and must be utilized appropriately.

Each BMD instance has a specific conceptual boundary and demonstrates a distinct relationship between strategy implementation and value appropriation. Our aim, from a strategic perspective, is to understand the differences that exist among BMD instances. Since each instance represents a different logic or rationale for implementing strategy (Casadesus-Masanell and Ricart, 2010; Casadesus-Masanell and Zhu, 2013; DaSilva et al., 2013; Osterwalder and Pigneur, 2010; Bernd W Wirtz et al., 2016; Zott and Amit, 2007), our work adopts the organizational learning approach (Argyris and Schon, 1978; Greenwood et al., 1997) to shed light on the strategic implementation of each BMD instance in response to changes in strategic settings and the need to capture new value.

Based on the analysis in Section 6.4.4, the theoretical frameworks used to study Business Model Dynamics reveal that firms have specific capabilities (see Section 6.4.4.1) and resources (see Section 6.4.4.2) in place to respond to changes in strategic settings. BMD actions require questioning the manager’s mental model and stepping out of the current "comfort zone" (Markides, 2006) (see Section 6.4.3.4), which is necessary for both the exploration and

exploitation phases of the business model (see Section 6.4.3.5) and in response to technology push and market pull effects (see Section 6.4.3.6). All these aspects relate to changing the business model and require strategic implementation.

6.5.3 Connection of BMD Instances to Organizational Learning

Organizational learning is a theory and field of study that explores how organizations learn and adapt to changes in their environments (Argyris and Schon, 1978). The basic idea is that organizations can acquire knowledge and change their behaviour based on that knowledge, just like individuals do.

The organizational learning approach suggests that organizations can learn and adapt in two ways: single-loop and double-loop learning (Argyris and Schon, 1978). Single-loop learning involves minor adjustments to existing practices and processes based on feedback and reflection. Double-loop learning, on the other hand, involves questioning and potentially changing the underlying assumptions and mental models that guide organizational behaviour (Argyris and Schon, 1978; Chiva et al., 2014; Sun and Anderson, 2010).

In the context of Business Model Dynamics, the organizational learning approach can help understand how firms adapt to changes in their business models and value capture strategies. Specifically, it can help us understand how firms learn and adjust to new strategic settings and what kind of learning is required for different business model dynamics. For example, simple adjustments to the business model, such as the required to implement BMA and BME, may only require single-loop learning efforts, while more disruptive changes, such as the required for BMI, may require double-loop learning efforts.

To summarize, the organizational learning perspective emphasizes the importance of distinguishing between different instances of business model dynamics (BMD) to understand how organizations learn and adapt to changes in their business environment.

Without a clear delimitation of these BMD instances, organizations may not fully understand the specific challenges and opportunities associated with each one and may be unable to develop appropriate learning strategies to adapt to them effectively. Therefore, it is essential to carefully identify and differentiate between different BMD instances to support effective organizational learning and adaptation.

6.6 CONCLUSIONS AND IMPLICATIONS

For firms to remain competitive in today's environment —where the VUCA conditions, open innovation strategic implementation settings, the pandemics, and strong disruptors affect a firm's

competitiveness— they must continuously evolve and adapt their strategic settings for a convenient value appropriation. Sustained superior performance in these new and fast-moving environments depends on the deployment and redeployment of superior strategy in the firm's business model.

The purpose of this study and meta-synthesis is twofold. Firstly, it aims to increase our knowledge and understanding of Business Model Dynamics and to highlight the conceptual confusion that exists in the use of terms such as "Business Model Innovation," "Business Model Adaptation," and "Business Model Evolution" as synonyms, which has contributed to the lack of understanding of this phenomenon. This lack of clarity has important implications for managers, policymakers, and academics.

Secondly, while each instance of Business Model Dynamics uniquely influences how a business model is adapted to new strategic settings, simply delimiting them is not enough to fully grasp how to successfully convert new strategic challenges into effective business models. Organizational learning provides a useful framework for understanding how each instance of Business Model Dynamics is connected to strategy implementation. Our literature review highlights that each instance of Business Model Dynamics can require changes that impact the firm's theory-in-use or espoused theory, and to address these changes, firms need to develop appropriate learning capabilities.

In the book chapter "Business Model Evolution, Adaptation or innovation? A contingency framework on business model dynamics, environmental change and dynamic capabilities" written in 2014, Tina Saebi describes the differences between these three terms and analyses five different perspectives (planned outcome, scope of change, degree of radicalness, frequency of change and degree of novelty) (Saebi, 2014). In our literature review, we synthesize 22 articles corroborating, in some aspects, Saebi's work, and we increase the perspectives to seven dimensions adding the type of company and the attitude towards market disruption to complete the concepts delimitations.

Our delimitation of the three concepts BME, BMA, and BMI is wide enough to accommodate concepts like "to pivot" (Hacklin et al., 2018), a metaphor widely used by practitioners meaning "changing the business model". Companies can pivot their business model following either the process of BMA or the process of BMI, depending on the scope of the changes, the kind of value to be captured, and the seven dimensions of our definition of BMD processes.

6.6.1 Theoretical Contributions

Our research demonstrates that the concepts of Business Model Innovation (BMI) and Business Model Adaptation (BMA) have distinct nuances that go beyond the constraints of BMI when

modifying a business model to fit changes in the market and capture new value. The differences lie in their implementation and final objectives, and it is crucial to use each term appropriately depending on the context rather than using them interchangeably. Furthermore, there are instances where minor adaptations of the business model, labelled as Business Model Evolution by some authors, are considered as Business Model Adaptation by others. This highlights the conceptual inconsistency in the literature on Business Model Dynamics regarding adapting business models. Practitioners and researchers must use the correct term for each concept to advance knowledge in this field.

In this vein, this research work provides a delimitation of the BME, BMA, and BMI concepts based on the results of a meta-synthesis of research works published from September 2000 to December 2019. Anchoring on the theories of incremental and radical innovation, disruptive innovation, dynamic capabilities and resource-based view, the outcome of this research work can propose that BME, BMA, and BMI exhibit a behaviour that has to be analyzed from a specific perspective and it makes no sense, from a conceptual endeavour, to treat each one of these Business Model Dynamics instances under the same theoretical approach. We contribute to the BMD research field by adequately describing the contents of BME, BMA, and BMI.

Moreover, our work connects BMD instances to strategy implementation using organisational learning approaches. In this vein, although business models are the rationale of strategic implementation, the different BMD instances require specific analysis to understand the learning capabilities a firm must develop to apply the new strategic settings to the rationale behind the updated business model.

Furthermore, this research shows that Business Model Innovation provides a valuable framework for understanding how businesses offer new value propositions to customers; however, managers can also respond to competitive challenges by maintaining the essence of their business model while strategically adapting key components. This approach allows companies to effectively navigate and address the demands of current competitive settings without the risks and complexity of BMI.

Figure 7 provides a visual abstract of this study.

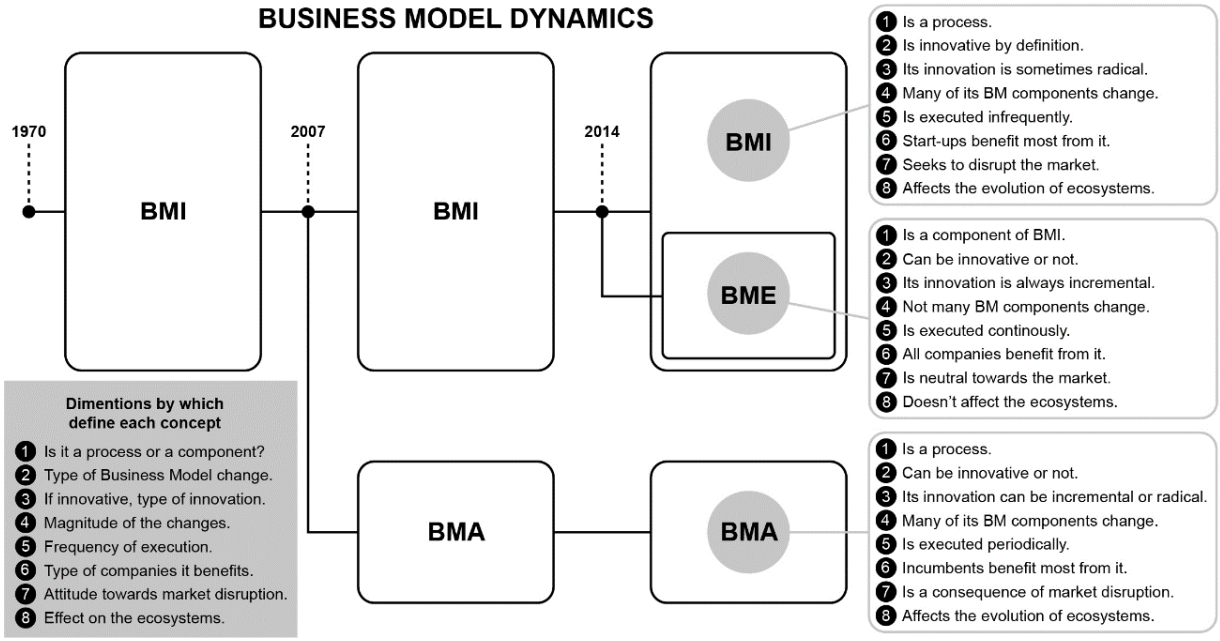

Figure 7: Visual abstract of the study

6.6.2 Limitations

Like any research endeavour, this study has some limitations that should be acknowledged. First and foremost, we recognize that the distinct characteristics of BME, BMA, and BMI will necessitate further validation. While we are confident in the accuracy of the differences between the three instances of Business Model Dynamics, it would be valuable to conduct more rigorous testing to establish the characterization of these processes. To this end, employing quantitative measures to assess the features of each process could provide additional validation for our work.

Secondly, the methodological approach used in this study is centred on a meta-synthesis and qualitative analysis of the core contributions. While a meta-synthesis can have some weaknesses regarding the scope of the research work, the qualitative analysis also has its own limitations. Thus, future research should extend beyond these methodological choices to fully consolidate the strategic perspectives of business models.

Lastly, our proposal to regard BME, BMA, and BMI as distinct instances of Business Model Dynamics would require further validation from a strategic management standpoint.

6.6.3 New Lines for Further Research

In addition to overcoming the limitations of this research work, the authors propose additional efforts to understand, first, if scenario modelling can help to understand processes of Business Model Dynamics and, second if the different processes can be affected by contingencies caveats.

6.6.3.1 Scenario Modelling

Adaptation of the business model is needed when the market is disturbed by the irruption of new competitors, as seen in one of the core reviewed articles analyzing the effect of the entry of China into the Portuguese footwear industry (Corbo et al., 2018), or new products as seen in the analysis of the effect of the electric car in electric markets (Wegner et al., 2017). Entry of new competitors or products are scenarios that can enlighten strategic decisions over Business Model Adaptation, but scenario modelling has not directly addressed firm strategy and behaviour to date. Only Wegner et al., the authors of one of the reviewed articles, established a possible relationship between BMA and scenario modelling (Wegner et al., 2017). More research on both concepts would be desirable.

6.6.3.2 BME, BMA and BMI from the Lenses of the Contingency Theory

Different environmental conditions, such as a change in competition or a technological breakthrough, need different organizations' responses (Zahra et al., 2006). We believe that a systematic examination of the relevant drivers of BMA, and what kind of changes on the different components of a Business Model requires is missing from extant Business Model literature to date. Our core author's review only found BMA analyzed from Dynamic Capabilities and the Resource Based View lenses, but not from the Contingency Theory. We believe that research from this perspective would help to shed new light in this field.

6.7 STUDY PUBLICATION

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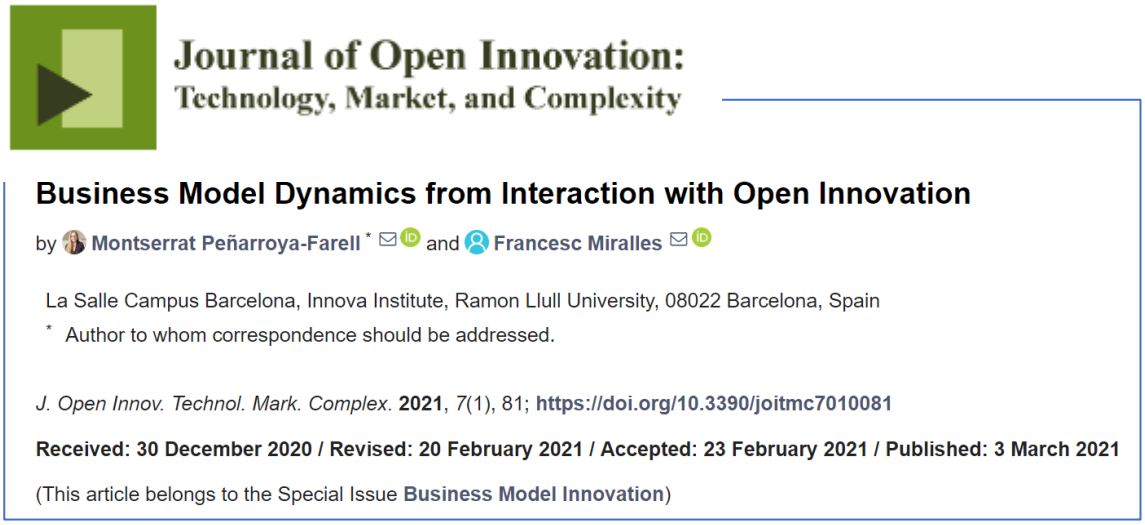

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Business Model Dynamics from Interaction with Open Innovation

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7. STUDY 2 - BMA AND THE COVID-19 EMERGENCY IN THE SPANISH CULTURAL AND CREATIVE INDUSTRIES

7.1 INTRODUCTION

COVID-19 has generated a complex and exogenous shock in almost all industries and has affected most companies worldwide. The effects of the pandemic have caused significant distortions in labour markets and rendered many prevalent business models ineffective, at least temporarily.

Although all companies have been affected, micro, small and medium-sized enterprises (MSME) have experienced the most important effects due to their limited capabilities to respond to the spring of unexpected competitive challenges. In 2020, 97% of Spanish companies were classified in this category. A total of 2.910.016 businesses (73%) are from the services industry, with the majority coming from the cultural industry (Instituto Nacional de Estadística, 2021).

Keeping cultural companies in good health and increasing their resilience to further environmental hostilities is essential for their survival and society. Heritage, visual and performing arts, cinema, music, publishing, and fashion design strongly manifest in everyday life and contribute to our world's social and economic development. As the European Union Commission pointed out in the Green Paper, "Unlocking the Potential of Cultural and Creative Industries" (European Union Commission, 2010), at the heart of our social fabric, culture shapes our identities, aspirations, and relationships with others and the world. Cultural and creative organizations are essential in our society.

To remain competitive in VUCA conditions, researchers have a consensus that organizations should develop capabilities to detect new opportunities, seize them, and reconfigure the assets available to adapt the company to exceptional circumstances. These capabilities are named dynamic capabilities.

Dynamic capabilities, by definition, are "change-oriented capabilities that help firms redeploy and reconfigure their resource base to meet evolving customer demands and competitor strategies" (Zahra et al., 2006). Dynamic capabilities englobe different routines such as sensing the market, seizing opportunities, leveraging and transforming or reconfiguring the business model (Dottore, 2009; Saebi, 2014; Teece, 2007; Zott and Amit, 2007). However, a very hostile environment such as the COVID-19 pandemic makes this traditional approach obsolete regarding strategic rethinking. When the immediate survival of the company is at stake, and harsh measures

need to be promptly enforced, the dynamic capabilities approach alone, fails to explain some of the strategic decisions made by firm owners.

This study intends to better understand how Spanish cultural and creative organisations implemented Business Model Adaptation during the COVID-19 pandemic.

Following a perspective based on the Resource-based View theory (Wernerfelt, 1984), this research uses an inductive approach to understand the underlying strategic foundations that lead to successfully adapting the business models of MSME in the Spanish cultural industry. A research framework is developed by borrowing theories from IT strategic impact and supporting operational activities to generate a new strategic impact, resource-based view, dynamic capabilities, improvisational capabilities, and open innovation.

The following research questions describe the intended contributions:

1. "**Are contextual circumstances affecting managers' decisions to adapt their companies' business model?**"
2. "**To what extent do managers adapt business models when their business is affected by competitive challenges?** "

From an academic perspective, the proposed framework of this study provides conceptual elements that help clarify the strategic endeavours underlying a firm's strategic challenges in a crisis such as COVID-19. From a managerial perspective, the outlined framework should propose new insights for managers and decision-makers when intense competitive challenges affect the competitive strategy of MSMEs.

7.2 BACKGROUND

Our area of interest is business model adaptation in very hostile environments. This study follows methodological parading based on the grounded theory perspective (Glaser and Strauss, 1967); therefore, theoretical preconceptions should be avoided (Noble and Mitchell, 2016). The resultant theory will be merged with the literature in the 'Discussion' section. This literature review aims to explain the key terminology in our field and delimit the concepts we will address during the discussion.

7.2.1 Business Model Research from a Strategic Point of View

The business model (BM) concept represents a relatively new construct that has increasingly received attention over the last fifteen years (Casadesus-Masanell and Zhu, 2013). Although there is no generally agreed-upon definition, there is a strong consensus that the BM encompasses customer-focused value creation, the delivery of a value proposition to specific market segments,

the structure of the value chain required to deliver the value proposition, the mechanisms of value capture that the firm deploys, and how these elements are linked together in a value architecture (Casadesus-Masanell and Zhu, 2013; Chesbrough, 2010; Osterwalder and Pigneur, 2010; Bernd W. Wirtz et al., 2016). This paper adheres to this definition.

The BM construct has been proven helpful by academics researching in the fields of e-commerce, strategy, innovation, and technology management (Amit et al., 2011).

7.2.1.1 Business Model Dynamics

Business Models are not static constructs; they can be a source of innovation and competitive advantages (Cavalcante et al., 2011; Peñarroya-Farell and Miralles, 2021; Saebi, 2014) and evolve and pivot over time.

In this vein, a research strand derived from the evolving changes in business models has flourished under the label of "business model dynamics" (BMD) (Saebi et al., 2017). BMD has been defined as "how companies change and develop their business models to achieve sustained value creation through time" (Foss and Saebi, 2017). Different patterns of BMD have been proposed to delineate "different levels of strategic changes in firms due to external effects" (Peñarroya-Farell and Miralles, 2021), including business model innovation, business model adaptation and business model evolution.

- Business model innovation (BMI) as a process refers to "the search and development of new and sometimes disruptive modes of value proposition, value creation and value capture" (Casadesus-Masanell and Zhu, 2013) to disrupt market conditions (Foss and Saebi, 2017; Landau et al., 2016; Peñarroya-Farell and Miralles, 2021), disrupt ecosystems (Snihur et al., 2018), or enter a new international market (Landau et al., 2016).
- Business model adaptation (BMA) is the process of adapting a company's business model to changes in the external environment to ensure its economic sustainability.
- Business model evolution is the process of incrementally reconfiguring the business model pieces that build the strategic challenges derived from the external effects. Minor adjustments in the BM are made for maintenance and fine-tuning.

"Each BMD instance represents a specific strategic value appropriation" (Peñarroya-Farell and Miralles, 2021).

7.2.1.2 Business Model Adaptation

As a specific instance of BMD, BMA identifies an update of the current BM to changes derived from the context (Cavalcante et al., 2011; Peñarroya-Farell and Miralles, 2021; Saebi, 2014). BMA can be innovative or not, depending on the degree of novelty of the changes implemented

(Landau et al., 2016; Peñarroya-Farell and Miralles, 2021; Tolkamp et al., 2018). Due to the new context, several elements of the BM are promoted to answer those challenges, pivoting the BM towards new models. Companies adapt their BM when someone or something such as COVID-19 has disrupted the market.

BMA could fit any organization, but "incumbents are more motivated to adapt their current BM than to change it radically or create a new one" (Peñarroya-Farell and Miralles, 2021). BMA can be innovative or not, depending on the novelty of the implemented changes in the Business Model (Peñarroya-Farell and Miralles, 2021; Saebi, 2014)

7.2.2 Business Model Adaptation and Open Innovation

Innovation in BMs does not only comes from inside the companies. "Open business models" was a term coined by Chesbrough in 2006 to refer to "the desired end state of firm transformation" that has evolved from a "starting point" set up by a "closed" BM (Chesbrough, 2006), "where firms collaborate with the ecosystem by building up value and innovating their business model to make use of the emerging opportunities" (Weiblen, 2016).

Saebi (2006) and Chesbrough (2006, 2014, 2017) agree on the benefits of implementing open innovation actions in firms (Chesbrough, 2017, 2006; Chesbrough and Bogers, 2014; Saebi and Foss, 2015b). Furthermore, Yun (2017) developed the concept of "developing circle of business models" (Yun, 2017b) to improve the design of innovative BMs and successfully implement them under the open innovation paradigm

Finnegan and Nilsson (2011) analyzed the effects of open innovation on the BM of government agencies. In this case study of Swedish cities, open innovation actions were promoted to identify four emergent classes of organizational transformations (Feller et al., 2011).

7.2.3 Resource-Based View and Organizational Capabilities

Organizational capabilities are crucial to success when changing a business model. The firm's resource-based view (RBV) (Wernerfelt, 1984) is a theoretical framework that assists in a deeper analysis of organizational capabilities. This perspective focuses on the internal organization of firms. It assumes that competitive advantages within these firms are achieved and sustained over time, thanks to their resources (Eisenhardt and Martin, 2000; O'Regan and Ghobadian, 2004). The RBV considers that firms are bundles of different resources heterogeneously distributed. Resource differences persist over time (Amit and Zott, 2001; Demil and Lecocq, 2010). Organizational capabilities are part of a company's resources to create competitive advantages (Teece, 2007).

Organizational capabilities are “the ability of a firm to perform a coordinated task, use organizational resources, and achieve a particular result” (O’Regan and Ghobadian, 2004). Organizational capabilities are well documented in the literature for large enterprises (Teece, 2007; Zott and Amit, 2007). By comparison, there is little research to understand their applicability to small and micro-enterprises (Inan and Bititci, 2015; O’Regan and Ghobadian, 2004). This paper also aims to contribute to reducing this gap.

The most widely accepted point of view is that there are two types of organizational capabilities: operational and dynamic (Dottore, 2009; Eisenhardt and Martin, 2000; Inan and Bititci, 2015; Teece, 2014, 2007; Zahra et al., 2006).

7.2.3.1 Operational Capabilities

Operational capabilities are “a high-level routine (or collection of practices) that, together with its implementing input flows, confer upon an organization’s management a set of decision options for producing significant outputs of a particular type” (Winter, 2003). Particularly, operational capabilities enable the firm to execute its main operating activities on a daily basis without significant changes, maintaining the current techniques with no changes to the scale and supporting the same products and services for the same segments of customers (Zahra et al., 2006). Routines such as continuous improvement, strategy development and implementation are considered operational capabilities (Inan and Bititci, 2015).

7.2.3.2 Dynamic Capabilities

While operational capabilities are essential to sustaining and improving business performance, dynamic capabilities are “the firm’s ability to integrate, build, and reconfigure internal and external competencies to address changing environments” (Teece, 2007).

Dynamic capabilities refer to a company's ability to adapt, learn, and innovate in response to changes in the internal and external business environment (Teece, 2007). These capabilities enable a firm to sustain its competitive advantage over time by continuously developing new resources, processes, and strategies to respond to new challenges and opportunities.

Dynamic capabilities involve three key elements: sensing and seizing opportunities, reconfiguring existing resources and capabilities, and continuously learning and improving (Zahra et al., 2006). A company can achieve long-term success in a constantly changing business environment by possessing dynamic capabilities. In other words, organizations develop dynamic capabilities to deal with change.

7.2.4 Emergency Management

Emergency management is “the managerial function of dealing with risk and risk avoidance” (Darin et al., 2014). It can be defined as “the study of how humans and their institutions interact and cope with hazards, vulnerabilities, and resulting events (i.e., emergencies, disasters, catastrophes, and complex humanitarian crises), particularly through activities related to preparedness, response, recovery, and mitigation” (Jensen, 2010).

7.2.5 The Strategic Improvisation

Improvisation is “the simultaneous conception and execution of an action” (Moorman and Miner, 2018). In other words, improvisation is the act of doing something spontaneously without planning as a rapid response to a problem. Although for decades, corporate leaders have considered strategic planning the best way of ensuring competitive advantage (Mintzberg, 1994), firms face substantial challenges in emergency environments that require different strategic responses.

Organizations that operate in a turbulent environment are more likely to improvise (Kung, 2015; Villar and Miralles, 2021). In their study, Villar and Miralles explore how organizations can employ improvisation to attain specific objectives during emergencies, such as the one caused by Typhon Haiyan that impacted the Philippines in 2013. They demonstrate that improvisation “can be absorbed as a conscious mechanism that can aid the attainment of pre-established goals” (Villar and Miralles, 2021).

7.2.6 Environmental Hostility and Business Model Adaptation

Recently, Rezaei et al. carried out extensive work to advance the research on business environmental hostility focusing their research on the adaptation of businesses and organizations after terrorist attacks. The outcome of this work demonstrates that two components can summarize the hatred of the business environment: competitive turbulence and regulatory turbulence (Rezaei et al., 2020).

Competitive turbulence is “a managerial perception of how much competition is in the market” and is related to the level of competition in the industry (Rezaei et al., 2020). Competitive turbulence describes increased competition when a terrorist attack or a natural disaster reduces the customer base. The ‘environmental hostility theory’ states that organisational changes must be expected due to market movements (Rezaei et al., 2020).

On the other hand, regulatory turbulence refers to “changes in government or regulation policies that can promote changes at the corporate level”. Four components have been identified for

regulatory turbulence: legal factors, political factors, economic factors, and social factors (Rezaei et al., 2020).

7.3 METHODOLOGY

This paper uses a multiple qualitative case study design (Yin, 2009). The methodological paradigm followed is based on Glaser and Straus's grounded theory perspective (Glaser and Strauss, 1967). Glaser and Strauss articulated this methodology during their study—'Awareness of Dying' (Glaser and Strauss, 1967).

The grounded theory approach allows researchers to develop a rich understanding of the experiences and perspectives of the individuals and organizations involved and to generate new theories that can inform future research and practice (Noble and Mitchell, 2016).

This model advocates that social scientists work "from the bottom up" to derive theory from observations, not observations from theory (Corbin and Strauss, 2012). The methodology aims to develop a theory grounded in data rather than beginning with a preconceived theory or hypothesis.

The literature review in Study 1 played a pivotal role in influencing the choice of the research approach. Extensive examination of existing literature related to business model dynamics and innovation during the initial study phase uncovered notable gaps in theory-driven research for explaining the processes, mechanisms, and influencing factors behind business model adaptation within the context of the Creative and Cultural Industries (CCIs) and the COVID-19 emergency. The literature presented a fragmented landscape with diverse conceptualisations but lacked clear theoretical frameworks.

Given the complexity of the research topic and the identified gaps, it was concluded that a deductive approach, commencing with predefined hypotheses or theories, might not be the most suitable choice. Instead, an inductive approach was favoured, enabling the derivation of theories directly from the data collected in a grounded manner. Furthermore, at the outset of our research, we were confronted with a relatively uncharted territory regarding business model adaptation within the context of the Creative and Cultural Industries during the COVID-19 emergency. The complexity and multifaceted nature of this subject matter necessitated an exploratory approach. We needed to delve into the unknown, and an inductive methodology best suited our objective to develop a comprehensive understanding of the topic.

The goal has been to work with decision-makers of micro and small organizations from the cultural and creative industry to develop rich, detailed descriptions of their strategy and actions to adapt their BM to survive the COVID-19 crisis. Therefore, the phenomenon of interest is learning how firms survive the pandemic by adapting their business model to a very hostile

environment. The unit of analysis is micro and small organizations from the Spanish cultural and creative industry. The observations were used as a starting point to develop a conceptual model (Kincheloe and Mclaren, 2011; Miles and Jozefowicz-Simbeni, 2019).

7.3.1 Why a Multiple Case Study?

The ability of the case study as a research method is to answer "how" and "why" questions within real-world contexts. Yin (1994) described this method as: "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not evident". The case study method is used when researchers want to understand a phenomenon and its context in depth. The data is collected from a limited number of cases (ten in this research) to "focus on fewer subjects but more variables within each subject" (Yin, 1994). A case study can follow one of two designs: a single case study or a multiple case study (Galloway and Sheridan, 1994). Each case should be viewed as a separate experiment in analysing and interpreting multiple case studies.

7.3.2 Theoretical Sampling

The concept of theoretical sampling was first described by Glaser and Straus (1967) to generate theory from data. The process includes data collection and subsequent coding and analysis (Glaser and Strauss, 1967). Ten cultural and creative industry managers were interviewed to obtain meaningful information. Ten cases gave the study sufficient theoretical saturation (Eisenhardt, 1989). In subsequent conversations with other managers, it was clear that "incremental learning was minimal due to observing similar phenomena" (Eisenhardt, 1989). Additional empirical investigations thereby ceased. Companies were chosen to have a broader view of the industry using convenience and purposive sampling, both non-probabilistic sampling techniques (Alkassim et al., 2016).

Researchers use these two techniques to select a sample from a population when randomization is impossible since it is too vast (Alkassim et al., 2016). They are considered adequate when generalization is not an issue in the research aims. We combined both techniques and obtained ten interviews showing a rich scope of cases representative of the essential cultural activities across this industry in Spain.

Companies were selected from the following primary subindustries: music and concert venues, event producers and festival organizers, artists/performers and companies, art galleries and art schools, museums, monuments and singular homes, to cover a wide range of the Cultural industry. They were part of a database of CCI managers provided by the Culture Department of the

Generalitat de Catalunya. The Catalan regional government. They all agreed to participate in the research.

7.3.3 Data Collection

The data was collected following three different methods: semi-structured interviews, archival records, and analysis of social networks.

7.3.3.1 Semi-Structured Interviews:

In-depth semi-structured interviews were conducted with managers and decision-makers of MSMEs within the cultural and creative industries. These interviews served as a primary source of firsthand information, allowing us to understand the actions and strategies implemented by these companies throughout the pandemic's various stages. The interviews were carried out between April and September 2021 via the online Zoom platform, ensuring the safety and convenience of participants. These discussions ranged from 50 minutes to 2 hours and were video-recorded with explicit permission. Subsequently, the interview content was transcribed using NVivo software and systematically coded for analysis.

Additionally, the interviews were structured to capture the nuances of the pandemic's impact on the companies, differentiating between three distinct stages: (1) the total lockdown period from March to May 2020; (2) the intermittent lockdown phase from June 2020 to April 2021; and (3) the subsequent "new normal" period after April 2021. The semi-structured and open-ended nature of the interviews allowed managers to describe their daily actions and strategies comprehensively.

7.3.3.2 Archival Records:

To further enrich our dataset, written literature such as pamphlets, company websites, and materials related to cultural events were consulted and meticulously examined. These written materials supplemented details that were either not mentioned or were unclear during the interviews.

This examination aimed to document critical aspects, including the company's value proposition, public objectives, and income models. These archival records served as a valuable source for corroborating information and enhancing our understanding of the companies' strategic responses.

7.3.3.3 Analysis of Social Networks:

To gain further insights into how these companies maintained customer relationships during the pandemic, we conducted a detailed analysis of their activities on social networks. This provided valuable data on their engagement with customers and the strategies employed to navigate the challenges posed by the pandemic.

The insights from ten selected cases were analysed, representing various MSMEs within the cultural and creative industries. Notably, all ten cases demonstrated resilience and successfully navigated the challenges posed by the COVID-19 crisis, providing valuable insights into effective crisis response strategies. Table 19 shows the ten cases analysed.

Table 19: Case Overview

	Case Label	Case Description
1	Festival organizer	This company organizes large festivals and events. They usually provide all of the required services in events: managing large volumes of people, setting up stages, selling tickets, and hiring musicians and technical staff. Furthermore, they also provide the marketing services needed to sell the maximum number of tickets.
2	Theatre Company	This theatre company has ten years of experience creating circus shows, dance theatre, puppet theatre, and gestural theatre with live music and traditional storytelling. They perform in public places, streets, theatres, auditoriums, schools and libraries.
3	Actress	She defines herself as a woman, a mother, a creator, and an entrepreneur who is always on the move. She has a degree in Dramatic Art from the Institut del Teatre de Barcelona, specializing in Gesture Theatre. She has been a trapeze artist for five years. She is currently based in Barcelona and is the director of a theatre company specialising in circus shows.
4	Online Ticketing vendor	This company was founded in 2011 to provide an innovative, efficient, and leading service for online event management and ticket sales. The aim was to improve coordination between software companies, sales channels, and cultural organizers. Their customers are event organizers, museums, sports, concerts, theatres, and companies.
5	Photographer	This artist runs a store specializing in photography and image part of a national chain. His job is photographing events, creating product catalogues for his clients, and performing arts photography. At the same time, he advises customers who come to his store.
6	Online culture aggregator	This online community of culture lovers offers a membership for special discounts on shows and cultural proposals. It also

		allows users to meet others who share a passion for culture and participate in organized activities. They have been online for fifteen years.
7	Archaeological Museum	Founded in 1840, the museum has five venues that expose Catalonia's most important archaeological collection, focusing on prehistoric times and ancient history. The museum also offers its most emblematic and unique spaces to host events for companies, institutions and individuals.
8	Monument and museum	This building, a National Historic Monument since 1975, housed a museum to disseminate the work and the figure of its modernist architect Josep Puig i Cadafalch. It is privately owned.
9	Opera house	Founded in 1847 to become a beacon of the City as an "arts" centre. A foundation manages the Opera House owned by the different government agencies (the regional government, the city hall, the provincial council, and the national ministry).
10	Art school	Since 2011 this art school has been a training centre that works on three axes: art technique and grammar training, stimulating creative attitude, and an art therapy department. They also offer their services to regular schools as extracurricular subjects and organize training workshops for teams in organizations and companies.

7.3.4 Content Analysis of the Interviews

After downloading the recorded interviews from the Zoom platform, we conducted a meticulous and systematic content analysis to extract valuable insights. The analysis unfolded in several stages, each contributing to a richer understanding of the data:

1. **Open Coding**: Key phrases and noteworthy interview statements were identified during the initial open coding stage. These were subsequently organized into subcategories and categories, allowing us to break down the wealth of information into meaningful components.
2. **Axial Coding**: In the next phase, axial coding was applied to refine our analysis further. Relationships and connections between the identified categories were explored and documented. This stage helped us uncover the underlying patterns and themes within the data.

3. **Identification of Core Category**: A pivotal aspect of our content analysis was identifying a core category that encapsulated the central theme emerging from the interviews. This core category was a cornerstone, methodically linked to the other categories in the final coding stage. In total, one core category and five subcategories were identified.
4. **Grounded Theory**: Building on the identified subcategories and core categories, we developed a grounded theory that encapsulated the essence of the data. This grounded theory represented a comprehensive and coherent framework through which we could interpret and understand the responses of the interviewed managers.
5. **Validation and Reliability**: A rigorous approach was taken to ensure the validity and reliability of our analytical outcomes. Two researchers independently reviewed and compared the results after each stage of the analytical process, mitigating the risk of potential biases. Additionally, we conducted cross-case triangulation to validate the consistency and reliability of the results, ensuring that patterns and insights were robust and applicable across the sampled cases.
6. **Comparison with Literature**: Lastly, the conclusions drawn from our analysis were rigorously compared and contrasted with the existing literature in the field. This step allowed us to situate our findings within the broader context of scholarly research, further validating their significance and relevance.

Our content analysis process was marked by a thorough and rigorous approach, from the initial extraction of key phrases to the development of a grounded theory. This methodical journey allowed us to distil meaningful insights from the interviews while maintaining a commitment to our findings' validity, reliability, and relevance.

7.3.6 Subcategories and Core Category

In the first stages of content analysis, three categories were identified:

1. **The core category**: “The impact of COVID-19 and its strategic response”.
2. A secondary category: “Uncertainty and Challenges”. What changes were applied to the different components of their business model?
3. Another secondary category: “Digitalisation”. Companies turned to the digitalisation of some processes.

During the second round of coaxial analysis of the three initial interviews, it emerged that under the “Uncertainty and Challenges” category, many of the managers' actions described were improvised actions. There was also evidence that innovation was taking place thanks to network proximity following the open innovation paradigm. Questions about their degree of improvisation

and innovation diffusion were included in the following interviews, and the first three managers were contacted and interviewed again.

This iterative process is a hallmark of inductive research, where the initial theories and hypotheses evolve and refine as the study progresses.

Two different secondary categories were added to the content analysis.

4. "Improvisation": actions and strategies that can be considered improvisation.
5. "Adaptation and resilience": what was the origin of their innovations when adapting their business model?

The data extracted from each interview was subjected to at least four coding rounds. These iterative coding phases had a twofold objective: to fine-tune and expand the coding framework as the analysis delved deeper into the data while directing our attention towards categories intricately linked to our core category.

The most demanding aspect of these coding rounds was emphasising the core and associated categories. This proved particularly intricate due to the extended length of certain interviews and the diverse array of themes and topics explored by the interviewees.

In addition to the interviews, archival records retrieved from company websites and content extracted from their social networks were methodically analysed to augment the content within the respective categories. This methodological approach allowed for a comprehensive exploration and enrichment of the data.

7.4 FINDINGS

The following are the key findings related to how companies and organizations in the cultural and creative industry adapted their business models in response to strategic challenges:

1. Three distinct strategic behaviours were identified among the surviving organizations: radical change, non-adaptation, and moderate adaptation.
2. Companies and organizations implemented various changes to different components of their business model in order to stay afloat.
3. The adoption of ICT played a crucial role in supporting the strategic adaptation of these companies.
4. Organizational proximity emerged as a significant factor in facilitating the diffusion of innovative practices.

We elaborate on these four findings in the following points.

7.4.1 Three Strategic Behaviours were Observed

During the interviews, the managers of artistic and cultural companies and organizations expressed that they felt like they had been hit by a sudden crisis akin to a terrorist attack, war, or natural disaster. They had not anticipated the severity of the COVID-19 pandemic and were ill-prepared for its impact on their businesses. Despite the virus spreading throughout Europe, the Spanish government assured citizens that everything was under control and did not encourage preparedness. When strict measures were finally implemented, businesses had no contingency plans in place and were caught off guard. Spain went into total lockdown on March 15th, 2020, leaving many struggling to cope with the sudden changes.

Table 20 shows the three strategic responses observed among the companies and organizations interviewed.

Table 20: A strategic response to the emergency

	Case label	Strategic Intents	Description
1	Festival organizer	Adapted their BM	At the beginning of the crisis, the company collaborated with several councils to organize screenings for potentially infected people. They also help other companies handle cancellations and ticket returns and create services to assist in the cleaning and disinfection of theatres and events.
2	Theatre Company	Did not adapt	Bookings were cancelled, and no one contracted their shows. They have been waiting months for the sector to recover and for new projects to appear.
3	Actress	Adapted her BM	Seeing that she could not work with her company, in October 2020, she created a website and began marketing online body expression courses while looking for one-off collaborations with other artists.
4	Online Ticketing vendor	Adapted their BM	Many entertainment companies required their online sales services. In this sense, COVID benefited the company. They also had to create specific return and ticket exchange services.
5	Photographer	Did not adapt	With events cancelled and no weddings, communions or baptisms, the photographer

			concentrated his income on the physical store he ran when he could reopen.
6	Online culture aggregator	Adapted their BM	During COVID, the membership they charged their users was suspended, and they focused on maintaining relationships and looking for new members.
7	Archaeological Museum	Adapted their BM	The museum focused on maintaining relationships with its users and creating virtual tours. When they could reopen their doors, they started selling tickets online (something they had not done before).
8	Monument and museum	Changed radically their BM	Seeing that tourism had come to a standstill in Barcelona and there were no indications that tourists would be back shortly, the museum closed its doors, stopped selling tickets to visit the building, and all the spaces were rented for offices and other businesses.
9	Opera house	Did not adapt	They waited for the situation to return to normal without representing the operas. While the lockdown was extended, the opera choir made videos of their performances, and the community managers broadcast some interviews with members of the opera staff.
10	Art school	Adapted their BM	They immediately realized that the classes had to go online. Nevertheless, that takes time. Meanwhile, they set up e-commerce merchandising through a drop shipping store with drawings of their students.

Companies that survived the crisis caused by the COVID-19 pandemic adopted three different strategic responses: (1) changed their business model radically (the monument/museum); (2) did not adapt their business model and "waited for the storm to pass" until the environment became stable (the theatre company, the photographer, and the opera house); and (3) adapted their business model, closing only the months of mandatory total lockdown (the festival organizer, the actress, the online ticket vendor, the online cultural aggregator, the archaeological museum, and the art school).

7.4.1.1. Companies Changed Their Business Model Radically

Some companies and organizations changed their business model radically to survive the crises. This is the case, for example, of the privately-owned monumental museum. Due to the lack of tourists, the owners closed the museum at the beginning of October 2020 and stopped selling tickets to visit this listed building. Their income comes from renting the premises to a restaurant, a bank, a coworking, and a diverse group of businesses that have located their offices in the building. The museum, as such, has disappeared. They will most likely reopen it again in the near future.

7.4.1.2 Companies Did not Adapt Their Business Model and "Waited for the Storm to Pass."

We observed that some interviewed managers believed that adaptation was impossible. They decided to wait and see. This is the case of the opera house and many other organizations that are not part of this study, such as La Sagrada Familia, the under-construction basilic created by the modernist architect Gaudí; and La Pedrera, another singular building designed by Gaudí, that at present hosts a museum and different spaces for events. The same behaviour could be observed with the photographer and the theatre company. They all had in common that they did not adapt their business model. They paused for months without any activity while waiting for environmental stability. They relied on their financial muscle (the opera house) or turned to other jobs (the photographer and the theatre company members). Some took advantage of the lockdown to perform maintenance work in their facilities.

7.4.1.3 Companies Adapted Their Business Model, Closing Only the Months of Mandatory Total Lockdown

Among the companies and organizations interviewed, those that perceived adaptation as possible were more likely to change their business model in response to the COVID-19 crisis or the "new normal". This was observed across several different organizations, such as an art school, an archaeological museum, an online aggregator, a ticket vendor, and even an actress. These companies and individuals modified their business models to adapt to challenging circumstances.

7.4.2 Companies and Organizations Adapted Different Components of Their Business Model to Survive

The companies that survived had in common that they adapted some BM components. Following the Business Model Canvas proposed by Osterwalder and Pigneur (2010), nine building blocks or components can be identified in the structure of a business model: the customer segments, the value proposition, the distribution channels, the customer relationship, the revenue streams, the key resources, the key activities, the key partnerships, and the cost structure (Osterwalder and

Pigneur, 2010). This is the approach adopted in this study to analyse cultural companies' modifications to their business models. Table 21 shows the changes in each component.

Table 21: Changes in the business model

Case Label	BM Components that were Adapted	Description
Festival organizer	Market segments Value proposition Customer relationship Distribution channels Cost structure	Few festivals could be held in 2020, so this company decided to look for competitive advantages by transforming its value proposition (entertaining big masses of people), offering new services, looking for new customers using the Internet and mastering online sales to offer this service to other festivals. At the same time, they tried to minimize risks by reducing staff temporarily and renegotiating the prices of the rent of their offices. Its main challenge has been managing the uncertainty over whether or not festivals could be held. In some cases, they did not know it until 48 h before.
Actress	Market segments Value proposition Customer relationship Key Assets Income streams	Her theatre company could not perform any function for a long time, so her income was zero for many months. The actress created her website and acting courses and marketed them through her page. She also created some videos with a musician, where they explained stories to children through a new Youtube channel. She received some government funding for autonomous workers, which helped her during the worst days of the crisis.
Online Ticketing vendor	Market segments Value proposition	On the one hand, many organizations that did not sell tickets online began to do so, significantly increasing customers. On the other hand, since the dates of the events changed from one day to the next, they created a new service to manage the changes in dates and their customers' massive returns and refunds.
Online culture aggregator	Customer relationship Cost structure	Since their services were already online, they did not need much adaptation. Using an online marketing agency, they conducted more than 30 interviews

		with cultural professionals during the pandemic, broadcast via Instagram, and later created videos with them and a free book with content transcripts. At the same time, they reduced staff and minimized their company's expenses.
Archaeological museum	Market segments Value proposition Customer relationship Distribution channels	The museum adapted its audio guides, converting them into 360-degree videos of seven unique archaeological sites to allow people to enjoy them through mobile devices. A blog was created to follow up on the museum's whereabouts. Once open, admission was free until June 28th (a month) to attract local visitors, and after that period, they began to sell tickets online for the first time. They reduced the advertising budget and turned it into content creation on media.
Singular home and museum	A radical change in all components	Due to the pandemic and the lack of tourism, the owners decided to close the museum and stop selling tickets to visit this singular building at the beginning of October 2020. Currently, their income comes from renting the premises to other businesses.
Art school	Market segments Value proposition Customer relationship Distribution channels Income streams Key resources Key activities Cost structure	They created online courses. As the services turned to online courses, they tried to reach students from all geographical areas of Spain. They increased the use of social networks to maintain their customer relationship. They created an online print-on-demand shop while waiting to create the online courses.

7.4.3 The critical role of ICT

The role played by Information, and Communication Technologies (from now on, ICT) has become an essential factor for economic growth in all industries. Researchers such as Viaene (2013) and Bassis (2018) agree on the importance of strategic value creation and value delivery through ICT and its role in business model innovation (Faissal Bassis and Armellini, 2018; Viaene and Broeckx, 2013). The result of the interviews was consistent with the research on ICT.

Technology is becoming an integral part of the products and services of diverse industries. There is a growing interest in understanding how organizations can succeed in their digital transformation. In companies, tensions spring from the opposition between investing in digital tools that generate value in the long term and obtaining value in the short term. However, MSMEs also suffer from another problem: digital tools constantly change and must be adapted as innovation and competitive pressure progress. Failure to see short-term performance causes them to be reluctant to implement technological changes (Woodard et al., 2012).

At the beginning of the COVID-19 crisis, customers were not allowed to go to the premises of the cultural companies physically, therefore, managers needed digital products and services, and despite initial reluctance, these did appear. Nevertheless, implementing ICT solutions takes time, and during the first phase of BMA, they had to improvise immediate solutions with the current stock of ICT assets that managers had on their hands. In the second phase, the implementation was carried out. Virtual tours were created, e-commerces were in place, and online courses were offered.

7.4.4 Organizational Proximity Had a Prominent Role in Innovation Diffusion

For MSMEs it is essential to identify cooperative opportunities or competitive challengers from their knowledge flow network. All companies agreed that being part of an association or a network of peers had helped them keep up-to-date with innovations and help them find viable solutions to the required adaptation of their business.

The actress also highlighted that belonging to a theatre association provided her with moral support during the pandemic. The marketing manager of the archaeological museum made the same statement about the advantages of being part of a network of museums and cultural venues “We have been working weekly with the Catalan network of museums, sharing innovations and possible solutions to our common problems”, he stated.

7.5 DISCUSSION

In Study 1, our primary objective was to enhance our understanding of 'Business Model Adaptation' within the broader context of 'Business Model Dynamics' literature. The literature review in Study 1 played a crucial role by providing insights into how 'Business Model Adaptation' and 'Business Model Innovation' were utilised in previous strategic management research. This groundwork enabled us to differentiate between 'Business Model Adaptation' (BMA) and 'Business Model Innovation' (BMI) and establish the theoretical foundation for BMA.

These foundational distinctions proved vital in our subsequent studies, particularly in Study 2. Without the clarity established in Study 1, Study 2 might have faced challenges maintaining coherence when examining 'Business Model Dynamics' (BMD) within the specific context of Creative and Cultural Industries (CCIs). Our understanding of the differences between BMA and BMI allowed us to align each instance of BMD with diverse strategies for implementing and learning from these adaptations. This alignment forms the basis for our contributions to the literature on strategy implementation, as it connects BMD to its impact on strategy implementation through organizational learning.

7.5.1 BMA and the COVID-19 pandemic

At the outset of the COVID-19 pandemic, the needs and preferences of customers in the cultural industry underwent a significant shift. Companies and organisations were forced to adapt to meet these changing demands with people confined to their homes and unable to attend live cultural events. Many of these entities began to analyze the new customer needs and alter their value proposition to accomplish this. For example, they started offering virtual tours and online services to compensate for the lack of in-person experiences.

However, companies and organisations faced a challenge due to the sudden and unforeseen nature of the COVID-19 pandemic. They needed to adapt quickly to stay afloat, but they did not have the luxury of taking their time to develop new products and services. As a result, many of them had to find ways to repurpose their existing resources and capabilities to address the changing market needs. For instance, some organizations repurposed their content to create virtual experiences, while others leveraged existing technologies to provide online services.

Researchers such as McGrath (2009) agree that in emergencies, companies and organizations must simultaneously “reduce risk and seize opportunities” (McGrath and MacMillan, 2009). Therefore, disasters such as the COVID-19 pandemic can also be an “agent of social change in recovery and reconstruction” (Passerini, 2000) if companies can seize the opportunities and gain competitive advantages by adapting their business models. We have observed this phenomenon in the companies interviewed.

7.5.2 The Three Phases of Business Model Adaptation to an Emergency

The interviews revealed that the process of adaptation could be broken down into three distinct phases. The first phase occurred in the initial months of the pandemic, during which entities improvised to reconfigure their assets and capabilities to meet the rapidly changing market demands. Simultaneously, they also planned new strategies and actions to guide their future activities.

In the second phase, which occurred after a few months, companies and organizations implemented their planned actions and made necessary adjustments to their value architecture. They incorporated new features and services they deemed crucial for their survival and success in the new market landscape.

Currently, cultural companies are in the third phase of adaptation, which involves reevaluating and adjusting their old assets and capabilities in light of the "new normal." This term refers to the altered competitive environment that emerged after the COVID-19 pandemic and serves to highlight how different it is from the pre-pandemic market conditions.

7.5.2.1 Phase 1—The Reaction

The conception of the actions to adapt the cultural business to its daily reality and its executions were simultaneous. No planning or strategy was used to deal with the uncertainty of every day. Most of the companies interviewed openly agreed that their strategy in this first month was “not having a strategy” working daily, confronting their challenges.

For example, the archaeological museum did not offer formal virtual tours, but after analyzing the current assets and the current IT stock, they created short videos with images from Google Street View and matched them with the content of the audio guides. They improvised virtual guided tours and offered them to online visitors while the museum was closed and planned a proper virtual tour.

Another example of improvisation can be observed by analysing the behaviour of the managers from the art school. Due to COVID-19, students were not allowed to attend the art school, and the school could not carry out any activities they had been offering to other schools. To maintain a source of income until their online courses were ready, they created a self-made e-commerce website to sell merchandising of drawings made by their students using a drop shipping business model (print on demand). This action was not planned; it was improvised to create an alternative source of income during the development of the planned behaviour.

Finally, we have the example of Marta, the actress and the director of a theatre company. The company had not been able to perform for almost a year. In November 2020, Marta created her website to market the online training courses she had just made up.

The behaviours of the cultural organizations observed in this study align with the principles of the Theory of Planned Behaviour (TPB). According to TPB, “an individual's intentions to engage in a particular behaviour can be predicted by their attitude toward the behaviour, the subjective norms associated with it, and their perceived control over the behaviour” (Ajzen, 1991).

However, the TPB also implies that planning becomes difficult when norms, subjective or not, are in constant flux, and improvisation becomes the only viable way to confront the everyday challenges that arise. This is particularly true in the context of the COVID-19 pandemic, where the rapid pace of change and the unpredictability of the situation make it difficult to adhere to pre-established plans or strategies. In such a scenario, organizations must continually rely on their ability to improvise and adapt to new circumstances.

Therefore, the cultural organizations that survived and thrived during the pandemic demonstrated a willingness to improvise and adjust their business models on the fly, as opposed to sticking to a rigid plan. This flexibility allowed them to respond quickly to changing customer needs and market demands, ultimately helping them weather the storm of the pandemic.

Business models had to be changed and adapted, improvising to fit the urgent needs of the customers. The innovation was created by reconfiguring the current assets, the companies' existing capabilities, and the IT stock they had at that moment. "The higher the turbulence of the business environment, the more critical the enterprise's" improvisational capabilities become (Pavlou and El Sawy, 2013). Organizations that operate in a turbulent environment are more likely to improvise (Kung, 2015; Villar and Miralles, 2021).

7.5.2.2 Phase 2—Planned Adaptation

During Phase 2, customer needs were still different from before the pandemic, but the companies and organizations had enough time to plan and execute their strategies accordingly. They adapted their business models by changing how they communicated their value, delivering their services, generating income, and redefining their public objective.

To achieve this, they shared information with their peers and associations and observed the cultural ecosystem as a whole, leading to the creation of innovation. This resulted in establishing a form of open innovation ecosystems where collaboration and knowledge-sharing among peers played a crucial role.

Through learning from the experiences of others, these organizations acquired new technologies and competencies that helped them adapt to the changing environment.

7.5.2.3 Phase 3—Stabilization

In Phase 3, the new business models were in place, and companies and organizations were adapted to the "new normality". Those who adapted and survived learned new capabilities, implemented new technology, and found new competitive advantages, becoming more resilient to new environmental hostility.

Those who did not adapt and survived since they had enough financial muscle consumed part of it and diminished its resilience but are still on the market.

Figure 8 shows a proposed framework to understand the different phases of adapting the business model in the cultural and creative industry.

	BEFORE THE PANDEMIC	PHASE 1 REACTION	PHASE 2 ADAPTATION	PHASE 3 STABILIZATION
User needs	Current needs	New needs	New needs	New & previous needs
Business Model	Current BM	Partially adapted BM	New BM	Business Model Adaptation
BM Innovation	Efficiency-centric Business Model	User-centric Business Model	Collaborative Open Business Model	Efficiency-centric Open Business Model
IT stock	Current stock	Reconfiguration of current stock	New stock	New & previous
Competences	Current competences	Reconfiguration of current competences	New competences	New & previous
		IMPROVISED ADAPTATION	PLANED ADAPTATION	NEW NORMAL

Figure 8: The three phases of BMA in the CCI

7.5.3 COVID-19 from the Lenses of the Emergency Management Theory

The study's findings suggest that, in this initial phase, these firms applied various improvisational actions to adjust certain components of their business models to withstand the crisis's effects.

Looking through the lens of emergency management theory and taking into account the improvisation capabilities of cultural and creative MSMEs, it becomes easier to understand how these businesses adapted their business models during the first phase of the COVID-19 pandemic, than analysing this behaviour only through the lenses of the Dynamic Capabilities.

While dynamic capabilities are considered to be essential for the recovery of businesses from the pandemic. It should be noted that improvisation capability is not a dynamic capability as per its definition it is not a routine or a coordinated task to utilize organizational resources to achieve an specific result. Dynamic capabilities are embedded in 'routine organisational processes that guide the evolution of a firms' resource configuration and operational routines' (O'Regan and Ghobadian, 2004). The improvisation capability is not a routine nor a process. In section 7.6.2.2 the improvisation capability will be further discussed.

This research aims to identify the key factors that explain cultural firms' adaptability. To achieve this, a conceptual framework has been proposed to provide a better understanding of the results and the path to a successful adaptation of the business model (see Figure 9).

By utilizing this framework, it is hoped that businesses in the cultural and creative industries can better navigate crises in the future and emerge stronger from such challenges.

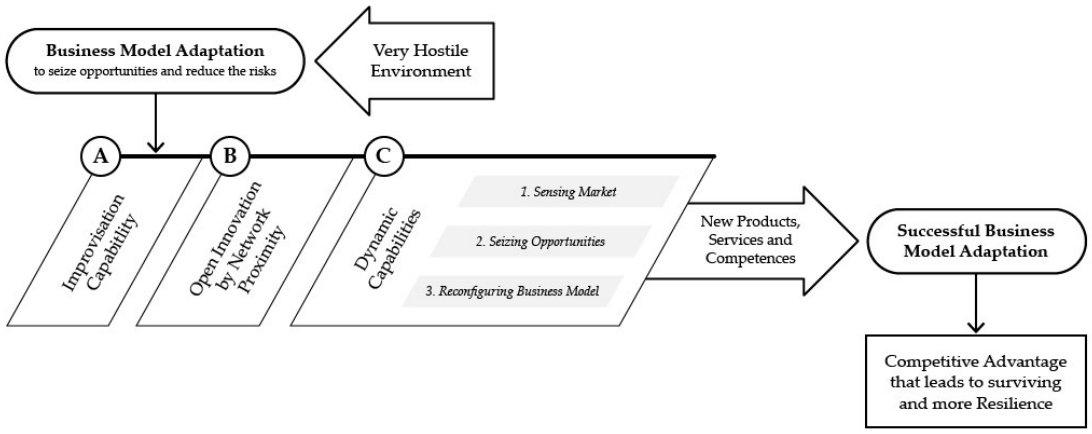

Figure 9: This research framework is the survival path to successful BMA

The relevant factors that explain the cultural firms' ability to adapt and gain competitive advantages and more resilience in times of very hostile environment: (A) The immediate deployment of some characteristics that can be found in organizational improvisation behaviour; (B) the capacity to absorb innovation from its network and ecosystem; (C) and the acquisition and deployment of dynamic capabilities such as absorption capacity and uncertainty management.

7.5.3.1 COVID-19 crisis and environmental hostility

During the first COVID-19 lockdown in Spain, the cultural industry market disappeared from March to May due to mobility restrictions, causing a significant impact on the companies and organizations in the sector. The environmental hostility theory explains that when there is a lack of customers, organizations change their behaviour, and business activities become more influenced by market movements (Rezaei et al., 2020).

In addition to the lack of customers, the cultural industry has faced regulatory turbulence for over two years, with restrictions on seating capacities and entrance limitations in theatres, museums, and public events constantly fluctuating throughout the pandemic. Managers have had to deal with the pressure and stress of constantly changing post-confinement regulations and constraints, adding to the already hostile environment created by the pandemic.

Furthermore, the domino effect caused by layoffs and provisional downsizing plans of many companies has also affected the social status of many families, affecting their quality of life and lifestyle. This impact has been seen across all industries, but especially in cultural goods and services consumption, leading to a shrinking market and increased competitive turbulence.

At the same time, the evolving environmental landscape has influenced the market's perspective on sustainability. The COVID-19 pandemic has acted as a catalyst, further emphasizing the necessity for sustainable business models. Firstly, it has exposed vulnerabilities and weaknesses in existing business models, making it evident that relying solely on traditional practices may not be resilient in the face of unforeseen disruptions. This realization has prompted businesses to reevaluate their strategies and seek more sustainable alternatives. Secondly, the pandemic has heightened awareness of the interconnectedness between human well-being, environmental health, and economic stability.

In summary, the COVID-19 crisis has created a very hostile environment for the cultural industry, forcing companies and organizations to adapt their business models to survive and, at the same time, has highlighted the need for a more sustainable business model. This adaptation has been necessary to withstand the changing market conditions, regulatory pressures, and impact on consumer behaviour and the overall economic situation.

7.5.3.2 The Development of some characteristics that can be found in Organizational Improvisation Behaviour

Dynamic capabilities cannot fully explain the adaptation of cultural and creative companies and organizations; improvisation capabilities must be considered. There is a link between strategic improvisation and company performance in times of emergency and crisis. When the immediate survival of a company is in question, long-term strategies lose effectiveness and management resort to improvisational processes (Akpan et al., 2020; He et al., 2020; Pavlou and El Sawy, 2013; Webb and Chevreau, 2006).

Weick (1998) and Barrett (1998) developed the jazz band metaphor in their work on organizational improvisation. The jazz band metaphor describes an organisation's functioning, particularly in terms of improvisation, creativity, and adaptability. The metaphor suggests that an organization can function like a jazz band, where the musicians must work together to create music on the fly, adapting to each other's playing and responding to the audience's reactions. In this way, a jazz band can be seen as a model for an organization that is responsive, flexible, and adaptable to changing circumstances (Barrett, 1998; Weick, 1998).

They argued that organizations could learn from how jazz bands operate, particularly their ability to improvise and adapt to changing situations. According to Weick (1998), the key to successful

improvisation is "sensemaking," which involves creating a shared understanding of the situation, identifying available resources, and taking action based on this understanding. This process is similar to how jazz musicians interact and adapt to each other's playing during a performance.

Drucker (1989) suggested that the twenty-first-century leader would be like an orchestra conductor. This metaphor emphasizes the importance of leadership in bringing together different individuals and groups to work towards a common goal. Like a conductor, a leader must be able to coordinate and direct the actions of the organization while also allowing for individual creativity and improvisation. The conductor must be able to respond to changes in the music, adjusting the tempo and dynamics to achieve the desired effect. Similarly, a leader must adapt to changing circumstances while providing direction and guidance to the organization.

Overall, the jazz band and orchestra conductor metaphors highlight the importance of flexibility, creativity, and adaptability in organizational functioning. By drawing on the lessons of jazz musicians and conductors, organizations can develop the capabilities needed to respond to changing circumstances and achieve success in a rapidly evolving environment.

Improvisational working practices need a supportive organizational culture in order to flourish. This type of organizational culture is linked to the company's decision-maker's self-confidence and ability to improvise effectively, given a range of possible actions and results.

Improvisation to adapt the company's business model to seize possible opportunities has many similitudes to the "opportunity-driven entrepreneurship" concept. This complex term is defined as "the entrepreneurial decisions motivated by the perception and exploitation of innovative business ideas that can lead to gains and business growth" (Reynolds et al., 2001). When a new opportunity to obtain sources of income appears, entrepreneurs go for it without great strategic plans or even without a long-term plan.

Some authors do not consider improvisation a dynamic capability or an operational capability, arguing that it is not a routine—"learned, highly patterned, repetitious or quasi-repetitious, founded in part in tacit knowledge" (Winter, 2003). Other authors consider that improvisation can drive strategic advantages in turbulent environments and therefore should be regarded as a third type of capability. They describe it as "the learned ability to reconfigure operational capabilities spontaneously" (Pavlou and El Sawy, 2013). "The higher the turbulence of the business environment, the more critical the enterprise's dynamic and improvisational capabilities become" (Pavlou and El Sawy, 2013).

In other words, and answering our research question "what is the role of improvisation in the success of the adaptation of business models on cultural MSMEs in very hostile environments" we conclude that improvisation has been their primary capability, although dealing with complex

problems, learning new abilities, and having organizational flexibility are also some of the capabilities that saved them from bankruptcy.

7.5.3.3. Open Innovation by Network Proximity

At the same time, open innovation by network proximity must be considered to fully understand the adaptation of enterprises from the cultural and creative industry. Without the help and collaboration of peers, innovation would not have been possible.

Proximity influences the diffusions of innovation and is one of the driving forces for creating an open innovation ecosystem and leading its evolution (Zhang and Wang, 2021). Zhang and Wang (2021) identified four dimensions of proximity: technological proximity, spatial proximity, organizational proximity, and temporal proximity (Zhang and Wang, 2021). Their results show that "organizational proximity positively affects the diffusion of innovations". Ferras-Hernandez et al. (2018) studied the relationship between enterprise innovations and proximity, focusing their research on innovation activities. They identified the primary factors driving the industrial cluster's innovation transformation; organizational proximity was among them (Ferras-Hernandez and Nylund, 2019).

7.5.3.4. The acquisition and deployment of new capabilities

Despite the distance, all of the companies and organizations studied had to learn to work together. The archaeology museum indicated that this had been one of the significant challenges since they have had to learn to communicate jointly from the different departments from their own homes. It should also be noted that although distance group communication tools already existed, no one had previously used them so intensively. Zoom, Google Meet, MS Teams, and all of these tools were un-used by much of the cultural industry. Everyone had to learn how to use them and how they could be incorporated into the work dynamics of each company.

For the museum, reviewing all of the digital content to see if it could be used to create virtual tours or communicate has also helped realize certain shortcomings. For example, when reviewing the audio guides, they realized that while the guides were inclusive in the sense that they are helpful to people in the languages in which the guides are narrated, the guides have no use for blind people as they did not describe the pieces. Thanks to the revision, a project is now to redo the audio guides and make them inclusive for blind people.

The adaptation itself has been a learning experience. All innovation activities require new competencies. Until the COVID-19 pandemic, organizations had not worked methodically to create online content, virtualize user experiences, or work remotely as a team. All interviewees highlighted the learning effort they had to make. The knowledge absorption capability has been crucial in all organizations.

Instead of being fully cancelled, many concerts, theatre acts, expositions, and events were rescheduled for later dates after a few months. All interviewees indicated that they had to learn to work with the uncertainty of whether things could be done. Uncertainty management is another skill that everyone had to learn.

Business models will most probably continue to adapt as the post-COVID-19 scenario develops. Despite the vaccine and achieving herd immunity in certain cities, managers are still uncertain about the future. When asked when they expect to resume normal operations, they perceive that at least another year will be needed to reach normality.

7.5.4 Theoretical Implications: BMA in very hostile environments is better understood under the lenses of Emergency Management Theory and Improvisation Capabilities

A revision of the existing literature has shown that much attention has been paid to studies on innovation in business models in companies and public organizations (Palmi and Madaro, 2020; Schiuma and Lerro, 2017). Researchers have paid limited attention to better understanding how cultural and artistic organizations can manage and evolve their BM (Schiuma and Lerro, 2017).

Ernst et al. demonstrate in a case study of BMI in the publicly-funded cultural and creative industry (specifically, the Van Abbe Museum in Eindhoven-Netherlands) that cultural venues can act as laboratories of BMI (Ernst et al., 2015). Schiuma and Lerro introduce and analyze the "Business model prism for the arts and cultural organizations" as a multidimensional framework to map the "as is" structure and the logic of their business model (Schiuma and Lerro, 2017).

This article proposes a new perspective and a framework to understand the business model adaptation in very hostile environments. It suggests that in environments such as the crises created by the COVID-19 pandemic, business model adaptation can be better delimited using the emergency management theory and improvisational capability than solely under the dynamic capabilities lenses.

The improvisation capability of an MSME is a crucial factor in its survival. At the same time, network proximity (part of an open innovation ecosystem) is prominent in disseminating innovations and unveils itself as a critical factor in the thriving BMA of cultural and creative companies and organizations.

7.5.5 Managerial Implications: Successful Business Model Adaptation

Museums, theatres, concert halls, and festivals have been forced to close for months, leaving artists and performers without work for nearly a year. Some organizations have been unable to

adapt, while others have improvised in response to whatever they came up against and adapted different business model components. The issues raised in this article offer some light on how managers can gain concrete guidelines about systematically and purposefully approaching BMA in hostile environments.

The first step is to identify the key drivers of change and understand these drivers' impact on the business model. The second step is to identify the key capabilities needed to respond to the drivers of change. The third step is identifying the gaps between current and needed capabilities to successfully adapt the business model. The fourth step is to develop a plan to close the identified gaps while at the same time, confronting the emergency with the current stock of assets and capabilities, improvising to maintain the company afloat while the adaptation plan is deployed. The fifth step is to monitor the results of the action and adapt the company or organization to the new and less hostile environment—all sharing knowledge with peers from the same industry. ICT adoption plays a critical role in the adaptation; again, sharing knowledge with peers is mandatory.

At the same time, the COVID-19 pandemic has served as a wake-up call for the imperative of sustainable business models. The market has changed, underscoring the need to holistically consider environmental, social, and economic factors and develop resilient strategies to navigate future challenges while contributing to a more sustainable and equitable world.

7.6 CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH

This study aims to understand organizational capabilities in the cultural and creative industry to respond to the COVID-19 crisis. Literature on business model dynamics affirms that, in VUCA environments, dynamic capabilities are developed to sense new opportunities and seize them while reconfiguring the current assets to adapt the company to the unique situation. However, in very hostile environments such as the COVID-19 crisis, business model adaptation is better understood under the emergency management theory rather than just the dynamic capabilities lenses.

7.6.1 Conclusions

7.6.1.1 BMA has been Implemented in Three Phases

The evidence of this study suggest that the BMA has been implemented in three phases:

Phase 1—The Reaction: the conception of the actions to adapt the cultural business to its daily reality and its executions are simultaneous. Companies improvise their immediate adaptation

while planning for the near future and analysing the gap between their assets and the assets they need.

Phase 2—Planned Adaptation: the future actions planned during phase 1 are now in place. Companies have a new BM and a new stock of competencies. Innovations are shared with other organizations.

Phase 3—The Stabilization: companies adapt to "the new normality" and return to their efficiency-centric BM with new and old components and capabilities.

7.6.1.2 Survival Strategies

In this research, we have observed that companies and organizations from the cultural and creative industries had three different survival strategies. As the emergency management theory predicts, the first two options are to adapt their business model radically or incrementally to minimize the risks and seize the opportunities arising from the crisis. The third strategy has been to put everything on stand-by and wait for "the storm to pass", although they can rely on their financial muscle and the funding from COVID-19 aids.

7.6.1.3 Improvisation as a key factor to understanding the survival of MSMC

The COVID-19 crisis has created a very hostile environment, and companies have been forced to adapt their business models to survive, especially in the cultural and creative industries. In this article, the authors postulate that to fully understand BMA in times of environmental turbulence and hostility, such as the COVID-19 pandemic, the improvisation capability of an MSME is a crucial factor for its survival. Making fast decisions without in-advance planning leads to survival if the decisions are correct.

7.6.1.4 The Need for More Sustainable Business Models

The pandemic has highlighted the importance of corporate social responsibility and ethical practices. Businesses committed to social and environmental concerns during the crisis have gained public trust and goodwill. This has reinforced the understanding that integrating sustainability into business models benefits the planet, maintains a positive reputation, and builds customer loyalty.

7.6.1.5 The critical role of ICT in the Adaptation of the cultural business models

In order to withstand the crisis, businesses have transformed their business models, including modifications to their value proposition, target audience, distribution channels, customer relationships, key activities, key resources, partnerships, income models, and expense models. The digitalization of all business model components has been a direct result of the COVID-19

pandemic, surpassing any government-led initiatives in promoting digitalization within the cultural and creative industries.

7.6.1.6 The leading role of Open Innovation by Network Proximity

Open innovation by network proximity plays a primary role in fully understanding the cultural and creative industry's adaptation, and it is critical for the diffusion of innovations. This fact's management and policy implications are clear; politicians and decision-makers must support open innovation ecosystems.

7.6.2 Limitations

This paper is a new step of a comprehensive research project in business model adaptation. We realize that the improvisation capability and the innovation by network proximity were present in the companies' actions that led to their business model adaptation during the COVID-19 crisis, but we do not know more about the firms that did not adapt.

On the other hand, as with all qualitative research, the outcome lacks any potential generalization effort. It is unclear how much the results can be valid for other companies and organizations. A quantitative approach to the same subject would be advisable.

At the same time, we analysed the behaviour of the companies and organizations of the cultural and creative industry in Spain; we think that a broader take on other industries and other countries would enrich our proposal to analyse BMA from the emergency management theory and improvisational capabilities.

7.6.3 Future Research Perspectives

More research is needed to better understand the relationship between how a leader approaches the act of improvising and the company's resilience. Deepening the analysis of how the leader's resilience intervenes in improvisation is necessary. Furthermore, exploring leadership improvisation based on the resilience of the leaders can shed some light on a deeper understanding of the first phase of business model adaptation during the COVID-19 crisis.

We also believe that an analysis of the correlation between the effects of the COVID-19 pandemic and the change to more sustainable business models suggested by Popescu (2020) (Popescu, 2020) would be attractive from the research point of view.

7.7 STUDY PUBLICATION

The paper "Business Model Adaptation to the COVID-19 Crisis: Strategic Response of the Spanish Cultural and Creative Firms" was published in the Journal of Open Innovation: Technology, Market, and Complexity; on February 11th, 2022. DOI https://doi.org/10.3390/joitmc8010039

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Open Access Article

Business Model Adaptation to the COVID-19 Crisis: Strategic Response of the Spanish Cultural and Creative Firms

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7.8 ADDITIONAL KNOWLEDGE DISSEMINATION INITIATIVES

Since the PhD candidate is highly committed to helping develop cultural businesses and works professionally and systematically in this endeavour, this study has been transformed into different tools that facilitate the dissemination of its content. The knowledge acquired about the concrete actions carried out by companies to survive the crisis caused by COVID-19 has been converted into conferences, masterclasses and a white book.

1. ***Conference on how to adapt the business models of museums to better fit into the current context.***

The conference was part of the Heritage & Digital Conference focused on the transformation and responses needed in the post-COVID, held on April 28, 2022, at the Museum of Medieval Art in Vic (Barcelona, Spain). The conference was organized by the "Agència Catalana del Patrimoni

Cultural" part of the Cultural Department of the Catalan Government. https://patrimoni.gencat.cat/ca/patrimonidigitalvic

2. ***Masterclass on the adaptation of cultural business models to the post-COVID-19 environment.***

This was a 2h30' masterclass in BMA for cultural firms, organized by the "Servei de Desenvolupament Empresarial" of the Cultural Department of the Catalan Government on February, 15th 2022 https://sde.cultura.gencat.cat/cultura/adaptacio-de-models-de-negoci-culturals-post-covid-19-_adh_4671.html

3. ***Masterclass on adapting cultural tourism business models to the post-COVID-19 environment.***

This was a 2-hour masterclass on BMA for cultural tourism organizations. The masterclass was part of the activities the Universitat de Girona organised for its Alumni. https://www.udg.edu/es/udgocupacio/escola-de-competencies/detall-activitats/eventid/15203

4. ***White paper on the adaptation of cultural business models during the pandemic.***

This white paper has been used in Study 3 to reward companies that have collaborated by responding to the questionnaire on which the quantitative research of this third study is based. "Libro Blanco de la Adaptación de los Modelos de Negocio Culturales": https://www.montsepenarroya.com/wp-content/uploads/2022/05/Libro-Blanco-Adaptacion-de-los-Modelos-de-Negocio.pdf

The goal of the white paper is to guide how to adapt different components of a business model in order to respond to the challenges of the pandemic. This includes recommendations for adapting marketing strategies, revenue streams, partnerships, and more. By implementing these adaptations, companies can increase their chances of success during the pandemic. Moreover, the white paper offers practical recommendations for companies to seize opportunities and mitigate risks during this crisis.

8. STUDY 3 - SUSTAINABLE BMI IN CCI FIRMS

8.1 INTRODUCTION

The cultural and creative industry faces growing challenges due to the VUCA (volatility, uncertainty, complexity, and ambiguity) trends in the competitive environment. This environment pushes managers, mainly from SMEs, to face growing challenges that require sustainable and innovative solutions (Balboni and Bortoluzzi, 2015; Teece, 2018).

On top of that, the COVID-19 crisis has exposed cultural and creative SMEs to unprecedented challenges, requiring business model changes to maintain competitiveness and survival. Business model innovation (BMI) and Business Model Adaptation (BMA) have emerged as a strategic response to the crisis, particularly for surviving companies (Peñarroya-Farell and Miralles, 2022).

Despite the challenges, the cultural and creative industry plays a significant role in economic and cultural development, generating employment and revenue. In Spain, for example, the cultural industries contributed approximately €27.4 billion in revenue in 2019, representing about 2.5% of the country's GDP and employing approximately 1.2 million people (INE, 2022).

The CCIs hold particular significance within the Spanish context due to the country's rich cultural heritage and vibrant creative scene. Spain has a diverse and dynamic cultural landscape, with numerous cultural events, festivals, and artistic expressions contributing to its cultural identity. Additionally, Spanish CCIs have faced unique challenges and opportunities, such as the impact of regional diversity and cultural heritage on creative practices.

The COVID-19 pandemic has also brought attention to sustainability issues, with changes in consumer behaviour and increasing interest in local and sustainable brands. Against this backdrop, there is a growing need for sustainable and innovative solutions to support the competitiveness of cultural and creative SMEs. During the COVID-19 crisis, this industry was highly impacted by the lockdown, and the posterior regulatory turbulences and the number of people employed went down to 2,9% of the country's total employment (INE, 2022).

At the same time, the COVID-19 pandemic significantly impacted how people live and work and has also brought attention to sustainability issues. The lockdowns and other measures taken to control the spread of the virus led to changes in consumer behaviour, with many people turning to online shopping and supporting local and sustainable brands giving momentum to the interest in sustainability (Alexa et al., 2021).

This study aims to explore the role of BMI in enhancing the sustainability and competitiveness of cultural and creative SMEs, focusing on the Spanish context. Adopting sustainable practices is a

trend in the cultural and creative industries. However, what psychological factors prompt managers from this industry to adopt sustainable and innovative practices has not been fully addressed.

Despite prior research highlighting the importance of SMEs identifying collaborative opportunities from their knowledge-flow network to survive environmental changes (Blundel, 2003; Peñarroya-Farell and Miralles, 2022; Zhang and Wang, 2021), there is a lack of clear evidence demonstrating the link between knowledge sharing and the intention to adapt business models in an open innovation environment.

To address this gap, this study proposes a model based on the theory of planned behaviour (TPB) (Ajzen, 1991) to explain managers' intentions to implement more sustainable and innovative business models in cultural and creative companies. Specifically, the TPB model is extended to include the effect of participating in open innovation ecosystems, such as peer and professional organisations within a proximity network.

Given this focus, the primary research question of this research work has been formulated as: "To what extent do open innovation ecosystem partnerships affect cultural and creative industry managers' perception of implementing innovative business models based on a sustainable perspective in their firms?"

By addressing this question, we aim to contribute to a better understanding of the role of open innovation ecosystems in enhancing the sustainability and competitiveness of cultural and creative SMEs.

The academic contribution of this research is to provide a better understanding of the factors that influence managers' intention to adopt sustainable and innovative practices. At the same time, the model proposed in this study can guide managers in developing effective strategies to collaborate with peer and professional organisations to enhance their sustainable and innovative practices.

Most cultural and creative firms belong to the group of SMEs, and managers strongly influence how the firm faces competitive challenges (Schiuma and Lerro, 2017). This research study's target sample comprises managers and business owners from cultural and creative SMEs in Spain. Based on the size of the companies, the position title may differ; some standard titles include manager, owner, general manager, director, and senior staff member. Therefore, the term "managers" is used in this article to unify and include all people with a certain amount of executive power to change a business model.

An extension of the Theory of Planned Behaviour model that includes a construct for open innovation ecosystem partnerships is used to develop a questionnaire administered using an online survey.

The final model has been positively tested with survey data of managers from 122 Spanish cultural & creative SMEs conducted from May to October 2022 and analysed using Partial Least Squares Structural Equation Modeling, a multivariate analysis technique that can be used for both exploratory and confirmatory analyses, and that is particularly useful when the sample size is relatively small, and the relationships between variables are complex and nonlinear.

There are multiple sections in the paper. Section 1 is the introduction to the study. In Section 2, cultural and creative industries (CCI) are defined, and the literature on sustainability, business models, sustainable business models, open innovation, and the theory of planned behaviour is reviewed. Section 3 describes the data and the appropriateness of structural equation modelling for the research. Finally, in Section 4, the main results are presented, and in Section 5, conclusions are offered and discussed.

8.2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The econometric models applied to study managers adopting sustainable business model practices generally employ a range of determinants such as manager and firm characteristics, institutional setting, and individual perceptions of the economic environment (Ibrahim et al., 2018; Pan et al., 2022; Short et al., 2014). This paper extends this research by introducing psycho-social constructs to explain cultural and creative industry managers' intention to adopt sustainable practices when innovating in their business models by applying Ajzen's Theory of Planned Behaviour (TPB) (Ajzen, 1985).

8.2.1 Cultural and Creative Industries

Cultural and creative industries (CCI) are diverse economic sectors that produce and distribute cultural and creative goods and services (Pratt, 1997; Throsby, 2008). CCI are broadly defined for this paper as audiovisual creation and management, popular culture and traditions, management of cultural heritage (museums, monuments, singular houses, etc.), books and press, musical production, creation and performance, services related to culture (advertising, consultancy, ticketing, digitisation, etc.), and other industries that produce or use creative content or intellectual property. This study scope includes the artists, skilled technicians, and support infrastructure (material and organisational) necessary to reproduce these cultural endeavours. These industries are diverse and can vary significantly in size, business models, and markets, but they all play a crucial role in shaping and reflecting cultural values and identities (European Union Commission, 2010).

Current competitive challenges require innovation in business models, with a sustainable focus, following the experience during the COVID-19 crisis (Peñarroya-Farell and Miralles, 2022). The

pandemic has highlighted the need for companies to be more resilient and adaptable in emergencies (Gregurec et al., 2021).

By adopting more sustainable business models, companies can weather the current crisis and be better prepared for future challenges. In addition, consumers increasingly demand that companies operate more sustainably, and those that do may have a competitive advantage in the marketplace. CCI are not an exception, but the dynamics of the innovation in BM and managers' current practices make adapting the business models difficult (Boons et al., 2013; Dopfer et al., 2017).

8.2.2 Business Model, Business Model Dynamics, And Business Model Innovation

A business model (BM) is a blueprint for how a company creates, delivers, and captures value. This framework has proven helpful in diverse CCI management research (Ernst et al., 2015; Koronis and Ponis, 2018; Palmi and Madaro, 2020; Peñarroya-Farell and Miralles, 2022).

A BM describes the various elements that make up a company's strategy for generating revenue and profit, including the value proposition it offers to customers, the market segments it targets, the channels it uses to reach customers, the relationships it builds with stakeholders, and the resources and capabilities it uses to deliver value (Bocken et al., 2014; Markides, 2006; Osterwalder et al., 2005). These elements work together to create a cohesive plan to deliver value to customers and stakeholders, capture revenue, and generate profit. The BM framework has also been proven helpful by academics researching e-commerce (Amit and Zott, 2001; Bouwman and MacInnes, 2006; Bryant et al., 2018; Osterwalder and Pigneur, 2010; Remane B.; Hanelt, A.; Kolbe, L. M., G.; Chattanooga; et al., 2016), business strategy and innovation (Casadesus-Masanell and Ricart, 2007; Chesbrough and Rosenbloom, 2002; Jensen and Sund, 2017), technology management (Amit et al., 2011), and sustainability (Bocken et al., 2015; Bohnsack et al., 2014; Wu et al., 2021).

Conveniently adapting a company's BM can be a source of competitive advantage and help companies maintain their competitive edge in a rapidly changing business environment (Chesbrough, 2006). As a company's competitive strategy needs to evolve, the company's BMs evolve and pivot over time. Business model dynamics refers to how companies change and develop their business models over time to create sustained value (Casadesus-Masanell and Ricart, 2007; Corbo et al., 2018; Peñarroya-Farell and Miralles, 2022, 2021). Several patterns of business model dynamics have been identified: business model innovation, business model adaptation, and business model evolution (Peñarroya-Farell and Miralles, 2021; Saebi, 2014). Business model innovation involves the creation of new business models or radically transforming existing ones (Bhide, 2000; Casadesus-Masanell and Ricart, 2007; Osterwalder et al., 2005; Pucci et al., 2017). Business model adaptation refers to modifying an existing business

model in response to changes in the external environment (Balboni and Bortoluzzi, 2015; Dottore, 2009; Foss and Saebi, 2017; Landau et al., 2016; Peñarroya-Farell and Miralles, 2021). Business model evolution involves the incremental changes and improvements made to an existing business model over time (Axelson and Bjurström, 2019; Demil and Lecocq, 2010; Peñarroya-Farell and Miralles, 2021).

8.2.3 Sustainability And Sustainable Business Models

Sustainability refers to the capability of a system, process, or activity to be maintained or continued over time without depleting or damaging resources or causing negative environmental or social impacts (Johnston et al., 2007; Moore et al., 2017). This concept is often applied to using natural resources, such as water, land, and minerals, as well as the impact of human activities on the environment.

In a business context, sustainability at a firm level often requires finding a balance between the company's economic development, social welfare among all its stakeholders, and environmental protection so that the present needs of the company can be met " without compromising the ability of future generations to meet their own needs" (Tolkamp et al., 2018).

Sustainability is a trend gaining traction in the business innovation world. There is a rise in sustainable business practices and initiatives: Many companies are adopting more sustainable practices, such as reducing their carbon emissions, using eco-friendly materials, and supporting local communities (Buffa et al., 2018; Chen et al., 2011; Menozzi et al., 2015). Also, there is considerable progress in sustainable industries: Industries related to sustainability, such as renewable energy and green building, are experiencing significant growth (Bryant et al., 2018; Chan and Lau, 2002; Singh et al., 2018).

Consumers also request that companies operate more sustainably, increasing the demand for eco-friendly and socially responsible products and the increasing popularity of sustainability-focused consumer brands (Chan and Lau, 2002; Liu et al., 2018; Wu et al., 2021). Finally, if the role of government and regulatory bodies are examined, it is clear that sustainability is an important policy priority and is likely to continue to be a trend in the business world (Bryant et al., 2018; Chan and Lau, 2002).

CCI are no exception, and CCI managers' tendency to implement sustainable business model innovations after the COVID-19 crisis has been highlighted in academic work (Dragicevic and Stefanovic, 2020; Palmi and Madaro, 2020; Teevan, 2020). Dealing with the crisis has helped CCI companies identify new growth opportunities that are more sustainable and resilient to future crises. It also has helped them to consider new products, services, or markets that could be

developed to capitalise on the changing landscape (Alexa et al., 2021; Gregurec et al., 2021; Valenzuela-Fernández et al., 2022).

A sustainable business model (SBM) involves using resources efficiently and responsibly and developing and implementing products, services, and practices that are environmentally and socially responsible (Batista and de Francisco, 2018; Tolkamp et al., 2018; Vuorio et al., 2018; Wu et al., 2021). Corbin & Strauss (Corbin and Strauss, 2012) point out some examples of sustainable business model innovations:

- Using renewable energy sources and reducing greenhouse gas emissions
- Developing and selling products that are made from recycled materials or that can be easily recycled or repurposed
- Using sustainable sourcing and supply chain practices
- Implementing circular business models, in which products or services are designed for reuse or recycling
- Offering products or services that enable customers to reduce their environmental footprint

Investing in digital transformation has also been proven to lead to more SBMs; it increases efficiency and reduces costs (Pfeiffer, 2016; Stojanova et al., 2022). Companies should consider leveraging technology to automate processes, improve customer service, and create new revenue streams. By developing an SBM, a company can improve its environmental and social performance, create long-term value for its stakeholders, and improve its competitiveness (Amit and Zott, 2001; Bocken et al., 2015; Boons et al., 2013; Chesbrough, 2010; Corbin and Strauss, 2012; Johnson and Christensen, 2008; Teece, 2010).

Integrating a sustainable business model with the radical transformation of the BM using a business model innovation effort is often referred to as Sustainable Business Model Innovation (SBMI) (Bashir et al., 2022; Chuang et al., 2022; Minatogawa et al., 2022; Pan et al., 2022).

SMBI can drive the designing and implementation of innovative business models that are both financially viable and environmentally and socially sustainable (Chuang et al., 2022; Minatogawa et al., 2022; Pan et al., 2022). Furthermore, for SME owners and managers, SBMI will result in enhanced SME performance and competitive advantages (Bashir et al., 2022). Bashir et al. (2022) developed a scale to measure SBMI.

8.2.4 Open Innovation And Open Innovation Ecosystems (OIE) In CCI

Innovation is widely recognised as a primary driver of economic growth and development at a firm level, but the dynamics of innovation systems are still difficult to address (Markides, 2006;

Schumpeter, 1934). The innovation process can be challenging for firms to do independently. Firms must look externally for partners willing to share their knowledge to develop new products and processes (Yun et al., 2016).

Some potential benefits of OIE in CCI include tapping into new sources of creativity and innovation, access to new markets and distribution channels, and building stronger relationships with customers and other stakeholders (Dragicevic and Stefanovic, 2020). By partnering with other organisations, CCI firms can access expertise and technologies they might not have in-house and benefit from their partners' complementary strengths and resources (Chesbrough, 2006). At the same time, Open innovation can help businesses recognise the need to adapt their existing business models. Interacting in OIE can help managers identify new opportunities, challenges and emerging trends, increasing their awareness of the need to adapt their business models (Peñarroya-Farell and Miralles, 2021; Yun, 2017a). Additionally, open innovation can foster the development of new business model innovations by bringing together different expertise and perspectives. By leveraging the knowledge and resources of external partners, businesses can create more innovative and sustainable business models (Peñarroya-Farell and Miralles, 2021; Yun, 2017a).

Academics agree that OIE can benefit the cultural industries and the organisations they collaborate with (Dragicevic and Stefanovic, 2020; Peñarroya-Farell and Miralles, 2022; Saebi and Foss, 2015b). Previous research showed the managers' tendency to collaborate in open innovation ecosystems when an emergency strikes: a multiple qualitative case study was developed among cultural and creative firms that survived the COVID-19 crisis using BMI as a strategic response (Peñarroya-Farell and Miralles, 2022). It was established that CCI companies turned to their network of peers, this is to say, an open innovation ecosystem, not only to keep up-to-date with innovations but, much more importantly, their primary motivation was to get help and assistance in finding viable solutions to the required adaptation of their business models (Peñarroya-Farell and Miralles, 2022).

In order to survive, managers had to develop their collaborative capabilities.

Collaborative capabilities are the skills, resources, and processes a firm has to collaborate with external partners effectively (Bocken et al., 2015) they are part of the set of capabilities named Dynamic Capabilities (Teece, 2007), a firm's ability to adapt and change in response to external changes and internal resources. Collaborative capabilities include identifying and approaching potential partners, negotiating and managing partnerships, and effectively sharing and integrating knowledge and resources with partners (Foss and Saebi, 2017; Saebi and Foss, 2015b).

8.2.5 The Theory of Planned Behaviour

Extant literature has examined multiple influences to increase managers' support for innovation to attain BMI with sustainable practices (Bryant et al., 2018; Tolkamp et al., 2018; Vuorio et al., 2018; Wu et al., 2021). However, given that implementing sustainable business models (SBMs) can be understood as a planned behaviour, this study offers a new perspective: it applies the Theory of Planned Behaviour (TPB) with the mediating effects of managers' interaction whit their peers in an open innovation ecosystem.

The theory of planned behaviour (TPB) is a psychological model that explains how people make decisions about their behaviour—proposed by Ajzen in 1985 (Ajzen, 1985) as an extension of the theory of reasoned action; it suggests that people's behaviour is guided by their intentions, which are influenced by three personal determinants: their attitudes, subjective norms, and perceived behavioural control.

- Attitude refers to a person's evaluation of the behaviour in question and the outcomes likely to result from it.
- Subjective norm refers to a person's perception of the expectations of relevant others, such as friends or family, regarding the behaviour.
- Perceived behavioural control refers to a person's belief in their ability to perform the behaviour.
- To some degree, non-motivational factors such as resources (e.g., time, money, skills, and cooperation of others; see Ajzen, 1985, for a discussion) can influence the behaviour. This is the actual control over the behaviour, not the perceived one.

Figure 10 illustrates the standard TPB model.

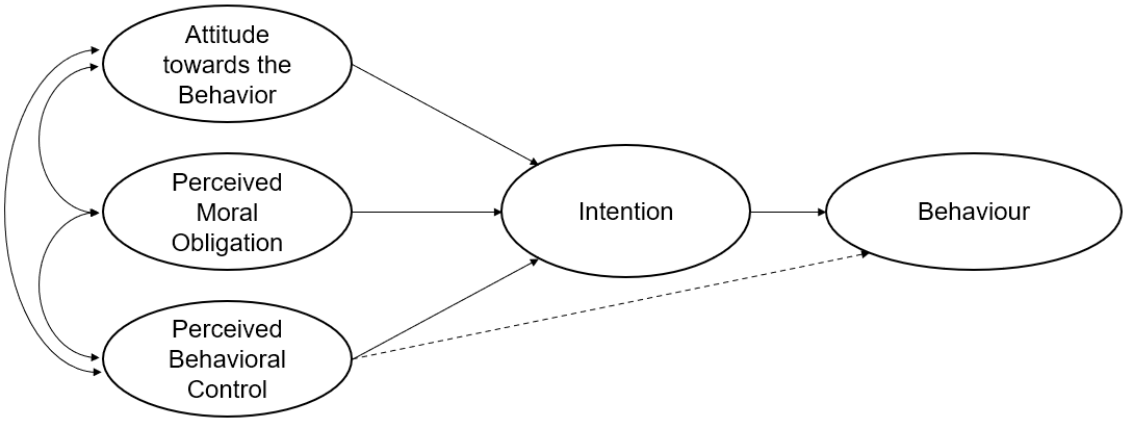

***Figure 10**: Standard TPB model (Ajzen, 1991)*

8.2.5.1 The Behavioural intention's role as a behaviour antecedent.

The intention, sometimes described as "motivation" (Ajzen, 1991; Armitage and Conner, 2001), has been proposed as a good predictor of behaviour. Armitage & Conner (Armitage and Conner, 2001) presented a quantitative integration and review of 185 independent studies based on the TPB, concluding that intention was the highest predictor of behaviour among all predictors in the studies analysed.

Furthermore, consumer-based sustainability studies (Chan and Bishop, 2013; Cheung et al., 1999; Schwepker and Cornwell, 1991; Taylor and Todd, 1995) reflect high levels of support for the effect of intention on environmental behaviour; managerial studies in adopting sustainable practices (Anthony Swaim et al., 2016; Chen et al., 2011; Luo et al., 2017) also provide empirical support for this path.

8.2.5.2 Attitude

Ajzen and Fishbein define attitude as "an individual's evaluation of the favourable or unfavourable outcome from the performance of such behavioural action" (Ajzen, 1985), which means that attitude is a personal belief and that when a person has a "more positive attitude toward a behaviour," the person will "want to engage in that certain behaviour" (Ajzen, 1985). The effect of past experiences related to a particular behaviour is part of the attitude towards that specific behaviour (Ajzen, 1985).

Many researchers suggest an essential link between sustainability attitudes and behaviour intention. Specifically, in the environmental sustainability domain, a positive relationship between attitude and behavioural intentions has been demonstrated with sustainable agriculture (Menozzi et al., 2015), waste reduction & recycling (Cheung et al., 1999; Taylor and Todd, 1995), the purchase of green products (Kirchoff et al., 2011), choosing green hotels (Liu et al., 2018) and sustainable manufacturing (Menozzi et al., 2015). Still, others indicate that environmental behaviour can occur without underlying attitude alignment (Chan and Bishop, 2013).

The following hypothesis is consequently proposed:

- **H1:** Managers' attitude towards SBMs positively influences the intention to implement them.

8.2.5.3 Perceived Behavioural Control

The TPB model sustains that people are more likely to engage in actions that they perceive as easy and less likely to engage in actions that they perceive as difficult. In this sense, Perceived behavioural control (PBC) reflects a person's perception "of the ease or difficulty in performing a behaviour" (Ajzen, 1985).

Studies of environmental sustainability behaviour found a direct link between PBC and intention (Alexa et al., 2021; Chan and Lau, 2002). However, PBC has not always been an essential factor in adopting sustainable practices when the behaviour is not complex; for example, the study on sustainable university dining services (Chen et al., 2011) did not support the path connecting PBC and intention, and in several studies on wastepaper-recycling behaviours the PBC did not have a significant effect (Chan and Bishop, 2013; Cheung et al., 1999; Liu et al., 2018).

In our study, managers' beliefs about performing a successful BMI following sustainable practices depend on the firm's internal capabilities. That becomes a complex task requiring specific knowledge and concrete skills that cannot be assumed as other sustainability actions in this sense. Consequently:

- **H2:** Managers perceived behavioural control to adapt the business model more sustainably positively influences the intention to implement it.

8.2.5.4 Subjective social norm

Subjective social norms are shaped "from the individual's willingness to comply with their perceptions of the beliefs of important others" (Ajzen, 1991), e.g., parents, friends, co-workers, customers, or shareholders (Ajzen, 1991, 1985).

The original model of the TPB also states that social norms directly affect the attitude toward behaviour and the perception of control over the behaviour. Therefore, the following hypotheses are formulated:

- **H3**: Subjective social norms positively influence the managers' attitude towards Sustainable Business Models.
- **H4**: Subjective social norms positively influence the perceived behavioural control over Sustainable Business Models.

Moreover, professional peer associations are a part of the social norm and pressure managers to adopt sustainable behaviour. Thomas and Lamm introduced the concept of "moral legitimacy" to refer to the degree to which an organisation's actions or attributes align with prevailing social norms or implicit moral obligations or align with values related to humanistic or biospheric altruism (Thomas and Lamm, 2012). The moral dimension of sustainability legitimacy involves a normative evaluation of its "rightness" irrespective of the costs or benefits to the organisation. In other words, most probably, the question being asked among the ecosystem members is, "Is it morally right to do?". Therefore:

- **H5**: Subjective social norms positively influence open innovation ecosystems.

8.2.5.5 Open innovation ecosystems and behavioural intention

The COVID-19 crisis naturally led to an open innovation system created by professional associations and cluster members where firms could exploit technological innovations by sharing knowledge with their peers (Peñarroya-Farell and Miralles, 2022). Professional organisations can be a valuable source of information and support for professionals looking to learn about new trends and technologies and businesses seeking to stay up-to-date with the state-of-the-art developments in their field (Peñarroya-Farell and Miralles, 2022). They are a form of open innovation ecosystem (OIE).

When managers from CCI combine their knowledge, working together in open innovation ecosystems, sharing knowledge with their peers, and explaining their own experiences adapting their business model, their attitude towards SBM changes as they are more aware of the benefits or the contras altering their attitude towards SBM (Chan and Bishop, 2013).

Therefore:

- **H6**: Participating in an OIE positively influences the managers' attitude towards SBM.

The innovation process becomes a relationship between various parties from the same network who combine their knowledge to solve everyday challenges; in other words, innovation diffusion is done by "open innovation through network proximity" (Zhang and Wang, 2021).

Furthermore, sharing experiences with peers can help managers to achieve the competencies necessary to implement Sustainable Business Models successfully and change their perception of its feasibility (Peñarroya-Farell and Miralles, 2022). Therefore:

- **H7**: Being part of an OIE positively influences the perceived behavioural control over implementing SBM.

Being part of an OIE and sharing among peers the need to implement more sustainable practices in their companies can directly affect the managers' intention to implement the changes needed to accomplish a successful SBM. However, research shows that in some entrepreneurial studies, the relationship between perceived social norms and the antecedent of OIE partnerships does not affect the intention to be an entrepreneur (Su et al., 2021). Therefore:

- **H8:** Participating in an OIE positively influences the managers' intention to implement Sustainable Business Models.

8.2.5.6 Construct operationalisation

In this study, an extension to the TPB model is proposed by adding a new construct, "open innovation ecosystems partnerships," which is hypothesised to mediate the relationship between

the existing constructs of the classical TPB and the managers' intention in implementing innovative sustainable initiatives in their firms.

This new construct plays a crucial role in the relationship between the existing constructs and the outcome variable. By including this new construct in the model, the study tests whether it significantly impacts the outcome variable beyond the existing constructs.

It's important to emphasise that while the proposed model is not the standard TPB model, the essence of the model is the same in that it aims to predict human behaviour based on psychological constructs. This extension adds to the existing literature by testing a new hypothesis about the role of open innovation ecosystem partnerships in shaping managers' intentions to implement sustainable business models. It also enhances its completeness and practical applicability to real-life scenarios, such as those examined in this study on CCI firms.

Figure 11 shows the proposed research model for the role of open innovation ecosystem partnerships with the intention of implementing Sustainable Business Models.

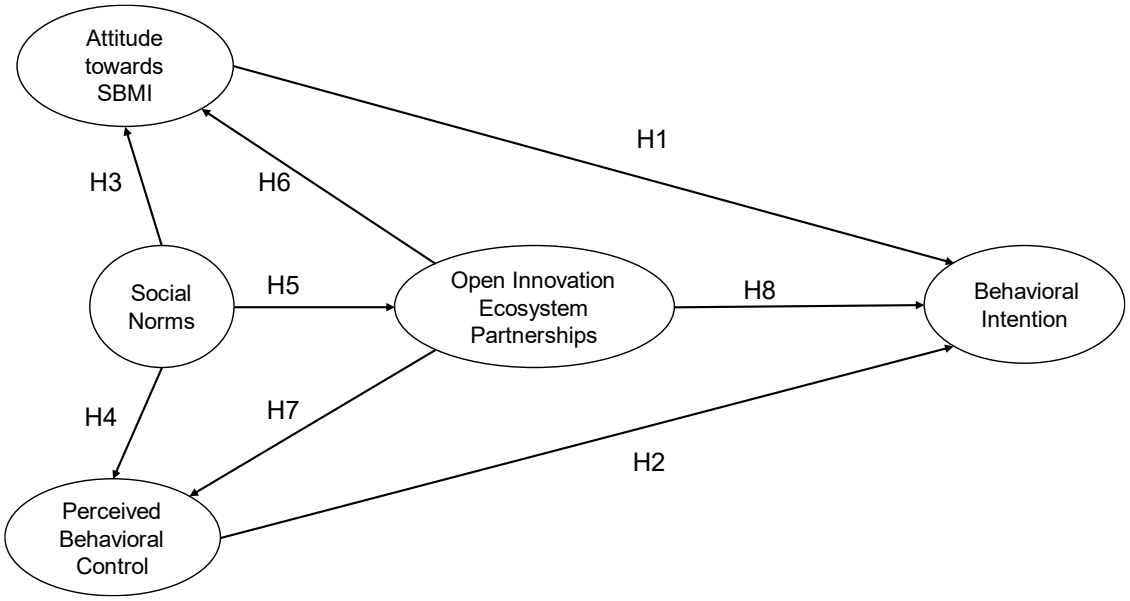

***Figure 11**: Proposed research model and Hypothesis*

8.3 METHODOLOGY

The research model (Fig. 6) was tested via an online survey of managers and owners from Spain's cultural and creative industries (the questionnaire has been described in Table 20). The researchers translated the questions into Spanish to allow the respondents to read the questionnaire

without difficulty. Expert translators validated the translation. Once answered, the questions were translated into English for this paper. This process was double-checked by two of the authors.

A pilot survey at a small-scale version was conducted to eliminate any ambiguous or inappropriate wording in the questionnaire items and to improve the content validity of the questionnaire items (Bernard, 2006; Churchill, 1979). To ensure the respondents understood the research concepts, a definition and examples of business model, and sustainable business model innovation were included in the survey for respondent context. Upon competition of the survey, participants were offered a digital guide on business model innovation for CCI (Creative and Cultural Industries) to increase the response rate.

The model was built using different references (see Table 20) that are common to test a TPB model and open innovation settings. The questions were extracted from previously validated works based on the TPB model, in general, and applied to sustainability (Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021) and open innovation (Atılgan, 2019; Buffa et al., 2018). The items assessing the construct were separated and presented in non-systematic order in the final questionnaire.

8.3.1. Sample And Data Collection

To assemble our respondent pool, a total of 636 managers from companies within the cultural and creative industries were contacted via email between May and October 2022. It is important to note that these email addresses were provided by the Departament de Cultura de la Generalitat de Catalunya exclusively for the purpose of our research, with strict adherence to privacy and data protection regulations.

Of the contacted companies, 136 managers responded by completing the online survey hosted on Google Forms, representing approximately 15.7% of the total contacted. To maintain the integrity of our sample, responses from individuals categorised as mere employees were excluded. Additionally, we excluded respondents from companies with more than 50 employees to ensure our focus remained on Small and Medium-sized Enterprises (SMEs), which aligns with our research objectives. This careful selection process yielded a total of 122 valid responses that formed the basis of our analysis.

Notably, the respondents in Study 3 partially overlap with those in Study 2, as both studies drew from the same database.

Table 22 shows the participation of the different cultural subindustries in the survey.

Table 22: Industry Participation in the 122 valid responses

CULTURAL AND CREATIVE INDUSTRIES	SURVEYS DATA
Performing arts	33%
Audio-visual creation and management	10%
Popular culture	5%
Management of Cultural Heritage	6%
Books and press	25%
Musical production, creation and performance	12%
Services related to culture	8%
Other	18%

The individual managers' perception was the unit of analysis. Direct measures were used for TPB constructs, following Ajzen's methodological recommendations (Ajzen, 2002, 1991) on defining a TPB survey using composite measures of attitudes, subjective norms, and perceived behavioural control, and past research on TPB (Chan and Bishop, 2013; Chen et al., 2011; Hagger et al., 2002; Menozzi et al., 2015; Singh et al., 2018).

The behaviour analysed in this study is the implementation of SBM, also labelled Sustainable Business Model Innovation (SBMI) by CCI business managers. Following Ajzen's recommendations (Ajzen, 2002), a time element was included in some questions. The time element refers to when the behaviour is performed; in this research, it was defined as the next eighteen months. The latent variables are Behavioural Intention (INT), Attitude towards SBM (ATT), Social Norms (NOR), Perceived Behavioural Control (PBC), and Open Innovation Ecosystem partnerships (OIE). Table 23 shows the sources and properties of scales. All items were measured on a five-point Likert scale ranging from the Spanish equivalent of "strongly disagree" to "strongly agree," with "neither agree nor disagree" as a midpoint.

Table 23: Constructs and Measures for Behavioural Intention

LATENT VARIABLE	DESCRIPTION (translated to Spanish)	ITEMS	REFERENCES
Behavioural Intention	I am willing to have a more sustainable business model in my company during the next 18 months.	INT1	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)

	I plan to adopt more sustainable practices during the next 18 months	INT2	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
	I will reduce the environmental impact of our manufacturing/creation processes during these 18 months.	INT3	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
	I will try to pursue more practices to achieve sustainable development in my organisation this year or in the next 18 months.	INT4	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
Attitude toward SBMI	I try to buy products and services that have been helping society these past months.	ATT1	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
	When evaluating a business opportunity, I consider the social impact that the business will have (poverty reduction, employment, and increasing equality)	ATT2	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
	When evaluating a business opportunity, I consider the environmental impact that the business would have (e.g., use of natural resources, protecting biodiversity, and energy type).	ATT3	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
	A sustainable business model implies more advantages than disadvantages to our company/organisation.	ATT4	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
Social Norms	People that are important to me think my company should be more environmentally and socially sustainable.	NOR1	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
	A more sustainable business model will entail great satisfaction for my customers.	NOR2	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
	My work colleagues think we should implement sustainable practices.	NOR3	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
Perceived Behavioural Control	I'm sure we can find more sustainable/local providers	PBC1	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)

	I'm sure I can measure all the sustainable changes we implement	PBC2	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
	We will be able to achieve most of the goals that we have set for our company/organisation	PBC3	(Ajzen, 2002; Alexa et al., 2021; Wu et al., 2021)
Open Innovation Ecosystem partnerships	In the association of cultural companies/organisations to which I belong, we work together to obtain more sustainable business models.	OIE1	(Atılgan, 2019; Buffa et al., 2018)
	When a challenge is tough, we discuss it at the meetings of the cultural association to which we belong.	OIE2	(Atılgan, 2019; Buffa et al., 2018)
	In the cultural association to which my company belongs, we discuss the sustainable practices implemented by other members of our industry.	OIE3	(Atılgan, 2019; Buffa et al., 2018)

8.3.1 Measurement Instrument. Data reliability and validity

SMART-PLS v4 was used to analyse the model (Hair et al., 2019). Following the standard procedures for analysing a **Structural Equation Modelling (**SEM) model (Hair et al., 2022, 2019), two steps were used to obtain the results. The first step is debugging the model as a measurement instrument (Cronbach, 1951; Fornell and Larcker, 1981; Hundleby and Nunnally, 1968). This is coherent with Ajzen's considerations on creating a questionnaire (Ajzen, 2002), "care should be taken to ensure that the intention items selected in the study correlate highly with each other (i.e., that the measure has high internal consistency)." Cronbach's coefficient alpha has been used for this purpose (Cronbach, 1951).

Data reliability and validity were assessed by analysing convergent validity, reliability, and discriminant validity to evaluate the measurement quality. All factor loadings ranged between 0.706 and 0.908 for the primary constructs except one of the items related to the latent variable of Social Norms (NOR). Factor loading for item NOR3 is 0.592, which is less than 0.7, affecting latent variables Cronbach's Alpha and Composite Reliability. The researchers did not remove the item NOR3 due to the suggestions in previous studies (Morgan, 2015; Weston and Gore, 2006) avoiding less than three observed variables for each construct. Therefore, the researchers decided to hold the item.

The results indicate that the scales measuring each construct had Cronbach's alpha coefficients greater than 0.70, and the composite reliability (CR) was greater than 0.70, indicating acceptable reliability. To analyse the validity of the constructs, standardised factor loadings were greater than 0.7, providing support for convergent validity. In addition, the average variance extracted (AVE) exceeded 0.50 for all constructs and reached the recommended threshold of 0.70 (Hundleby and Nunnally, 1968), indicating appropriate reliability and validity (Table 24).

Table 24: Construct Reliability and Validity

Constructs	Indicator	Factor Loadings	Cronbach's Alpha	CR	AVE
Attitude Towards SBMI(ATT)	ATT1	0.770	0.739	0.745	0.560
	ATT2	0.722			
	ATT3	0.742			
	ATT4	0.760			
Perceived Behavioural Control (PBC)	PBC1	0.799	0.738	0.757	0.658
	PBC2	0.753			
	PBC3	0.876			
Behavioural Intention (INT)	INT1	0.711	0.856	0.885	0.699
	INT2	0.863			
	INT3	0.850			
	INT4	0.908			
Social Norms (NOR)	NOR1	0.828	0.574	0.610	0.532
	NOR2	0.750			
	NOR3	0.592			
Open Innovation Ecosystem (OIE)	OIE1	0.843	0.751	0.795	0.667
	OIE2	0.706			
	OIE3	0.889			

Note: CR= Composite Reliability; AVE= Average Variance Extracted.

Further, we checked for discriminant validity based on (Fornell and Larcker, 1981), showing the distinctness of a construct when the square root of the average variance extracted for each latent variable is higher than other correlation values among any other construct. The result showed that adequate discriminant validity had been achieved by the square roots of the AVEs, which were higher than the off-diagonal correlations for total observations (Table 25).

Table 25: Discriminant Validity (Fornell-Larcker Criterion (Fornell and Larcker, 1981))

	ATT	BEH	INT	NOR	OPI
Attitude Towards SBMI (ATT)	**0.748**				
Perceived Behavioural Control (PBC)	0.616	**0.811**			
Behavioural Intention (INT)	0.718	0.676	**0.836**		
Social Norms (NOR)	0.656	0.561	0.608	**0.730**	
Open Innovation Ecosystem (OIE)	0.544	0.474	0.484	0.508	**0.817**

Note: Bold figures on the diagonal show the square root of the average variances extracted AVEs; numbers below the diagonal represent the squared inter-construct correlations

8.4 FINDINGS

Recently, PLS-SEM has been growingly applied in various research (Hair et al., 2019); it is a technique to predict structural equation models with causal reasons (Hair et al., 2021). Thus, our data analysis proceeded to estimate the Structural Equation Modelling (SEM) using SMART-PLS version 4 and standardised bootstrapping with 5000 subsamples with 95% confidence intervals. The model was run for the total sample to achieve an accurate result to see the path coefficients among the latent variables (Hair et al., 2021).

8.4.1 Data Analysis And Results

The fit items suggest that the model adequately represents the input data. Also, the model reached fitted the data ($\chi 2$ = 331.572, NFI = 0.694, and SRMR = 0.096). The Normed Fit Index (NFI) values are between 0 and 1, and the closer to 1, the better the fit (Lohmöller, 1989). The standardised root means square residual (SRMR) shows the difference between the observed correlation and the model-implied correlation matrix. A value less than 0. 08 is propounded as a good fit (Hu and Bentler, 1999); however, in PLS-SEM, to avoid model misspecification value less than 0.10 is considered a good fit (Henseler et al., 2014).

According to the proposed model, the coefficient of determination Chi-square shows that the predictors of variable behavioural intention (INT) explain 60.05% of its variance. Predictors of Attitude Towards SBMI (ATT) explain 49.1% of its variance (R^2 ATT= 0.491). Following, Chi-square for the variable Perceived Behavioural Control (PBC) is 36.2%, and R^2 for Open Innovation Ecosystem (OIE) explained 25.8% of its variance (Table 26).

Table 26: Structural Model Evaluation

SEM Model				
Hypothesised Path	**β (Standardised Estimates)**	**Standard Error (SD.)**	**T statistics**	**P values**
H1: ATT ⟶ INT	0.461	0.083	5.559	***
H2: PBC ⟶ INT	0.363	0.076	4.743	***
H3: NOR ⟶ ATT	0.512	0.071	7.185	***
H4: NOR ⟶ PBC	0.431	0.109	3.939	***
H5: NOR ⟶ OIE	0.508	0.076	6.664	***
H6: OIE ⟶ ATT	0.284	0.073	3.906	***
H7: OIE ⟶ PBC	0.255	0.119	2.150	*
H8: OIE ⟶ INT	0.061	0.076	0.801	**n.s.**
Goodness-of-Fit Measures				
R^2 (ATT)	0.491			
R^2 (PBC)	0.362			
R^2 (INT)	0.605			
R^2 (OIE)	0.258			
$\chi 2$	331.572			
NFI	0.694			
SRMR	0.096			
N	122			

*Note: *p < 0.05 , **p < 0.01 , ***p < 0.001, n.s. = not significant, $\chi 2$ =Chi-square, NFI=Normed Fit Index, SRMR= Standardized Root Mean Square Residual, R^2=Squared Multiple Correlations, N=Sample size.*

ATT= Attitude Towards SBMI, PBC= Perceived Behavioural Control, INT= Behavioural Intention, NOR= Social Norms, Open Innovation Ecosystem (OIE).

8.4.2 Test of hypotheses

According to the result, Attitude Towards SBMI (ATT) positively affects Behavioural Intention (INT) ($\beta = 0.461$, $p < 0.001$); therefore, H1 is supported.

The results found a positive effect of Perceived Behavioural Control (PBC) on Behavioural Intention (INT) ($\beta = 0.363$, $p < 0.001$); therefore, the data supports H2.

Furthermore, as was expected, Social Norms (NOR) positively influenced Attitude Towards SBMI (ATT) ($\beta = 0.512$, $p < 0.001$) and Behavioural Intention (INT) ($\beta = 0.431$, $p < 0.001$); hence, hypotheses H3 and H4 are supported.

There was a positive impact of Social Norms (NOR) on the Open Innovation Ecosystem (OIE) ($\beta = 0.508$, $p < 0.001$); hence, H5 is supported too.

In addition, Open Innovation Ecosystem (OIE) positively influences Attitude Towards SBMI (ATT) ($\beta = 0.284$ $p < 0.001$); thus, H6 holds, and as expected, OIE is positively related to Perceived Behavioural Control (PBC) ($\beta = 0.255$, $p < 0.05$); so, H7 is supported too.

Whereas contrary to our initial expectation, our data do not show a direct influence of OIE over INT, and consequently, the direct effect of the Open Innovation Ecosystem on Behavioural Intention was not significant ($\beta = 0.061$, $p > 0.05$); therefore, H8 is not supported (Table 22).

8.5 DISCUSSION

Study 1's contributions underpin the structure and coherence of our entire dissertation. In Study 2, we shifted our focus to how CCIs adapted their business models during the pandemic, emphasising sustainability as a resilience strategy. Study 3 built upon this foundation by investigating the factors influencing managers to incorporate sustainability into their business models.

This research postulates that open innovation partnerships can help understand how cultural and creative industry managers perceive implementing innovative business models from a sustainable perspective. In this vein, the TPB model and the data of the empirical work provide initial support to this work postulation. In the following paragraphs, an in-depth analysis of this support is described.

8.5.1 How The TPB Model And The Collected Data Support Our Hypotheses

Table 5 and Figure 3 represent the results associated with the final model. The explained variance for the dependent variable (INT) is aligned to similar studies with the TPB model (β **= 0.605).**

Regarding the Hypotheses, except for H8, the rest of the 'model's hypotheses received support from the data with enough statistical significance (stronger than $p < 0.05$).

For the main Hypotheses of the TPB model, the support is higher than 0.35: ATT->INT **(H1, $\beta = 0.461$, $p < 0.001$)**; PBC->INT **(H2, $\beta = 0.363$, $p < 0.001$); NOR->ATT (H3, $\beta = 0.512$, $p < 0.001$); NOR->PBC (H4, $\beta = 0.431$, $p < 0.001$)**.

This result is consistent with most research on sustainability attitudes and behaviour intention. This positive relationship is highlighted in sustainable agriculture (Menozzi et al., 2015), waste reduction & recycling (Cheung et al., 1999; Taylor and Todd, 1995), the purchase of green products (Kirchoff et al., 2011), choosing green hotels (Liu et al., 2018) and sustainable manufacturing (Menozzi et al., 2015).

The results also emphasise the mediation role of Open Innovation Ecosystem partnerships. Hypothesis H5, variable (OIE) receives relevant support from social norms (NOR->OIE, $\beta = 0.508$, $p < 0.001$). This effect illustrates that some of the social norm influence can be explained by the relationship to the open innovation environment, supporting the main postulation of this work.

Regarding the relationship of the **Open Innovation Ecosystem partnerships** on the rest of the 'model's variables, hypotheses H6 and H7 explain how OIE relates to the rest of the TPB model. In this sense, Open Innovation Ecosystem partnerships have a low but significant effect on attitude (H6, $\beta = 0.284$ $p < 0.001$) and on perceived Behavioural control (H7, $\beta = 0.255$, $p < 0.05$). These effects can be interpreted as the role of the open innovation ecosystem on managers' perception towards implementing sustainable business models.

Finally, coherently to most results of the TPB in entrepreneurial and innovation studies (Su et al., 2021), the model does not support the direct effect of social norms, in this case, mediated by the open innovation ecosystem partnerships construct, on the Behavioural intention. H8 is not supported.

See figure 12 for results on the tested model.

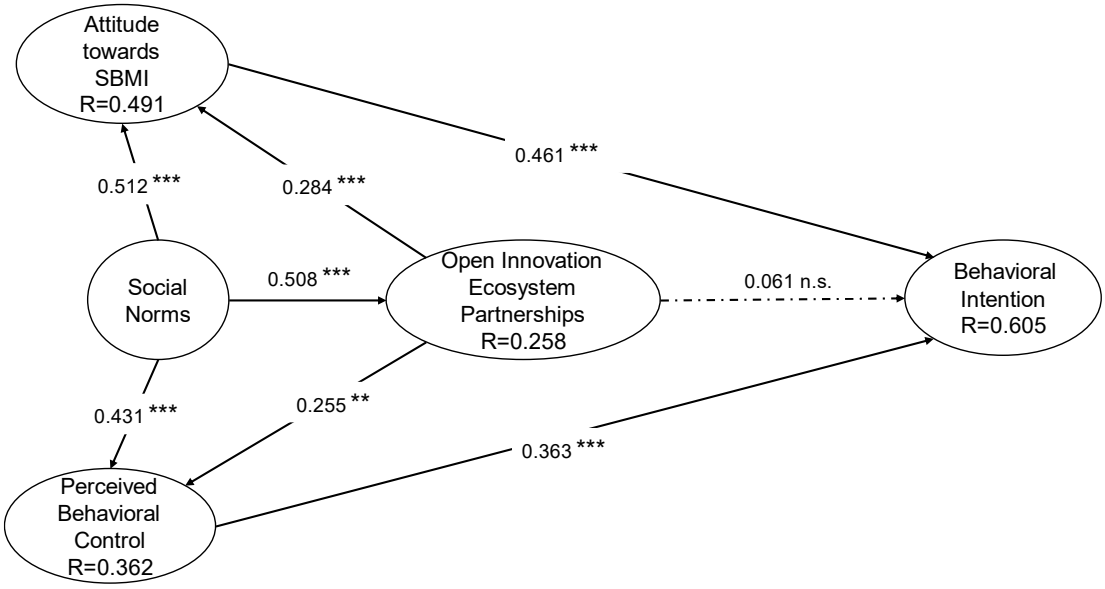

Figure 12: Tested Model

Note: *p < 0.05; **p < 0.01; ***p < 0.001, n.s. = not significant. **p < 0.01; ***p < 0.001, n.s. = not significant. Non supported hypothesis

8.5.2 The Mediation Structure Of Open Innovation Partnerships

Further, to understand the mediation role of open innovation partnerships, this study applied advanced bootstrapping procedures in the results reports (seen on Table 26), conducting a mediator analysis suggested by Hair et al. (Hair et al., 2017). Thus, the indirect pathways for the latent variables were analysed to understand if there are mediation effects of attitude towards SBMI and perceived Behavioural control. Table 27 summarises all indirect effects pathways for single and multiple mediation models.

Table 27: Specific indirect effects

Pathways of Indirect effects	Standardised Estimates	Standard Error	T statistics	P values
NOR -> OIE -> ATT -> INT	0.067	0.024	2.794	**
OIE -> ATT -> INT	0.131	0.041	3.180	***
NOR -> OIE -> PBC -> INT	0.047	0.026	1.791	n.s.
NOR -> PBC -> INT	0.156	0.060	2.617	**
NOR -> OIE -> PBC	0.129	0.070	1.840	n.s.
NOR-> OIE -> ATT	0.144	0.045	3.218	***
NOR -> ATT -> INT	0.236	0.055	4.290	***

OIE -> PBC -> INT	0.092	0.045	2.051	*
NOR -> OIE -> INT	0.031	0.041	0.750	n.s.
*Note: *p < 0.05 , **p < 0.01 , ***p < 0.001, n.s. = not significant, ATT= Attitude Towards SBMI, PBC= Perceived Behavioural Control, INT= Behavioural Intention, NOR= Social Norms, OIE= Open Innovation Ecosystem.*				

Moreover, according to the findings, our data reported no direct relationship between the Open Innovation Ecosystem (OIE) partnerships and Behavioural Intention (INT).

To analyse the mediation role of Attitude Towards SBMI (ATT) in the relationship between Open Innovation Ecosystem (OIE) and Behavioural Intention (INT), the researchers found significant standardised indirect effects to that linkage (0.131, $p < 0.001$), which shows that OIE indirectly and through ATT influence INT.

Likewise, OIE also is indirectly and significantly related to Behavioural Intention (INT) through Perceived Behavioural Control (PBC) (0.092, $p < 0.05$). Hence, it is considered that in our proposed model, Attitude Towards SBMI and Behavioural Intention are two variables that carry the indirect effects in the relationship between OIE partnerships and Behavioural Intention (Table 28).

Considering H5 and H6, we assume that the open innovation ecosystem (OIE) partnerships mediate the linkage between social norms (NOR) and attitude towards SBMI (ATT) (H3). The standardised indirect effect of NOR on ATT by OIE is 0.144 and significant ($p < 0.001$) since its standardised direct effects are also significant ($\beta = 0.512$, $p < 0.001$), interestingly OIE partnerships could partially mediate the linkage between social norms and attitude towards SBMI. However, the result shows that the standardised indirect effect of social norms (NOR) on perceived Behavioural control (PBC) through open innovation ecosystem is not statistically significant (0.129, $p > 0.05$), although there is a direct relationship between NOR and PBC ($\beta = 0.431$, $p < 0.001$) (see Table 28).

Table 28: Mediation Tests

Pathways of Indirect effects	**Standardised Indirect Effect**	**b (Standardised Direct Effect)**	**Result**
OIE → ATT → INT	0.131 (***)	0.061 (n.s.)	-
OIE → PBC → INT	0.092 (*)	0.061 (n.s.)	-
NOR→ OIE→ ATT	0.144 (***)	0.512 (***)	Partial Mediation
NOR → OIE → PBC	0.129 (n.s.)	0.431(***)	-

*Notes: *p < 0.05. , **p < 0.01. , ***p < 0.001, n.s: Not significant.*
ATT= Attitude Towards SBMI, PBC= Perceived Behavioural Control, INT= Behavioural Intention, NOR= Social Norms, OIE= Open Innovation Ecosystem.

There are a couple of potential explanations as to why social norms and behavioural intention may not be related in the context of Open Innovation Ecosystem (OIE) partnerships. One possibility is that there may be a lack of real social pressure exerted through these partnerships, which could be why social norms are less influential in driving sustainable practices.

Another explanation could be that other factors, such as personal attitudes, perceived behavioural control, or perceived benefits of implementing sustainable business models, may be more important in influencing intentions to adopt such practices. This is consistent with other sustainability behaviour research (Su et al., 2021). However, our data do support a direct influence of OIE partnerships on these other factors, emphasising the importance of considering OIE partnerships in understanding the intention to implement sustainable business models in the Cultural and Creative Industries (CCI).

More research is needed to understand better the factors that drive the intention to implement sustainable business models and the role that social norms play in this process.

Figure 8 shows the final model.

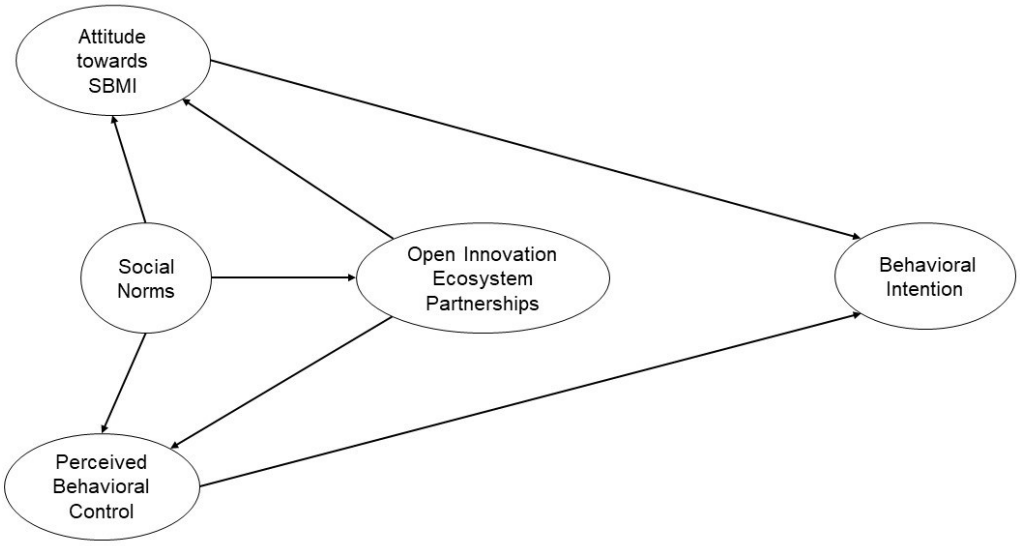

Figure 8: Final model

8.5.3 Open Innovation Culture And Sustainable Business Models

Open innovation culture can be crucial in promoting sustainable business models and SBMI. An open innovation culture encourages collaboration, sharing of knowledge and expertise, experimentation, and risk-taking, all of which can help organisations develop and implement sustainable business models (Minatogawa et al., 2022; Weiblen, 2016; Yaghmaie and Vanhaverbeke, 2020; Yun, 2017b; Yun and Liu, 2019). The case of the cultural and creative industries is just an example of how open innovation ecosystems can influence the perception of sustainable business models and how difficult their feasibility is (behavioural control).

Being a member of an open innovation ecosystem (OIE) can be a very effective way for cultural industries to access new ideas and technologies and to collaborate with other organisations on projects. This collaboration can be done through professional organisations, like the Spanish CCI case, or with other partners, such as universities, research institutions, or other out-of-the-ecosystem companies. Both ways can be helpful in effectively accessing new knowledge and resources that can help drive innovation (Chesbrough, 2017, 2006; Chesbrough and Rosenbloom, 2002; Yun and Liu, 2019). Yun (2019) analysed the dynamics of open innovation and the role played by various stakeholders, including industry, government, university, and society (Yun and Liu, 2019).

Open innovation ecosystems also enable organisations to identify and address sustainability challenges, such as resource scarcity or climate change, by collaborating with partners with unique perspectives and expertise (Minatogawa et al., 2022; Yun and Liu, 2019).

In addition, an open innovation culture can help organisations to embrace and adopt sustainable practices by fostering a sense of shared responsibility and accountability for sustainability outcomes (Bocken et al., 2014).

8.5.4 Implications And Contribution

From an academic perspective, we suggest that the results significantly contribute to the knowledge of Sustainable Business Models and expand the research base of Business Model Innovation, exploring the role of professional organisations and technological clusters (open innovation ecosystems) in the diffusion of innovations among peers.

This study also demonstrates that collaborative capabilities, a form of dynamic capabilities, are critical to successfully implementing SBM.

At the same time, the proposed framework offers an expanded model of the Theory of Planned Behaviour applied to managers' intentions to change or adapt a business model.

From a managerial perspective, the results provide critical insights for government agencies formulating sustainability policies and open innovation ecosystems fostering sustainable practices.

First, the study emphasises the importance of finding a scientific and rational system to diffuse innovation among peers and members of industry organisations and technological clusters. Furthermore, understanding the principle that when people perceive an action as complex, they may be less likely to pursue it because they feel that it will be too time-consuming or challenging can be helpful for organisations trying to encourage people to engage in certain behaviours or adopt new practices. Making an action or behaviour such as implementing SBM seem easy or convenient is more likely to be adopted by their members.

This study demonstrates that an open innovation culture can support the development and implementation of sustainable business models by utilising external resources and knowledge, tackling sustainability challenges, and fostering shared responsibility for sustainability outcomes. Thus, it is crucial to encourage SME managers to participate actively in open innovation ecosystems and share their knowledge to promote their economic and social growth.

8.6 CONCLUSIONS AND LIMITATIONS

The current competitive environment pushes managers from cultural and creative firms to face growing challenges requiring sustainable and innovative solutions. In this context, a TPB model is proposed to support preliminary studies. The results confirm the claims mentioned above (Peñarroya-Farell and Miralles, 2022) that open innovation partnerships influence sustainable behaviours in cultural and creative companies, although indirectly through changing the managers' attitude towards the implementation of sustainable business models and at the same time, making them perceive more control over the actions needed to implement them.

8.6.1 Conclusions

Study 1's contributions were the foundation for the coherence and structure of our entire thesis. In Study 2, we focus on how CCIs adapted their existing business models to withstand the disruptions brought by the pandemic, with sustainability emerging as a strategic avenue for resilience. Study 3 builds upon this foundation by delving deeper into the transformation of business models to be more sustainable. It explores the factors influencing managers to embrace innovation in sustainability as a fundamental part of their business models, moving beyond survival strategies to long-term strategic shifts.

An extended TPB model received support from the data surveyed 122 managers of cultural and creative firms in Spain. The model was supported at the same level as other implementations of the TPB for business model dynamic initiatives.

The study shows that providing sustainability funds is insufficient to foster managers' willingness to change their company's business model. Managers will not implement SBM because of social pressure or because other peers are implementing them. There is no direct link between Perceived Social Norms and the Intention to implement SBM, nor a direct link between being part of an OIE and the Intention to implement SBM. Achieving SBM is determined by the attitude of managers and perceived behavioural control. This means that it is not enough for managers to see that everyone is doing it; if they do not internalize it and do not perceive that they can, they will not do it.

Additionally, OIE partnerships can help to build support and commitment among stakeholders, including employees, customers, and investors, for a more sustainable business model. This support can be essential when transitioning to a more sustainable model, which may involve significant changes to a company's operations or require significant investments. Considering all this, it is clear that OIE partnerships affect the manager's attitude towards SBMI and, consequently, the intention to implement the needed changes.

OIE partnerships also provide access to expertise and resources that can support the implementation of more sustainable practices. Seeing other peers implementing sustainable business models in their companies shows managers how easy or difficult the actions needed can be from the perspective of the organisational effort required, the amount of time or resources needed, and any psychological barriers or challenges that may be present.

Finally, if made public, open innovation partnerships can help build credibility for a company's commitment to sustainability, which can be important for attracting and retaining customers, investors, and other stakeholders. This can be particularly important in cases where sustainability is an essential consideration for stakeholders, as it can help to differentiate a company from its competitors and build trust.

8.6.2 Limitations and further research

As with all research efforts, this study needs to clarify some limitations and opportunities for further research. On the one hand, the focus of the study on a specific sample imposes some initial limitations.

First, the sample of managers was limited to cultural and creative firms in Spain. In this sense, the results must be understood from the perspective of this limited sample. However, although

the research is concentrated on the Spanish territory, we believe the results can be relevant to other cultural settings. The extension of this research to other territories will allow the framework to be further corroborated with new geographical studies.

Secondly, creative and cultural firms have experienced a significant impact due to COVID-19 and are also affected by other competitive challenges. In this vein, managers have to explore new avenues of ideas to implement sustainable and innovative business models; however, other industries are facing the same kind of competitive challenges. In this vein, taking the research results as a starting point; the next step should be to extend the analysis to other industries and explore what is expected in participating in open innovation ecosystem partnerships.

On the other hand, the study's methodological approach produces another set of limitations. First, a specific model was decided for the study, the TPB model. However, this model is based on behavioural intention as a dependent variable, and the variance explained by the behavioural intention of the behaviour itself of an entrepreneurial venture is not higher than 45% (van Gelderen et al., 2008). Other models can be tested to understand the focus of this study further.

Regarding the description of the model, some characteristics of the managers can deserve a better analysis—for example, their previous experience in other innovation ventures, in the same or other industries. Our research deals with sustainable and innovative initiatives in firms, both research fields, sustainability, and innovation, have generated plenty of studies on how to deal with new ventures. New lines of research could be related to proposing new perspectives from an open innovation perspective.

8.7 STUDY PUBLICATION

The study was accepted in the Journal of Open Innovation: Technology, Market and Complexity, in April 2023, under the DOI: https://doi.org/10.1016/j.joitmc.2023.100036 . And it was published on the June issue. The journal has a Cite Score 2022 of 7.5 and Q1 for General Economics, Econometrics and Finance.

The decision to publish our work in the "Journal of Open Innovation: Technology, Market, and Complexity" one more time was not random but carefully thought out. Primarily, our selection of this journal stems from its strong alignment with the themes of open innovation, technology, markets, and complexity, which closely resonate with the content of our research. This thematic harmony made it an ideal platform for presenting our work effectively.

In addition to thematic suitability, the journal's reputable status and rigorous peer review procedures were pivotal factors in our choice. Its recent acquisition by Elsevier has further elevated its prestige and global impact.

Journal of Open Innovation: Technology, Market, and Complexity
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Open and sustainable business model innovation: An intention-based perspective from the Spanish cultural firms

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9. ETHICAL ASPECTS

This dissertation has considered the ethical aspects of the research conducted. This research involved studying the behaviour of managers of cultural and creative companies during and after the COVID-19 crisis.

The study did not involve sensitive groups, such as human embryos, fetuses, children, patients, genetics, animals, the military, or the potential for terrorist abuse. The ethical principles followed in this research align with the Charter of Fundamental Rights of the European Union (European Parliament, Council, 2012).

The PhD candidate ensured that informed consent was obtained from all participants, and their anonymity was maintained by using pseudonyms. The data collected was stored and analysed securely, in compliance with data protection regulations. To minimize harm to the participants, the questions asked were non-intrusive and not distressing. The researcher was also aware of the power dynamics and took measures to mitigate potential harm.

In the third study, survey data from company managers were collected, and ethical standards were met by designing the survey questions objectively and without the potential for discrimination. Participants were informed of their rights as research subjects, including the right to withdraw from the study at any time. The data collected was kept confidential and secure and only accessible to the research team for the study.

In all studies involving people, the research had non-experimental designs that involved observing natural occurrences without any intervention from the researcher. Such designs are used for various reasons. For instance, specific characteristics or variables cannot be subjected to experimental manipulation or randomization. Additionally, some variables should not be manipulated for ethical reasons (Sousa et al., 2007).

The ethical principles followed in this research align with the guidelines set out by the European Commission's Ethics Review of Research Projects, ensuring that the research was conducted ethically and with integrity.

In conclusion, this dissertation has taken into account the ethical considerations involved in researching the behaviour of managers of cultural and creative companies during the COVID-19 crisis and its posterior recovery and has followed ethical principles and guidelines to ensure that the research is conducted concerning the participants and in compliance with data protection and privacy regulations.

10. DISCUSSION AND CONTRIBUTIONS

10.1 DISCUSSION

This dissertation explores the nexus between Business Model Dynamics, managers' responses to competitive challenges (including sustainability), and the adaptation of their business models. It aims to uncover the mechanisms influencing managers' attitudes towards addressing competitive challenges that may impact their business models in their day-to-day operations. By examining the contextual circumstances and factors that drive managers' decisions to adapt their business models, the study seeks to understand the extent to which managers prioritize and integrate sustainability efforts. Additionally, it investigates the role of open innovation stakeholders in shaping managers' decisions to include sustainability in their business models.

Through this research, we strive to identify strategies that can support managers in adopting more sustainable practices and effectively adapting their business models to navigate current and future challenges.

Three steps have been developed to shed light on this goal: Understanding business model dynamics, managers' reactions to competitive challenges, and managers' inclination to adopt sustainable models.

- **First step**. Proposing a business model adaptation approach to face competitive challenges makes sense. BMA is a valid strategic response to change a business model to a more sustainable one.
- **Second step**. In adapting their business models, managers react to competitive shocks and, among others, open innovation ecosystem participants have a role in this reaction.
- **Third step**. Managers' inclination to adopt sustainable business models exhibits a specific behaviour regarding the influence of open innovation ecosystem participants.

This section summarizes the discussions of the three studies presented in this dissertation by compilation following the above three steps schema.

10.1.1 First Step: Validating BMA

10.1.1.1 Strategic responses to market disruptions

Business Model Adaptation is a form of Business Model Dynamics. BMD has become an increasingly relevant research topic in the management and innovation literature. Scholars have explored how business model dynamics affect organizational performance, innovation outcomes,

and industry evolution, among other aspects (Achtenhagen et al., 2013; Cavalcante et al., 2011; Cosenz, 2017; Peñarroya-Farell and Miralles, 2022; Saebi, 2014; Yun and Zhao, 2020). However, like all nascent research fields, it lacks a clear and systematic understanding of its scope, boundaries, and concepts.

The first study of this dissertation proposes to clarify Business Model Dynamics as a research field by disambiguating the terms Business Model Innovation, Business Model Evolution and Business model Adaptation. The study proposes a set of core concepts and dimensions to clarify the field, such as business model components, change mechanisms, temporal patterns, and performance outcomes. It also proposes the classification of the different instances by typology of business model changes based on their degree of novelty and scope, ranging from incremental adjustments to radical transformations.

Without the clarification provided by Study 1, Study 2 could have potentially combined disparate concepts, resulting in a less coherent analysis. Study 1's contributions thus underpin the coherence and structure of our overall dissertation.

The second study delved into the responses of Creative and Cultural Industry (CCI) companies in the face of the market disruption caused by the COVID-19 pandemic. In Table 29, we provide a comprehensive overview of the distinct strategies employed by these companies as they adapted their business models to navigate the changing market landscape. It's important to note that each of these companies underwent a process of Business Model Adaptation (BMA) in response to the evolving market conditions. In essence, their adaptations were driven by the imperative to realign their business models with the new market dynamics. None of these companies aimed to disrupt the market by fundamentally changing their existing business models.

The level of innovation inherent in these adaptations varied from case to case. For many, the changes involved the adoption of innovative approaches, particularly in terms of technology integration. These innovations predominantly manifested as the adoption of online distribution channels and a heightened reliance on social networks to bolster customer relationships. In essence, these adaptations encompassed technological innovations that empowered the companies to respond effectively to the challenges posed by the pandemic.

It's worth noting that in the case of the ticketing vendor, their unique position as an already fully online company meant that their adaptation primarily required minor adjustments, as they were well-prepared for the digital landscape. Its adaptation could be considered a mere evolution of their business model (BME). This distinction highlights the diverse nature of BMA responses, where the degree of innovation depended on each company's specific circumstances and readiness.

Table 29: Business model changes made by companies from Study 2

	Festival organizer	Actress	Ticketing vendor	Culture aggregator	Arch. museum	Singular home	Art school
Market segments	X	X	X		X	X	X
Value proposition	X	X	X		X	X	X
Customer relationship	X	X		X	X	X	X
Distribution channels	X				X	X	X
Income streams		X				X	X
Key activities						X	X
Key resources		X				X	X
Key partners						X	X
Cost structure	X			X		X	X

10.1.1.2 The need to change a business model

Business model innovation and adaptation bring both challenges and opportunities for firms.

Challenges: Some challenges include identifying the right business model to adopt, ensuring alignment between the new business model and the firm's resources and capabilities, and managing the complexity of implementing the new business model. Solving these challenges is crucial when facing rapid environmental changes, and the company's survival is at stake. BMI

disrupts the environment more, and BMA adapts the company to the disruption caused by environmental changes or a competitor innovating.

Opportunities: On the other hand, BMI and BMA opportunities include the ability to respond to changing customer needs and market trends, capture new revenue streams, and gain a competitive advantage. It can also increase efficiency, effectiveness, customer satisfaction, and employee engagement. Successful companies in BMI can create new markets and disrupt existing ones, leading to significant growth and profitability. Successful companies in BMA are more resilient and can adapt to changing markets. A manager's reaction to disruptive external effects is essential and needs further research, and this is the goal of study 3.

However, changing a business model is not an easy task. Business models are often deeply ingrained in the culture and processes of an organization, and changing them can require significant cultural and structural changes. Additionally, changing a business model requires substantial investments in new technologies, processes, and skills, which can be costly and time-consuming. Finally, there may be resistance from stakeholders, including employees, customers, and investors, who may be invested in the existing business model and resistant to change. However, it is necessary to change a business model over time.

The first article argues that Business Model Adaptation can be a valid strategy for incumbents and SMOs to implement the changes needed to evolve a business model gradually without the implicit risks of Business Model Innovation with radical changes (Peñarroya-Farell and Miralles, 2021).

In this vein, study 2 analysed the adaptation of CCI firms to survive the COVID-19 pandemic, and four outcomes arose.

10.1.2 Second Step: Manager's Reaction To Competitive Shocks And The Need To Be More Sustainable. The Role of OIE in this Reaction.

10.1.2.1 Phases of implementation of BMA to the COVID-19

The second study revealed that to solve better the challenges posed by the need to change the business model, these changes are implemented in distinct phases during emergencies like the COVID-19 pandemic (Peñarroya-Farell and Miralles, 2022). The first phase involves improvisation using the organization's existing tools and knowledge, followed by a second phase, where planned actions to adapt de business model are implemented. Finally, in the third phase, the organization adapts the business model to the "new normal."

10.1.2.2 Improvisation

Improvisation is a capability, not dynamic nor operational, but is an essential organisational capability that can lead to survival in emergencies. Study 2 has shown that improvisation capability is critical in situations where firms face extreme changes in the market or environmental conditions. For example, during the COVID-19 pandemic, firms with solid improvisation capabilities could better adjust to the sudden shifts in customer demand, supply chain disruptions, and the need to transition to remote work (Peñarroya-Farell and Miralles, 2022). Improvisation capability involves quickly generating and experimenting with new ideas, using available resources creatively, and making quick decisions without complete information.

10.1.2.3 The role of organizational learning in the context of dynamic changes.

In our research, we acknowledged the pivotal role of organisational learning as a lens through which to comprehend the dynamic changes occurring within the companies we studied. Organisational learning is a fundamental concept underpinning our exploration of Business Model Dynamics (BMD) and the adaptations witnessed in response to the COVID-19 pandemic.

Organisational learning posits that companies accumulate knowledge, insights, and experiences through interactions with their external environment, such as customers, competitors, and market disruptions. This knowledge, in turn, informs the strategic decisions and adaptations made by these companies. Our research underscores that in the face of the profound market disruptions posed by the pandemic, companies had to engage in the learning process to navigate uncharted territory actively.

We also observed that companies that effectively embraced organisational learning principles were more adept at identifying the need for changes in their business models and swiftly adapting to new market conditions. This learning process involved recognising the need for change, experimenting with innovative approaches, measuring outcomes, and integrating newfound knowledge into future strategies. The synergy of organisational learning and the impetus for Business Model Adaptation (BMA) enabled these companies to effectively respond to the crisis while positioning themselves for long-term sustainability.

As such, the concept of organisational learning plays a critical role in our overall framework for understanding the interplay between BMD and dynamic changes in response to external challenges. Our research demonstrates that the ability to learn and adapt is intrinsically linked to a company's capacity to thrive in a rapidly changing environment, making it an essential aspect of our investigation.

10.1.2.4 IT implementation had a vital role in the strategic adaptation of the companies that adapted and survived

The increasing importance of Information and Communication Technologies (ICT) in economic growth and BMI and BMA is widely acknowledged. However, there are tensions between the short-term costs and long-term benefits of investing in digital tools, particularly for MSMEs. The COVID-19 crisis highlighted the importance of digital solutions for cultural companies, but their implementation can take time and needs careful planning. During the first phase of business model adaptation, managers had to improvise with their existing ICT assets, while the second phase involved implementing virtual tours, e-commerce, and online courses to meet customer needs (Peñarroya-Farell and Miralles, 2022).

10.1.2.5 Open innovation ecosystems had a prominent role in innovation diffusion among Cultural SMEs.

To fully understand the adaptation of cultural and creative industries, it is vital to consider open innovation through network proximity (Peñarroya-Farell et al., 2023; Peñarroya-Farell and Miralles, 2022). Collaboration with peers is crucial for innovation in these industries. Proximity plays a vital role in the diffusion of innovation and contributes to creating an open innovation ecosystem. Zhang and Wang (2021) identified four dimensions of proximity, with organizational proximity positively impacting innovation diffusion. Ferras-Hernandez et al. (2018) also found that organizational proximity was a primary factor driving innovation transformation within industrial clusters.

Being part of an open innovation ecosystem like their professional organisations has been critical for survival.

10.1.3 Third Step: Do Managers Pay Attention To Their Ecosystem?

In the fourth outcome of the second study, it was observed that open innovation ecosystems significantly impacted the successful adaptation of firms in the CCI sector (Peñarroya-Farell and Miralles, 2022).

The empirical findings of Study 3 revealed the impact of participation in an open innovation ecosystem on the managers' intention to modify their business model. Although the relationship between these partnerships and the intention was not direct, it impacted their attitude towards the change needed and perceived behavioural control over the change (Peñarroya-Farell et al., 2023).

The ecosystem partners can affect managers' attitudes to adapt their business model in several ways. Being part of an open innovation ecosystem can create a culture of innovation and experimentation that encourages managers to explore new business models and take calculated

risks. This can lead to a more proactive attitude towards business model adaptation and a greater willingness to embrace change.

On the other hand, being part of an open innovation ecosystem affects perceived behavioural control over a change in the business model by providing valuable knowledge and resources to assist managers in business model adaptation/innovation. This can include access to new technology, market insights, and industry-specific knowledge. Secondly, ecosystem partners can act as a sounding board for new ideas and provide feedback on potential business model changes. This can help managers refine their ideas and make more informed decisions, making the change needed easier.

10.2 IMPLICATIONS

10.2.1 The dynamics of business models, including their evolution, adaptation, and innovation.

10.2.1.1. The research gap

We identified a gap in the understanding and use of these terms in the field of business model dynamics.

By clarifying the definitions and differences between these terms, researchers and practitioners can more accurately communicate and understand the nature of changes in business models.

10.2.1.2. Academical contribution

A comprehensive framework has been developed for understanding the dynamics of business models, integrating multiple perspectives and factors.

The terms "business model innovation," "business model adaptation," and "business model evolution" have been disambiguated.

These key terms have been clarified, contributing to the ongoing dialogue and research in the emerging field of business model dynamics.

10.2.1.3. Managerial implication

Seven dimensions have been identified to help companies better understand how their business model can change over time, depending on factors such as the type of company and attitude towards market disruption.

The research question “To what extend does Business Model Dynamics explains managers’ attitude to react to competitive challenges such as sustainability” has been answered. This understanding can enable companies to pivot their business model in response to changing circumstances through adaptation or innovation, emphasising the importance of flexibility and adaptability in business models to succeed in dynamic environments.

Business Model Adaptation appears as a valid strategic response to the ever-changing environments, without the risks of radical innovation more appropriate to disrupt a market than to react to market disruption.

10.2.2 In very hostile environments, such as the COVID-19, business model adaptation is better understood under the emergency management theory.

10.2.2.1. The research gap

There is a need for a deeper understanding of how companies can develop organizational capabilities to adapt to crises such as the COVID-19 pandemic.

While dynamic capabilities have been extensively studied in the literature as a key driver of business success, there has been limited research on how these capabilities can be specifically applied in the context of a major crisis.

This gap in the literature becomes particularly relevant given the unprecedented scale and impact of the COVID-19 pandemic, which has affected businesses in multiple ways, including supply chain disruptions, changes in consumer behaviour, and significant shifts in the macroeconomic environment.

A better understanding of emergency management theory can help companies navigate these challenges and adapt their business models more effectively.

10.2.2.2. Academical contribution

The dissertation (study 2) provides a conceptual framework for understanding the factors that enable cultural firms to adapt and gain resilience in hostile environments, specifically in the context of the COVID-19 crisis.

The research integrates the emergency management theory and organizational improvisation behaviour to develop a more comprehensive understanding of how firms can adapt their business models in crises.

The study highlights the importance of dynamic capabilities, absorption capacity, and uncertainty management for firms adapting their business models to crises.

The research contributes to the literature on business model adaptation, particularly in the cultural and creative industry.

10.2.2.3. Managerial implications

The research provides insights into how cultural & creative firms can navigate crises.

The study offers practical implications for managers in the cultural and creative industry on developing and deploying dynamic capabilities, improvisation behaviour, and absorption capacity to adapt their business models to hostile environments.

The research findings contribute to developing best practices for crisis management and emergency preparedness for businesses in general.

In the face of crises, cultural and creative firms must focus on customer needs and preferences, as these may shift in response to changing circumstances.

Developing dynamic capabilities, such as absorption capacity and uncertainty management, can be critical for cultural and creative firms to successfully adapt their business models in a crisis.

To enhance their adaptive capacity, cultural and creative firms should leverage their networks and ecosystems to absorb innovation and stay up-to-date on market trends.

Cultural and creative firms should be aware of the impact of regulatory turbulence on their industry and be prepared to adapt quickly to changing regulations.

Managers of cultural and creative firms may need to consider alternative revenue streams or partnerships to maintain financial stability during a crisis.

10.2.3 The 3 phases of business model adaptation during the COVID-19 crisis: Reaction, Planned Adaptation, and Stabilization

10.2.3.1. The research gap

The lack of understanding about the phases of business model adaptation during the COVID-19 crisis. Before this research, there may not have been a clear framework or understanding of how companies can navigate this global crisis and emerge stronger on the other side.

10.2.3.2. Academical contribution

The study proposes a framework to understand the different phases of business model adaptation in the cultural and creative industry. The three phases of BMA to the COVID-19 crisis are Reaction, Planned Adaptation, and Stabilization.

The study highlights the importance of improvisational capabilities in turbulent environments and their role in attaining specific objectives during the first phase of adaptation to emergencies.

The theory of planned behaviour (PBT) is consistent with the behaviour of organizations after the initial phase of crisis adaptation, and a new organizational plan needs to be implemented.

10.2.3.3. Managerial implications

Companies and organizations should be prepared to improvise in the initial phase of crisis adaptation to respond rapidly to market needs and the hostile environment. Rapid adaptation while planning for the near future is key to survival.

In the planned adaptation phase, companies should share information between peers and association members, observe the entire cultural ecosystem, and acquire new technology and competencies.

Adapting to the "new normal" involves stabilizing the new business model and acquiring new capabilities to become more resilient to new environmental hostility. Companies that do not adapt may survive initially but may consume their financial muscle and diminish their resilience over time.

Managers can gain concrete guidelines for systematically and purposefully approaching Business Model Adaptation (BMA) in hostile environments by following five steps:

1. Identify key drivers of change and their impact on the business model
2. Identify key capabilities needed to respond to the drivers of change
3. Identify gaps between current and needed capabilities
4. Develop a plan to close the identified gaps while improvising to maintain the company afloat
5. Monitor the results and adapt the company to the new environment while sharing knowledge with peers from the industry.

10.2.4 Three survival strategies have been identified: Radical adaptation, Non-adaptation and Partial adaptation

10.2.4.1. The research gap

The research aimed to fill the gap in understanding how companies and organizations in the cultural and creative industries adapted or did not adapt their business models during the pandemic.

10.2.4.2. Academical contribution

The research provides a better understanding of how managers in the cultural and creative industries reacted to changes in the competitive environment caused by the COVID-19 pandemic.

The study identifies three strategic responses companies and organisations adopt to survive the crisis: radical adaptation, non-adaptation and waiting for stability, and partial adaptation. Moreover, examines how companies and organizations adapted different business model components to survive during the crisis.

10.2.4.3. Managerial implications

This dissertation section answers the research question: "To what extent do managers decide to adapt their business models when their business is affected by competitive challenges?".

The research offers insights into how cultural companies and organizations can adapt their business models to survive during a crisis such as the COVID-19 pandemic. The study provides examples of successful strategies adopted by cultural companies and organizations to inspire other managers in the industry.

The examples can help managers in these industries better understand the options available to them and make informed decisions about how to respond to future crises or changes in the competitive environment.

The study highlights the importance of contingency planning to better prepare companies and organizations for unexpected events.

10.2.4 Improvisation is critical in business model adaptation in times of environmental turbulence and hostility.

10.2.4.1. The research gap

There is a need to better understand the importance of improvisation in business model adaptation during times of environmental turbulence and hostility, such as the COVID-19 pandemic.

The study highlighted the critical role of improvisation capability in a company's survival during such times and how fast decisions without in-advance planning can lead to survival if the decisions are correct.

10.2.4.2. Academical contribution

The study contributes to recognising the importance of improvisation and dynamic capabilities in organizational adaptation in times of crisis. It identifies the link between strategic improvisation and company performance in times of emergency and crisis.

The study applies the jazz band metaphor and the orchestra conductor analogy to explain the functioning of an organization, establishing the importance of organizational culture in supporting improvisational working practices.

The study debates the categorization of improvisation as a dynamic or operational capability and the arguments for it as a third type of capability. It sheds light on understanding the critical role of improvisational and dynamic capabilities in turbulent business environments.

10.2.4.3. Managerial implications

The study emphasises the importance of improvisation capabilities and fast decision-making in ensuring the survival of cultural and creative companies and organizations in hostile environments, recognising the need for a supportive organizational culture to enable improvisational working practices.

The study contributes to understanding the benefits of improvisation in adapting a company's business model as a good way to seize possible opportunities. It also highlights the importance of dealing with complex problems, learning new abilities, and having organizational flexibility in ensuring a company's survival.

10.2.6 ICT implementation had a vital role in the strategic adaptation of the companies

10.2.6.1. The research gap

The research gap in this study is the specific focus on the role of ICT in the business model adaptation of cultural companies during the COVID-19 crisis. While other researchers have previously emphasized the importance of ICT in business model innovation and digital transformation, this study highlights its crucial role in enabling cultural companies to adapt their business models to the unprecedented challenges posed by the pandemic.

10.2.6.2. Academical contribution

Our research emphasizes the importance of ICT in the strategic adaptation of companies. Provides evidence of the role played by ICT in economic growth in all types of industries and highlights the importance of strategic value creation and value delivery through ICT.

The study identifies the tension in companies between investing in digital tools for long-term value creation versus obtaining short-term value. At the same time, addresses the reluctance of MSMEs to implement technological changes due to the constant change and adaptation required in digital tools.

10.2.6.3. Managerial implications

Our research provides insights into implementing ICT solutions for survival during environmental turbulence and hostility, such as the COVID-19 pandemic. The study provides practical examples of how cultural companies improvised immediate solutions during the first phase of BMA with the current stock of ICT assets that managers had on their hands. It also provides practical examples of how cultural companies applied ICT to the other adaptation phases.

10.2.7 The critical role of Open innovation and Open innovation ecosystems in CCI

10.2.7.1. The research gap

Our research contributes to a more comprehensive understanding of open innovation ecosystems' significance in business model adaptation during the COVID-19 crisis. Additionally, beyond the pandemic, we explore the potential of these ecosystems to drive the implementation of innovative behaviours, such as to achieve a more sustainable business model.

10.2.7.2. Academical contribution

Our research highlights the importance of knowledge flow networks for SMEs in identifying cooperative opportunities and competitive challenges.

The research identifies the benefits of being part of an association or a network of peers in keeping up-to-date with innovations and finding viable solutions to change to a more sustainable business model.

10.2.7.3. Managerial implications

This dissertation chapter positively answers the research question, “Are managers' decisions to adapt their business model affected by contextual circumstances?”. Therefore, encouraging SMEs to actively seek out opportunities to be part of associations or networks of peers will help them to keep up-to-date with industry innovations and find viable solutions for business adaptation. We provide practical examples of successful knowledge flow networks, such as the Catalan network of museums, that can serve as models for other MSMEs to emulate.

We emphasise the importance of moral support and networking in times of crisis, such as during the COVID-19 pandemic.

Managers should understand the importance of diffusing innovation among peers and members of industry organizations and technological clusters. This can be done by creating a scientific and rational system that encourages sharing knowledge and external resources.

Policymakers and decision-makers need to support open innovation ecosystems to enable business model transformation.

10.2.8 Contributing to the Field of Sustainable Business Model Innovation

10.2.8.1. The research gap

The research gap this dissertation covers is a better understanding of the role of an open innovation culture and partnerships in promoting sustainable business models in the cultural and creative industries. Specifically, the dissertation explores the relationship between open innovation partnerships, the Theory of Planned Behaviour, and the implementation of sustainable business models in SMEs in the cultural and creative industries.

The authors note that there is a lack of research on implementing sustainable business models in these industries and on the role of open innovation partnerships in promoting sustainable practices.

10.2.8.2. Academical contribution

From an academic perspective, we suggest that the results significantly contribute to the knowledge of Sustainable Business Models and expand the research base of Business Model Innovation and Business Model Adaptation, exploring the role of professional organisations and technological clusters (open innovation ecosystems) in the diffusion of innovations among peers.

Our model contributes to the nascent research field of Sustainable Business Model Innovation (SBMI), adding a new perspective under the lenses of the TPB. Our research has led to the development of an extended TPB model that received support from the data surveyed from 122 managers of cultural and creative firms in Spain.

The research provides new insights into how open innovation culture and partnerships can promote the adoption of sustainable business models in the cultural and creative industries.

It also shows that participation in an OIE positively impacts the manager's attitude over SBMI and their perceived ability to control its implementation, indirectly affecting the intention to implement sustainable business models.

The research shows that collaborative capabilities, a form of dynamic capabilities, are critical to successfully implementing Sustainable Business Models.

10.2.8.3. Managerial implications

This dissertation section answers the question: “To what extent do managers pay attention to open innovation stakeholders to decide on including sustainable efforts in their business models?” demonstrating that being part of an Open Innovation Ecosystem affects the intention to implement more sustainable practices because affects the attitude towards SBM and affect the behavioural control over its implementation.

Government agencies should focus on formulating sustainability policies that support open innovation ecosystems, as these ecosystems can promote the development and implementation of sustainable business models.

The study findings suggest that simply providing funds for sustainability is not enough to motivate managers to change their company's business model. The willingness of managers to change their business models is contingent upon having a positive attitude towards the Sustainable Business Model (SBM) and a sense of perceived capability to implement the necessary changes effectively.

Social pressure or peers' actions do not directly influence managers' intention to implement sustainable business models (SBM). Similarly, being part of an Open Innovation Ecosystem (OIE) does not directly impact the intention to implement SBM. In other words, it is not sufficient for managers to observe that others are adopting SBM; they must personally internalize the importance of sustainability and believe they can implement it in their own company.

Open innovation partnerships have a critical role in helping managers understand the benefits of SBMI and promote sustainable practices. Furthermore, they have a critical role in modelling the manager’s perception of the feasibility of SBMI.

Encouraging SME managers to participate actively in open innovation ecosystems and share their knowledge can promote economic and social growth. Therefore, organizations should foster a culture of open innovation to promote innovation and sustainability outcomes.

Managers should understand the importance of shared responsibility for sustainability outcomes. This means involving all stakeholders in the process of developing and implementing sustainable business models, including employees, customers, and suppliers.

Organizations should focus on leveraging external resources and knowledge to tackle sustainability challenges.

Managers should consider how employees perceive actions or behaviours in their own companies, as complex tasks may be less likely to be pursued. Making actions or behaviours seem easy or convenient is more likely to be adopted by organisation members.

Based on the literature review and the interviews with CCI companies, we have provided managers with a list of some sustainable practices in business models, such as:

- Using renewable energy sources and reducing greenhouse gas emissions
- Developing and selling products that are made from recycled materials or that can be easily recycled or repurposed
- Using sustainable sourcing and supply chain practices
- Implementing circular business models, in which products or services are designed for reuse or recycling
- Offering products or services that enable customers to reduce their environmental footprint
- Investing in digital transformation to increase efficiency and reduce costs
- Leveraging technology to automate processes, improve customer service, and create new revenue streams
- Integrating sustainable business models with radical transformation using business model innovation effort, known as Sustainable Business Model Innovation (SBMI)

11. CONCLUSIONS, LIMITATIONS AND FUTURE LINES

Our main big problem was "how managers react to the need to adapt business models", in this vein, much has been learned.

11.1 CONCLUSIONS OF THIS WORK

The central focus of this research revolves around Figure 2, which serves as a fundamental framework providing an integrated understanding of the complex process of business model adaptation in response to market dynamics throughout the three studies. It has been previously utilized in Section 5.1 to illustrate the research model.

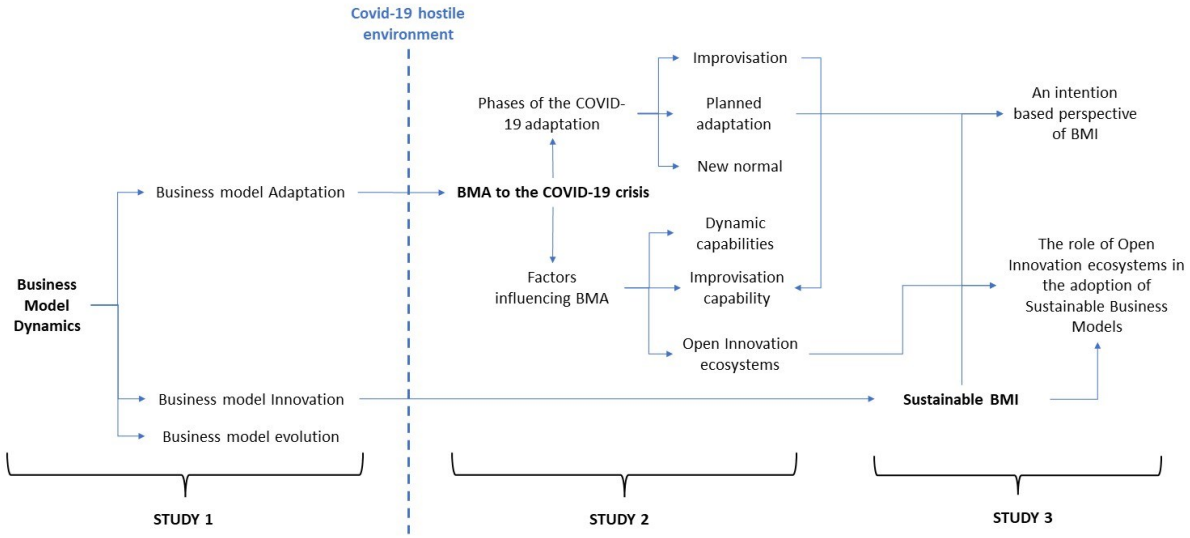

Figure 2: Integrated vision of the three studies of this dissertation

This figure is a guiding tool that illustrates the various interconnected elements and factors in successfully adapting business models to effectively navigate and respond to changing market conditions.

The first study synthesizes 22 articles on Business Model Dynamics. It delimits the concepts of Business Model Evolution (BME), Business Model Adaptation (BMA), and Business Model Innovation (BMI) based on seven dimensions, including the type of company and attitude towards market disruption. Companies can pivot their business model following either the process of BMA or the process of BMI, depending on the scope of the changes and the kind of value to be

captured. At the same time, small changes are made to fine-tune the business model making it evolve over time. This phenomenon is Business Model Evolution.

The study demonstrates that following a BMA path is a valid way to change a business model when the market radically changes, such as during the COVID-19 crisis.

Analysing the changes created in the market by the very hostile environment created by COVID-19, it was clear that specific organizational capabilities were essential to successfully adapt the business models of CCI companies. In addition to dynamic capabilities, the significance of improvisation capability in the survival of cultural companies cannot be overlooked. This capability and other vital competencies played a pivotal role in enabling these companies to navigate challenging circumstances and ensure their continued existence. Adapting, innovating, and making agile decisions in the face of uncertainty and adversity proved crucial in sustaining their operations and resilience. The improvisation capability emerged as a vital factor in their survival, complementing the broader dynamic capabilities that contributed to their long-term success.

The process of BMA in CCI companies, as a reaction to the COVID-19 crisis, has been implemented in three phases: The Reaction, Planned Adaptation, and Stabilization. Companies improvised their rapid adaptation while planning for the near future and analysing the gap between their existing and needed assets. In the stabilization phase, companies adapted to “the new normality” and returned to their efficiency-centric BM with new and old components and capabilities.

Open innovation by network proximity plays a primary role in fully understanding the cultural and creative industry’s adaptation, which is critical for the diffusion of innovations.

We developed an extended Theory of Planned Behaviour (TPB) model to comprehensively analyse the role of Open Innovation Ecosystems (OIE) in the context of sustainable business model adoption. This model was supported by empirical data from 122 managers of cultural and creative firms in Spain.

The findings from our study demonstrate that merely providing financial resources for sustainability is insufficient to motivate managers to change their company's business model. The willingness of managers to embrace sustainable business models is contingent upon two key factors: their positive attitude towards Sustainable Business Models (SBM) and their perceived capability to implement the necessary changes effectively.

Interestingly, our research reveals that social pressure or peers' actions do not directly influence managers' intention to implement SBM. Nevertheless, while being part of an Open Innovation Ecosystem (OIE) may not directly influence the intention to adopt sustainable business models,

it has a significant impact on fostering a positive attitude towards Sustainable Business Models (SBM) and enhancing the perceived control over the necessary actions to become more sustainable. In essence, it goes beyond mere observation for managers to witness others adopting Sustainable Business Models (SBM). They must internalize the significance of sustainability personally and have an unwavering belief in their capacity to implement it within their own company successfully. Open Innovation Ecosystems (OIE) are ideal tools to foster this mindset and empower managers to embrace sustainable practices effectively.

The findings underscore the crucial role of individual managers' attitudes and perceived behavioural control in facilitating the adoption of sustainable business models (SBM). Developing strategies and interventions that foster a positive attitude towards sustainability and enhance managers' confidence in their ability to implement sustainable practices effectively is imperative to promote the transition towards SBM. Additionally, governmental support for Open Innovation Ecosystems (EOI) should be encouraged, recognizing their potential to drive sustainable innovation. Furthermore, professional organizations should also recognize and augment their efforts in functioning as EOI, thereby facilitating knowledge sharing and collaboration among industry peers to accelerate the adoption of SBM.

11.2 LIMITATIONS

11.2.1 Limitations of the first study

- The characteristics of BME, BMA, and BMI require further validation.
- The methodological approach used in this work is based on a meta-synthesis: meta-synthesis requires a significant amount of time and effort to collect and analyze the data. Additionally, the research literature's deepness means that the analysis is limited to the data available in the studies included in the review. This can lead to a limited understanding of the phenomenon being studied and may require further research to fully capture the nuances and complexities of the topic.
- The temporal context also presents a limitation in that the studies reviewed were conducted before the COVID-19 pandemic, which may have significantly impacted business model dynamics. This means that the study's results may not fully reflect the current state of business model dynamics and may require further research to fully capture the impact of the pandemic on the phenomenon being studied.
- The proposal to consider BME, BMA, and BMI as different instances of Business Model Dynamics would require further validation from a strategic management perspective.

11.2.2 Limitations of the second study

- The study focuses specifically on cultural and creative firms in Spain, which means that the study's findings may not be generalizable to other types of industries or other countries. In other words, the results cannot be applied to a larger population beyond the specific sample studied. It is essential to acknowledge this limitation and to avoid making broad generalizations beyond the scope of the study. Future research could expand the sample size to include different industries and countries to provide a more comprehensive understanding of business model adaptation in various contexts.
- A quantitative approach would be advisable to complement the qualitative analysis (this is the aim of the third study).
- Extending this research to other industries and countries would enrich the proposal.

11.2.3 Limitations of the third study

- The TPB model used in the study is based on behavioural intention as a dependent variable, which has limited explanatory power. One of the main limitations of the TPB model is that it is based on behavioural intention as a dependent variable. While intention is a significant predictor of behaviour, it does not always translate into actual behaviour. In other words, just because someone intends to engage in behaviour does not mean they will. Further research should analyse the path between the intention to implement a more sustainable business model and its actual implementation.
- The characteristics of the managers, such as their previous experience, deserve a better analysis. Although previous experience is part of the attitude towards a behaviour (Su et al., 2021), a limitation regarding the characteristics of the managers pertains to the fact that the study did not extensively analyze the previous experience of the managers in other innovation ventures, either in the same or different industries. The previous experience of managers is crucial in understanding the decisions they make in managing the firms, including their approach to sustainable and innovative initiatives. For example, a manager with extensive experience managing sustainable and innovative initiatives may have a different perspective than a manager with little to no experience in such initiatives.

11.3 FUTURE LINES OF RESEARCH

In this section, we outline our forthcoming research endeavours that build upon the foundations laid by our current study.

11.3.1 Long-term Effects of Business Model Adaptation in Emergencies

In light of the valuable insights gained from our current study, we propose a future line of research that delves deeper into the long-term effects of business model adaptation and innovation in response to emergencies such as the COVID-19 pandemic. Our forthcoming research will aim to provide a comprehensive understanding of the permanence of these adaptations, shedding light on whether they represent enduring shifts or temporary fixes. This investigation will involve longitudinal data collection and analysis, tracking the trajectory of businesses over an extended period to assess the stability of their adapted models. Additionally, we intend to explore the concept of 'pivoting' in greater detail, examining the extent to which companies pivot in response to emergencies and the lasting impact of such strategic shifts. Furthermore, our future research will investigate the significant investments made by companies during the adaptation process, particularly in areas like technology and sustainability initiatives, to ascertain the role of investment in achieving lasting change. By addressing these critical aspects, we aim to provide a comprehensive and nuanced understanding of how businesses navigate and thrive in an ever-evolving landscape.

11.3.2 Expanding the research to the Tourism Industry

As stated in the limitations of the second study, future research could expand the sample size to include different industries and countries to provide a more comprehensive understanding of business model adaptation in various contexts. With this aim, the researcher proposes to continue this research by analysing the Tourism industry.

Moreover, the tourism and cultural industries often face similar challenges, such as adapting to changing consumer preferences, responding to disruptive technologies, and managing environmental sustainability concerns. Therefore, studying business model dynamics in the tourism industry can provide valuable insights into business model adaptation and innovation.

The tourism industry's inherent competitive nature, coupled with a reluctance to share knowledge among peers due to perceived competition, presents a unique dynamic that sets it apart from the CCI. This complexity makes the tourism sector an intriguing space for research, offering valuable insights into how businesses in this industry navigate change and develop resilient business models. By extending our research into the tourism sector, we aim to contribute to the broader discussion on BMD and offer practical strategies that can be applied in various industries.

Expanding the sample size to include the tourism industry can also allow for comparisons between industries and countries, which can help identify commonalities and differences in business model adaptation strategies. This comparative approach can provide a more nuanced understanding of

how firms in different industries and regions respond to disruptions and challenges and may lead to developing more effective and targeted business model adaptation strategies.

11.3.3 Open innovation in the professional organizations

Open innovation in professional organizations represents an exciting and promising research area with significant potential to advance our understanding of how these organizations can create value for their members and drive innovations in their respective fields.

Open innovation is a research area that has gained significant attention in recent years, especially in the context of open innovation ecosystems, but not specifically in professional organizations. Professional organizations are membership-based groups of individuals with shared professional interests and goals, such as trade associations, industry groups, and professional societies.

One potential avenue of research could be to explore how professional organizations can leverage open innovation to serve their members better and advance their missions. This could involve examining how professional organizations can collaborate with external stakeholders, such as industry partners, academic institutions, and government agencies, to develop innovative solutions to common challenges.

Another research area could be exploring how professional organizations can create and manage open innovation platforms to foster collaboration and knowledge sharing among members. This could involve developing strategies to incentivize participation, designing effective communication channels, and creating systems to track and measure the impact of open innovation initiatives.

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APPENDIX

APPENDIX 1 – Article 1

Journal of Open Innovation: Technology, Market, and Complexity

MDPI

Article

Business Model Dynamics from Interaction with Open Innovation

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Abstract: In today's competitive environment, firms face strong challenges. We live in a volatile, uncertain, complex and ambiguous (VUCA) environment where open innovation is a strategic choice and, on top of that, the COVID-19 pandemic has emphasized most of these disrupting forces. Incumbent companies must act strategically by adapting their business model to minimize the risk and to capture the new value that emerges. This article intends to contribute to the development of the nascent stream of research that seeks to understand the evolution of Business Models through time—known as *Business Model Dynamics (BMD)*—and explores how to better align this evolution to the implementation settings of strategy. This exploratory study is built upon a meta-synthesis approach to identify, analyze, and clarify how academics have dealt with the three terms used in the Business Model Dynamics research strand: Business Model Innovation, Business Model Adaptation, and Business Model Evolution. The results of the meta-synthesis show that a disambiguation of concepts is necessary as, from an organizational learning point of view, it is required to provide a better connection between strategic value appropriation and changes on Business Models. This article contributes to the researcher and practitioner's literature on Business Model Dynamics offering a clear and rigorous definition of each term from a strategic point of view, thus preventing the conceptual incoherence and their reiterated wrong use as synonyms.

Keywords: business model innovation; BMI; business model adaptation; BMA; business model evolution; business model dynamics; change management; open innovation

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1. Introduction

There is a general consensus that, for firms to remain competitive, they must continuously evolve and adapt their strategic settings to capture value from their customer needs. This is indeed more important in today's competitive environment where the VUCA conditions, open strategy choices, the pandemics and the strong disruptors that affect firm's competitiveness have an influence on strategic decisions. Sustained superior performance in these new and fast-moving environments depends crucially on the deployment and redeployment of superior strategic assets as appropriate for those environments [1]. One such asset is the firm's business model [1–6].

Business models change as managers not only innovate in business models, but also engage in more mundane adaptations in response to external changes [7]. Most researchers and managers will perceive Business Model Adaptation (BMA) as better suited to keep track of changes of incumbent firms in local markets [8], to attempt internationalization [8,9], and to simply adapt to the ecosystem evolution [10], whereas Business Model Innovation (Bmi) is perceived as directly linked to sustainable competitive advantage if successfully implemented [2–5,7,11,12]. While the message these studies convey is generally the same, they tend to employ different, often ad hoc, approaches to the definition of key concepts. There is a considerable conceptual ambiguity in strategic value appropriation in the BMD literature [13], mainly when an open innovation strategy is in place. The inconsistency

among the studies in this literature creates a generalizability problem and weakens their external validity. This conceptual incoherence diminishes the impact of the message regarding the importance of the evolution of Business Models through time, the real magnitude of the changes, the innovativeness of the process, and the attitude towards market disruptions.

Our research work is rooted in the strategic perspective that Business Model Dynamics requires different angles to understand changes in strategic value appropriation in the business model of a firm. In this sense, when incumbent firms are trying to react to either an external disruption or a change in the environment and pretend to seek the alignment of their current model with the new competitive environment, an approach based on BMA would fit better to the necessary changes for the business model [7,9,14,15]. On the contrary, if firms want to disrupt the market conditions [2,7,14,15] or the ecosystem status quo with a start-up approach [10], a specific approach based on BMI will be adequate. Finally, if an incremental and continuous innovation is required, BME will respond better to the path dynamics of the new business model. While BMA is the reaction to either an external disruption or a change in the environment, the process seeks the alignment of the Business Model with the new environment [7,16]; BMI seeks to disrupt the market conditions [3,4,10,11,17,18] or the ecosystem status quo [10].

As the scholar's knowledge on the field of BM Dynamics advances, the extant immaturity of these basic concepts adds difficulties to the progress of the field. Under the organizational learning lenses [19,20], in circumstances such as the Covid-19 pandemic where companies must face changes in their Business Models in order to appropriately capture value and survive, they deserve to confront the problem knowing the different degrees of change and adaptation that they can withstand. They can decide to adapt their Business Model, in different degrees, to the new environment or they can decide to innovate and seek out opportunities disrupting the market. In either case, they need to know, with accuracy, the different choices they have and the different outcomes they may encounter.

Furthermore, changes in business models affect strategy implementations actions. In this vein, our study tries to clarify the connections of the different BMD instances to the implementation of strategic settings for value capture. An organizational learning approach is used to shed light on these connections.

The main purpose of this exploratory research work is to deepen in a better understanding of the nature of the concept of 'Business Model Adaptation' to see how it fits in the 'Business Model Dynamics' literature. To complete this intention, this research work uses a systematic literature review [21] that explores how previous research works used both concepts, Business Model Adaptation and Business Model Innovation, in the extant literature of the strategic management area. Using a meta-synthesis research method [21] for papers published between September 2000 and December 2019, different categories on the usage of both terms appear. After an in-depth analysis, a total of 22 articles have been found eligible for this meta-synthesis. All of them use the Business Model concept in a dynamic way. Finally, all papers have been classified in seven categories and have been analyzed using an organizational learning approach.

A delineation of the different nature for BMA and BMI, in order to explain the foundations for a theoretical underpinning of BMA, and to clearly differentiate BMA from BMI flourishes as a result of these categories. This allows to connect each instance of BMD to different learning efforts in the implementation of the strategy. In this vein, this work contributes to the literature of strategy implementation by aligning the different instances of BMD to the effects on the implementation of the strategy through organizational learning.

This contribution can motivate new insights into the role that the business model concept can develop in the theoretical scene of the strategic management field. With the new categories, the underlying motivations of each concept are delineated, and for practitioners and decision-makers, new approaches can be obtained to decide on how to deal with

challenges in the competitive settings. In addition, new insights are provided to better develop this research area and to apply for sounder effects in the field.

This paper exhibits the following layout. First, we analyze the state-of-the-art on the evolution of business models through time; then, the research method applied in this study is demonstrated; next, the main key points and themes contained and extracted in the definitions of Business Model Adaptation are discussed. Finally, conclusions, limitations, and further research are outlined.

2. Background and State-of-the-Art

2.1. Competitive Challenges for Incumbent Companies

Market environment and competitive settings frequently receive disruptive shocks. Big worldwide disruptors like Amazon and Uber, new technological devices such as the Internet, Big Data and IoT, and global effects like the Covid-19 pandemic produce big changes that affect local SME firms because of the effects on the local competitive environment. Local SME firms need to react to these imported effects in their close market and competitive settings. These external effects require strategic adaptation and consequently fine-tuning the strategy implementation components that could be affected.

The firm's reaction requires to adapt their operations, stakeholder groups, alliances, positioning, value proposition, and all the rest of the components of the logics behind the strategy implementation when a change appears. Coherence of the changes requires a sound connection to the strategic settings for a correct value appropriation [22,23]. To deal with the change situation, this work proposes to use an organizational learning approach and to align the challenges of the coherence of the change to strategic learning.

In this work, we propose to use the business model perspective to understand how to deal with the effects that a firm must face when a disruption force appears and new value has to be captured. Firms must adapt their business models to new competitive settings and market drivers.

2.2. What Is a Business Model?

Business Model has been defined as the logics and the rationale for the implementation of the strategy. In some sense, a firm's Business Model represents how an organization creates, delivers, and captures value. Business models represent a relatively new construct and unit of analysis in the literature, receiving increasing attention over the last fifteen years [2,12,14,24–26]. Although there is no generally agreed upon definition, many contributions to the literature define it in terms of the firm's value proposition and market segments, the structure of the value chain required for delivering the value proposition, the mechanisms of value capture that the firm deploys, and how these elements are linked together in a value architecture [17,24–26]. We adopt this definition throughout this paper.

2.3. Business Model Dynamics

Following the works of Saebi et al. [7], the group of studies that refer to the changes occurring in existing firm's business models over time, often in response to an external trigger, can be categorized under the research stream of 'Business Model Dynamics'.

Business Model Dynamics focuses on 'how companies change and develop their business models to achieve sustained value creation through time' [7,23]. Different types of BMD have been characterized to represent different levels of strategic changes in firms due to external effects. Business Model Adaptation (BMA) is related to encompassing strategic settings to external effects with the main goal of guaranteeing economic sustainability of the firm. Business Model Innovation (BMI) refers to radically reconfiguring firm's competencies to respond to the external effects. Finally, Business Model Evolution is an incremental reconfiguration of some components of the business model to face the strategic challenges derived from the external effects. Each BMD instance represents a specific strategic value appropriation.

2.4. What Is Business Model Adaptation?

As far as we know, the term 'Business Model Adaptation' was used for the first time in this context by Andries and Debackere in 2007 [27]. Prior to these authors, the adaptation of a Business Model through time was often stated with the terms 'evolution', 'change', 'transformation', 'learning', 'erosion' and 'life cycles' among others, and sometimes just 'adaptation' or 'sequential adaptation' as seen in Chesbrough and Rosenbloom in 2002 [28], but never referring to 'Business Model Adaptation' as a concept and a well-established process in Business Model Dynamics.

Sometimes, the authors just mention the need to adapt business models through time in order to guarantee the economic sustainability of the organization: 'The initial business model is more of a proto-strategy, an initial hypothesis for how to deliver value to the customer, than it is a fully elaborated and defined plan of action. It results less from a carefully calculated choice from a diverse menu of well-understood alternatives, and more from a process of sequential adaptation to new information and possibilities' [28].

2.5. What Is Business Model Innovation?

Business Model Innovation refers to the search and development of new and sometimes disruptive modes of value proposition, creation, and capture [15,25] to disrupt market conditions [7,9], disrupt ecosystems [10], or enter a new international market [9].

As Chesbrough states 'innovation must include business models, rather than just technology and R&D' [3] innovation is not only about implementing new technology or developing new products, business models are an important asset when the intention is to disrupt a market.

The innovation in business models not only comes from inside the companies. The concept of 'open innovation', defined by Chesbrough and Bogers as a 'distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organization's business model' [29], can also be applied to the innovation of business models and it has had tremendous impact on research and practice [30,31].

Researchers agree that companies benefit differentially from adopting open innovation strategies [3,4,32]; however, the reasons are unclear. In this sense, Saebi and Foss specify the conditions under which business models 'are conducive to the success of open innovation strategies' [32]. To create new models and to focus on developing and successfully maintaining them, open innovation can make use the 'developing circle of business models', defined by Yun [33].

Based on Yun and Yang [34], there are four different active business model-building processes: (a) the customer open innovation-based business model developing circle; (b) the user open innovation-based business model developing circle; (c) the social entrepreneurship-based business model developing circle; and (d) the engineer open innovation-based business model developing circle.

The impact of open innovation on the business models of public authorities has been analyzed by Finnegan and Nilsson, based on a case study of a network of municipalities in Sweden, they identify four emerging typologies of governmental transformation based on open innovation [35].

In 2006, Chesbrough introduced the concept to 'open business models' to illustrate that a closed business model can be seen as the 'starting point' and an open business model as 'the desirable end state of firm transformation' [5,36], where firms collaborate with the ecosystem by building up value and innovate their business model to make use of the emerging opportunities [36]. Saebi and Foss identify and describe four types of open business models [32].

For some years, BMI has been used as a global concept that included all aspects of Business Model Dynamics [2,7,15]. In this sense, authors like Mezger [37] affirm that Business Model Innovation can be conceptualized as a distinct dynamic capability and defined as 'the firm's capacity to sense business model opportunities, seize them through

the development of valuable and unique business models, and reconfigure the firms' competencies and resources accordingly' [37].

Five main areas of research have been identified during our literature review on Business Model Innovation:

(a) Definitions of BMI from the lenses of different theories [2,25,38–41];
(b) Tools to represent and to design business models as well as conceptual models [24,42];
(c) Different archetypes and typologies of businesss models based on various criteria [43–47];
(d) The processes and phases to implement Business Model Innovation [3,11,48];
(e) Changing and adapting business models through time. This group of studies refers to Business Model Dynamics, the evolution and adaptation of business models. Little is known about this sub-domain and academics agree on a general feeling that a better understanding of the evolution of a Business Model through time is needed [6,7,24,28,49].

We have realized that BMI is a very consolidated concept with more than 1100 articles on the Web of Science; while BMA, with only 17 articles, requires an ad hoc study as, based on the hypotheses of this study, BMA and BMI are different concepts that refer to different phenomena, and, consequently, the differentiation of both terms can help with the understanding of strategic perspectives. Both concepts are different and can lead to confusion if they are not properly delimited. Disruptive Innovation Theory has created a significant impact on management practices and aroused plenty of rich debate within academia [15]. From its lenses, a company can have the will to disrupt the market, can be the victim of a market disruption or can be neutral towards the market, for example changing its business model to be more sustainable [50].

A third term arises from this literature review: Business Model Evolution. It is a recurrent and continuous process of adaptation of an actual Business Model to new information, internal or external, that is made available to the business [51,52]. It implies minor changes on different components of a Business Model [38] and often is part of the fine-tuning of a broader process of Business Model Innovation [53].

2.6. Strategic Connection of Business Models Dynamics Instances

Changes in Business Models should be related to the strategy implementation settings. Learning is necessary to adapt strategic settings and to build the logics of the strategy implementation that Business Models exhibit [19,20]. A confusion in the terms that define the planned outcome of the processes of BMA and BMI can lead to unwanted scenarios. Learning efforts have to be fitted to strategic challenges. Learning for disruption is different from learning for adaptation. Using the Argyris and Schön [19,20] approach, BMA and BME can be related to changes in firm's theory-in-use and, consequently, single loop learning efforts are necessary; however, BMI will have to be related to changes in firm's espoused theory and double loop learning efforts will be necessary.

Our research question, therefore, based on the theoretical framework of Business Model Dynamics, is "to what extent, from a strategic value appropriation perspective, is the concept of BMA different from BMI?" this is to say, to what extent the differences between these two processes justify a specific approach on strategic value appropriation? And to what extent can the similarities between both concepts lead to a misleading strategic value appropriation? This is summarized in

> "To what extent should one be used and not the other to provide a sound strategic value appropriation?"

The Organizational Learning theory is going to help in clarifying these different roles for each instance related to the implementation of the strategy.

3. Research Methodology: Meta-Synthesis

The method chosen for this paper is a meta-synthesis research. Meta-synthesis is an integrative method for qualitative synthesis used to 'integrate, evaluate and interpret the

findings of multiple qualitative research studies' [21], in order to transform individual findings into conceptualizations and interpretations [54].

Meta-synthesis begins with a predefined research problem, a priori strategies for data collection, inclusion and exclusion criteria, data analysis, dealing with possible sources of bias, and synthesis of findings [55].

3.1. Why Meta-Synthesis?

There are three methods that can be used in a systematic literature review: aggregative, integrative and interpretive [21].

Integrative and aggregative methods are focused on summarizing findings of multiple qualitative research studies. Similarly, concepts employed to summarize data are assumed to be sufficiently predetermined and well specified. Aggregative methods produce effect sizes or percentages across studies (such as meta-summary) and integrative methods create taxonomies of the range of conceptual findings and provide the foundation for the development of conceptual descriptions of phenomena across studies [56].

Complementarily, interpretive methods involve considering findings across studies to generate new inductive understanding of the phenomena, events, or experiences [21]. Unlike aggregative and integrative methods, which rely on predetermined questions to guide the analysis, interpretive methods use an iterative process to explore what might be involved in similar situations and to understand how things connect and interact [55].

Given that we already have a research question 'To what extent are BMI and BMA different?' and 'When should one be used and not the other?' and also given that both concepts in focus are related to the field of Business Model Dynamics, or 'how companies change and develop their business models to achieve sustained value creation through time' [7–23], where works exist; meta-synthesis, an integrative method [21], is the most appropriate method for a systematic comparison of the terms BMI and BMA.

3.2. Data Collection, Inclusion and Exclusion Criteria

Meta-synthesis requires these steps for integrating findings: selection of studies, extracting findings, and abstracting findings [56,57], each explained in the following.

Articles were considered eligible for meta-synthesis based on the following criteria: published between September 2000 and December 2019; full-text article; English language; any country of the world. The searches were conducted on the main collection of the Web of Science.

As our study is concerned on the differences and similarities of the concepts 'business model innovation' and 'business model adaptation', the articles chosen for the data collection are articles that included the terms 'Business Model Adaptation', studies that includes the terms 'Business Model Innovation' and the word 'adaptation' or 'to adapt' to refer specifically to the adaptation of a business model without using the term BMA. In addition, we have also included all articles that include the terms 'Business Model evolution' jointly with the term 'Business Model Innovation' (see Table 1). We excluded those studies that are solely focused on 'business model innovation' from a non-dynamic perspective.

Table 1. Keywords included in the article's selection.

Keywords		Number of Articles
'Business Model Adaptation'		17
'Business Model Innovation'	Adaptation/'to adapt'	25
'Business Model Innovation'	'Business Model Evolution'	5

After analyzing its content and the scope of application area, a total of 22 articles have been found to be eligible for this meta-synthesis. All the articles have in common the fact that, despite their differences, the processes of BMI and BMA use the Business Model concept in a dynamic, transformational manner [9,58], not as a static construct.

The excluded articles were either duplicates or articles using the terms BMI and the keyword 'adaptation' but not referring to the 'adaptation of a Business Model'.

The core contributions of this meta-synthesis are displayed in Table 2. The articles have been ordered by year of publication and the number of citations reported on Google Scholar. The table also includes whether the authors use BMI, BMA, or other related terms. In the rest of the research work, this list of papers and their authors are referred, respectively, as *core contributions* and *core authors*.

Table 2. Core contributions.

Title	Author	Term Usage	Citations	Publication
The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies	Chesbrough, H. Rosenbloom, Richard S. (2002) [28]	BMI + adaptation.	5092	Industrial and corporate change
A research framework for analyzing eBusiness models	Pateli, A G Giaglis, G M (2004) [49]	BMI + 'to adapt a BM'	484	European journal of information systems
Adaptation in new technology-based ventures: insights at the company level	Andries, P; Debackere, K (2007) [27]	BMA	122	International Journal of Management Reviews
Reinventing your business model	Johnson, M W Christensen, C M (2008) [11]	BMI + adaptation	3032	Harvard Business Review
Capabilities and radical changes of the business models of new bioscience firms	Brink, Johan Holmén, Magnus (2009) [59]	BMI + adaptation	68	Creativity and Innovation Management
Business Model Adaptation as a dynamic capability: a theoretical lens for observing practitioner behavior	Dottore, AG (2009) [1]	Uses both BMI + BMA	15	BLED 2009 Proceedings
Business model innovation: Opportunities and barriers	Chesbrough, Henry (2010) [17]	BMI + adaptation	3267	Long Range Planning
Strategic development of business models: Implications of the web 2.0 for creating value on the internet	Wirtz, Bernd W. Schilke, Oliver Ullrich, Sebastian (2010) [47]	BMA	701	Long Range Planning
Business model dynamics and innovation: Re-establishing the missing linkages	Cavalcante, S., Kesting, P., Ulhøi, J. (2011) [60]	BMI + adaptation	480	Management Decision
Dynamics of Business Models–Strategizing, Critical Capabilities and Activities for Sustained Value Creation	Achtenhagen, L., Melin, L., Naldi, L. (2013) [23]	BMA	366	Long Range Planning
Business models for sustainable technologies: Exploring business model evolution in the case of electric vehicles	Bohnsack, René Pinkse, Jonatan Kolk, Ans (2014) [53]	BMI + Business Model Evolution	425	Research Policy
The changing university business model: a stakeholder perspective	Miller, K. Mcadam, M. Mcadam, R. (2014) [61]	BMI + Business Model Evolution	164	R and D Management
Toward a capability-based conceptualization of business model innovation: Insights from an explorative study	Mezger, Florian (2014) [37]	Uses both BMI + BMA	125	R and D Management
From refining sugar to growing tomatoes: Industrial ecology and business model evolution	Short, S. W. Bocken, Nancy Barlow, Claire Y Chertow, Marian R (2014) [62]	BMI + Business Model Evolution	88	Journal of Industrial Ecology
Business Model Adaptation and the Success of New Ventures	Balboni, B; Bortoluzzi, G (2015) [63]	Uses both BMI + BMA	11	Journal of Entrepreneurship Management and Innovation
Business Model Adaptation for emerging markets: a case study of a German automobile manufacturer in India	Landau, C; Karna, A; Sailer, M (2016) [9]	Uses both BMI + BMA	27	R&D Management
Design leaps: Business Model Adaptation in emerging economies	Sharma, S; Dixit, MR; Karna, A (2016) [8]	Uses both BMI + BMA	4	Journal of Asia Business Studies
What Drives Business Model Adaptation? The Impact of Opportunities, Threats and Strategic Orientation	Saebi, T; Lien, L; Foss, NJ (2017) [7]	Uses both BMI + BMA	92	Long Range Planning
Adapt and strive: How ventures under resource constraints create value through business model adaptations	Dopfer M, Fallahi S, Kirchberger M, Gassmann O. (2017) [58]	Uses both BMI + BMA	7	Creativity and Innovation Management

Table 2. *Cont.*

Title	Author	Term Usage	Citations	Publication
Valuing energy futures; a comparative analysis of value pools across UK energy system scenarios	Wegner, MS; Hall, S; Hardy, J; Workman, M (2017) [64]	Uses both BMI + BMA	5	Applied Energy
User-centered sustainable business model design: The case of energy efficiency services in the Netherlands	Tolkamp, J. Huijben, J.C.C.M. Mourik, R.M. Verbong, G.P.J. Bouwknegt, R. (2018) [65]	Uses both BMI + BMA	15	Journal of Cleaner Production
The typologies of power: Energy utility business models in an increasingly renewable sector	Bryant, ST. Straker, K Wrigley, C (2018) [66]	Uses both BMI + BMA	5	Journal of Cleaner Production
An Ecosystem-Level Process Model of Business Model Disruption: The Disruptor's Gambit	Snihur, Y; Thomas, Ll.D.W.; Burgelman, R (2018) [10]	BMI + adaptation	3	Journal of Management Studies
Business Model Adaptation in response to an exogenous shock: An empirical analysis of the Portuguese footwear industry	Corbo, L; Pirolo, L; Rodrigues, V (2018) [16]	BMA	2	International Journal of Engineering Business Management
Investigating the current business model innovation trends in the biotechnology industry	Horvath, B; Khazami, N; Ymeri, P; Fogarassy, C (2019) [67]	BMI + Business Model Evolution	7	Journal of Business Economics and Management

4. Data Analysis

Each study was carefully read by two researchers, and findings were highlighted. As meta-synthesis is primarily 'concerned with understanding and describing key points and themes contained within a research literature on a given topic' [68], shortly after beginning to read and to analyze each document, it was possible to categorize data using in vivo and metaphorical codes. Coding was performed by two researchers and a third independent one reviewed the proposal. As organizing categories began to emerge, the data were placed into a matrix, and two dimensions and nine main key points were identified. See Table 3 and points 4.1 and 4.2.

4.1. Dimension 1: About the Nature of BMA

1. Is Business Model Adaptation a specific process or is it a form of BMI? Some authors believe that BMA is a form of BMI while others think that is a completely different process. In Section 4.3.1 of the synthesis, the differences in opinions are analyzed and summarized.
2. Is Business Model Adaptation innovative per se? Authors discuss the innovativeness of the BMA processes and the degree of radicalness. Section 4.3.2 is a comparison of the different opinions regarding the degree of innovation of both processes.
3. How many components must change to be considered a Business Model Adaptation? Authors discuss the scope of the change based on the different components of a business model that are affected. Section 4.3.3 is a summary of their beliefs from the point of view of how narrow or wide are the changes on the Business Model components.
4. Is BMA a continuous change or is it infrequent? The frequency of change in the process of BMA is discussed by several authors. In Section 4.3.4, the occurrence of BMA and BMI is analyzed.
5. Is BMA for start-ups or for incumbents? Authors debate to what extent the process of BMA and BMI are suitable for different types of companies. Section 4.3.5 summarizes the conveniences of BMA and BMA for start-ups and incumbents.
6. What is the attitude towards the market? Authors deliberate about the planned outcome of BMA and BMI. Section 4.3.6 illustrates the different outcomes of these two processes.

Table 3. Key points and themes that emerged from the coding strategy.

Dimension	Key Points and Themes
The nature of BMA	1. Is Business Model Adaptation a specific process or is it a form of BMI?
	2. Is Business Model Adaptation innovative per se?
	3. How many components must change to be considered a Business Model Adaptation?
	4. Is BMA a continuous change or is it infrequent?
	5. Is BMA for start-ups or for incumbents?
	6. What is the attitude towards the market?
Theories to explain BMA	1. Business Model Adaptation through the lenses of Dynamic Capabilities theory
	2. Business Model Adaptation through the lenses of the Resource Based View

4.2. Dimension 2: Theories to Explain BMA

1. Business Model Adaptation through the lenses of the Dynamic Capabilities theory. Different authors analyze the BMA phenomena from the point of view of the Dynamic Capabilities theory. Section 4.1 summarizes their findings.
2. Business Model Adaptation through the lenses of the Resource Based View. In Section 4.2, we summarize the findings of the authors that analyze BMA from these other lenses.

In every key point, we compare what the core contributing authors state about that theme, synthesizing findings in each point, and offering a final complete synthesis of findings at the end of the article.

4.3. Comparing and Synthesizing (I): Stating the Nature of BMA

This chapter compares the extent and degree of changes, of the seven different dimensions that flourished in the meta-synthesis about BMA and BMI nature.

4.3.1. Is BMA a Specific Process or Is It a Form of BMI?

A 'process' is a 'sequence of events or activities that describes how things change over time, or that represents an underlying pattern of cognitive transitions by an entity in dealing with an issue' [69]. Following this definition and given the definitions of BMI seen at the beginning of this research work, BMI is clearly a process, but is BMA a component of BMI? Or is BMA a form of BMI? We have found some discrepancies among the analyzed authors: some of the authors consider the adaptation of a business model just a component of a greater BMI process [10,11,17,28], while others consider the adaptation just a form of BMI [9,37,58,63] even an independent phenomenon [7,64].

Table 4 displays the statements of authors who believe that the adaptation of a business model is a component of a greater process of BMI.

Without using the term 'Business Model Adaptation,' authors like Chesbrough and Rosenbloom examine the need to adapt an existing business model in established (Incumbent) companies to achieve 'a sequential adaptation to new information and possibilities' [28].

Table 4. Business Model Adaptation as a component of BMI.

BM Adaptation as Part of a Process of BMI	Findings	Author
'Research to date is yet to satisfy the need for methods that can structure a firm's change endeavor either towards adopting a new business model or extending a current one to include new dimensions.'	Adaptation of a BM is part of the BMI process.	Pateli and Giaglis (2004) [49]
'(. . .) The third is to compare that model to your existing model to see how much you'd have to change it to capture the opportunity.'	First, you create the concept of a new model, then you adapt your actual business model.	Johnson and Christensen (2008) [11]
This makes a 'radical' change empirically and analytically distinct from the slight alteration or adaptation of the initial business model which frequently occur within entrepreneurial ventures.	Adaptation of a business model is different from radical changes in Business Models even if they all are part of a BMI process.	Brink and Holmén (2009) [59]
'Business Model Innovation is not a matter of superior foresight ex ante—rather, it requires significant trial and error and quite a bit of adaptation ex post. In fact, it is the product of extensive experimentation.'	Adaptation is part of the process of BMI.	Chesbrough (2010) [17]

For these authors, the adaptation of a business model is just a component of a superior process of Business Model Innovation—a very common phenomenon in start-ups or companies that are searching for a way to disrupt the market. In addition, this affirmation is consistent with the extant knowledge on business models such as Teece that affirms that 'once articulated, the logic of the business model is subjected to the market test and needs to be modified and retested in face of changing environmental conditions' [70].

Figure 1 represents the concept where adaptation is part of the main BMI process.

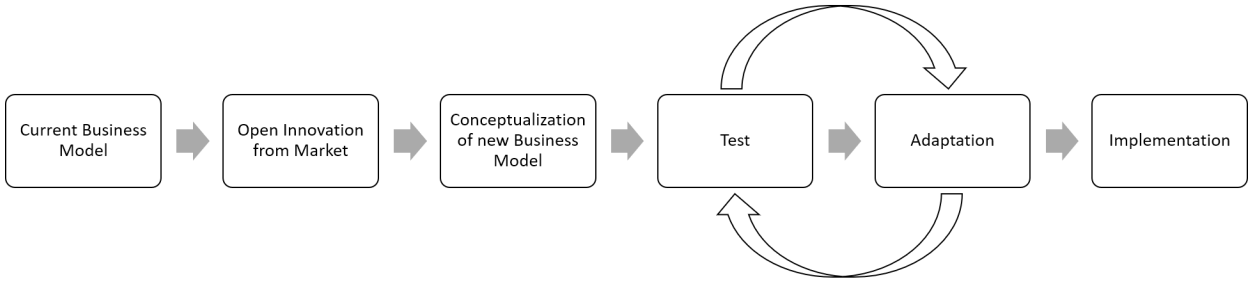

Figure 1. Business Model Innovation process adapted from Chesbrough and Rosenboom [28].

This same phenomenon is labeled with the term 'Business Model Evolution' (BME) in articles written after 2014 like Bohnsack et al. [53], Short et al. [71], Miller et al. [61], Balboni and Bortoluzzi [63], and Horvath et al. [67], and in a book chapter by Tina Saebi [72], which describes three different forms of business model dynamics, namely 'business model evolution, adaptation and innovation', and analyses them under the lenses of the dynamic capabilities theory.

In this article, from now on, we will use the term 'Business Model Evolution' (BME) to refer to minor adaptations of a Business Model to avoid misunderstandings and confusion with a broader phenomenon labeled as Business Model Adaptation by some of the analyzed authors.

See Table 5 to read the definitions of Business Model Evolution.

Table 5. Authors that define Business Model Evolution.

Business Model Evolution	Findings	Author
'Business model evolution shows a series of incremental changes that introduce service-based components (. . .)'	BME is the creation of new BM through a series of incremental changes.	Bohnsack et al. (2014) [53]
'(. . .) technology transfer office staff and government support agency representatives have led to the university business model evolving not as a process of co-creation but rather in a series of transitions (. . .)'	BME is a series of transitions on the Business Model.	Miller et al. (2014) [61]
'New ventures dynamically adapt and re-configure their business model'	BMs adapt and evolve.	Balboni and Bortoluzzi (2015) [63]
'The research employs a circular evaluation method to detect which parts of the applied business structures show model evolution of an innovative and knowledge-intensive industry, biotechnology.'	Different parts of the business model show evolution.	Horvath et al. (2019) [67]

On the other hand, some other authors think that the adaptation of a Business Model is a form of BMI as it addresses the changes of an actual Business Model to better fit a new environment [9,37,58].

See Table 6 to know the statements of authors that believe that BMA is a form of BMI.

Table 6. BMA is a form of BMI.

BMA is a Form of BMI	Findings	Author
'For established firms, BMI could be either the adaptation of its existing (core) business model or the development and introduction of a new business model adjacent to its core business.'	BMA is a form of BMI.	Mezger (2014) [37]
'Business Model Adaptation is a form of Business Model Innovation that addresses the development of a business model to better fit a new context'	BMA is a form of BMI.	Landau et al. (2016) [9]
'The process of continuous search, selection, and improvement of a Business Model based on the surrounding environment.'	The role and nature of Business Model Adaptation as a coping mechanism with resource constraints.	Dopfer et al. (2017) [58]

Apart from the two above mentioned groups, there is a third group of authors who think that, by definition, BMA could not be BMI as the nature and the objectives of both concepts are different. For Saebi et al. [7], BMA is 'the process by which management actively aligns the firm's business model to a changing environment' [7] and Wegner et al. share the same belief [64]. We will attempt to explain the nature and the objectives of BMA, BMI, and BME in the following points.

Summary

We have realized that the longitudinal nature of any process enables to consider the adaptation of a Business Model analysis from two different viewpoints: as a phenomenon by itself where the objective is to adapt an existing business model to environmental changes; and as a component of a superior process with the objective of assessing the viability of new business initiatives. Both views are accepted among most researchers, but we realized that a new term has been coined to define the incremental adaptation of a Business Model through a series of little changes in articles written after 2014. The new denomination is Business Model Evolution.

From this meta-synthesis, we could conclude that three terms arise to describe different nuances of the processes of change in a Business Model though time:

1. **Business Model Innovation**: as the broader process with the objective to create a new Business Model.
2. **Business Model Adaptation**: as a process with the objective to adapt a current Business Model, and that can be a form of BMI if it becomes innovative.
3. **Business Model Evolution**: as a component of a wider process of transformation that seeks the change of a Business Model through small incremental changes in the current model.

4.3.2. Is BMA Innovative Per Se?

We have seen in the section above that authors like Saebi, Lien, and Foss consider the BMA process different from BMI [7]—not even part of it. This is because they consider that a business model can be adapted without innovation 'Business Model Adaptation and innovation differ in important ways. (. . .), while the kind of novelty implied by the notion of an 'innovation' might be a likely outcome of business model adaptation, it is not a necessary requirement. Business Model Adaptation can be non-innovative' [7].

In addition, authors like Sharma et al. state that BMA doesn't have to be innovative either, and affirm that it is 'quite common and a normal way of doing things' for entrepreneurs in emerging markets [8]. For them, the process consists just in adapting a model originated in a developed market, to an emerging market to better fit the environment. No innovation in the business model is needed.

For some other core authors, adapting a business model in a non-innovative way could be done, but it is a mistake 'pursuing a new business model that's not new or game-changing to your industry or market is a waste of time and money' [11].

In Table 7, we synthesize the statements about BME, BMA, and BMI regarding innovation.

Table 7. Innovation in BME, BMA, and BMI.

BMA and Innovation	Findings	Author
'The strategic potential of business model innovation thus lies in identifying new sources of value creation, based on innovations of the different components of a business model and/or the interactions between these components.'	BMI is based on the innovation of the different components of a Business Model.	Bohnsack et al. (2014) [53]
'Entrepreneurs interested in exploring and exploiting opportunities in these markets need to overcome multiple innovation challenges to activate and sustain interest in what they have to offer.'	BMA can be innovative	Sharma et al. (2016) [8]
'This article clarifies the relationship between business model innovation enabled by 3D printing technologies and the resulting innovative effect, whether radical or incremental.'	BMI is innovative (by definition) but can be either incremental or radical.	Rayna and Striukova (2016) [18]
'Business Model Adaptation is a form of Business Model Innovation that addresses the development of a business model to better fit a new context'	BMA is innovative as is a form of Business Model Innovation.	Landau et al. (2016) [9]
'Business Model Adaptation and innovation differ in important ways. (. . .), while the kind of novelty implied by the notion of an 'innovation' might be a likely outcome of business model adaptation, it is not a necessary requirement. Business Model Adaptation can be non-innovative.'	BMA can be innovative and non-innovative, while BMI is innovative.	Saebi et al. (2017) [7]

From the perspective of its innovation, authors like Brink and Holmén state that there is a distinction between radical and incremental changes of business models. 'Radical' business model innovation arises when the business model has changed 'simultaneously within more than one aspect or dimension' [59]. They also declare that 'this makes a radical

change empirically and analytically distinct from the slight alteration or adaptation of the initial business model which frequently occur within entrepreneurial ventures' [59].

In Table 8, we analyze the degree of innovation of BME, BMA, and BMI from the perspective of our core review authors.

Table 8. Degree of Innovation in BME, BMA, and BMI.

BMA and Innovation	Findings	Author
'In spite of these similarities, the finding that adaptation in new ventures can imply gradual as well as radical business model changes goes against the traditional view on dynamic capabilities.'	BMA can imply gradual as well as radical changes.	Andries and Debackere (2006) [27]
'The process of business model evolution involves important learning activities in which the firm develops new skills and abilities, the mind-set of innovation and adaptation, and an appetite for searching out new value creation opportunities.	The process implies incremental innovation in the firm.	Short et al. (2014) [71]
'Business model evolution shows a series of incremental changes that introduce service-based components, which were initially developed by entrepreneurial firms, to the product.'	In BME the changes are incremental	Bohnsack et al. (2014) [53]
'AutoLux adapted its business model in a sequential manner to step-by-step overcome the challenges of operating in an emerging market and to design a model that fits the new context'	Adaptation can be sequential to overcome step-by-step the challenges of operating in an emerging market and to design a model that fits the new context.	Landau et al. (2016) [9]
'Involving the user requires facilitation of opportunities for interaction in multiple components of the business model and can lead to both incremental and radical business model innovation ex-post.'	BMI can be either incremental or radical.	Tolkamp et al. (2018) [65]
'Any component of the business model can change after involving the user; however, most changes tend to be incremental changes to the value proposition and components that enable the value proposition (key activities, -resources and -partnerships).'	When adapting a BM to become user-centered, changes tend to be incremental and targeting value proposition components.	Tolkamp et al. (2018) [65]

Summary

While Business Model Innovation is innovative by definition, Business Model Evolution and Business Model Adaptation can be innovative or non-innovative depending on the nature of its changes.

On the other hand, Business Model Evolution and Business Model Adaptation are similar from the perspective that they both normally entail organizational processes that bring about incremental adjustments to the business model, while Business Model Innovation tend to be based on radical innovation of the Business Model. Although BMA can be radical sometimes if the adaptation is innovative to the point that nothing like it has been in any other company before, and BMI can be incremental in a few cases, when for example, different phases of change are defined through the years.

4.3.3. How Many Components Do We Need to Change to Consider BMI and Not Just BMA or BME?

The scope of the change has been analyzed by the authors depending on the number of components that changes in the process of BMA and BMI, but authors like Balboni and Bortoluzzi, Wirtz et al., and Landau et al. agree that the number of components changed in a process of BMA is irrelevant [9,47,63], and some even state that 'at the last phase of BMA continuous adjustments of all components are required' [9].

Table 9 shows the statements of core review authors regarding the magnitude of the changes on the three processes.

Table 9. Changes in the Business Model components.

Changes in Business Model Components	Findings	Author
'Customer needs, market misalignments and the ability to sense new technological potential have been the major common drivers of the dynamics of these firms' BMA processes'	To succeed with the adaptation process, some components of the BM should change.	Balboni and Bortoluzzi (2015) [63]
'Firms are increasingly confronted with fundamental environmental alterations, such as new competitive market structures, governmental and regulatory changes, and technological progress, which often require managers to significantly adapt one or more aspects of their business models.'	The number of aspects does not change the fact that the process is BMA.	Wirtz et al. (2010) [47]
'In each phase of the Business Model Adaptation process, firms emphasize different components of the business model, before they enter into continuous adjustments of all business model components. '	Different phases of the BMA require the adaptation of different components. At the last phase of BMA, continuous adjustments of all components are required.	Landau et al. (2016) [9]

The core review analysis confirms that, when doing BMA, some elements of a business model should be adapted.

In our literature review, none of the authors specifies the number of components that change when the process is Business Model Evolution and is a part of a broader BMI process. However, as seen on the first point of this meta-synthesis, as this adaptation is a minor adjustment of a few components of the Business Model, and Brink and Holmen state that BME is the 'slight alteration or adaptation of the initial business model which frequently occur within entrepreneurial ventures' [59], we therefore can affirm that BME only imply changes in a few components.

Summary

There is no difference between the number of components that must be changed in a Business Model in a process of BMI and in a process of BMA. All components can be changed at the same time if necessary, although this will lead to a radical innovation.

As per BME, few changes are made on the components of a Business Model but with higher frequency as we will see on the next point.

4.3.4. What Is the Frequency of the Changes in BME, BMA, and BMI?

Business Model Adaptation as compared to BME and BMI 'takes place periodically and is likely to affect a number of business model dimensions simultaneously' [72].

Regarding BMA, Landau et al. believe that 'in each phase of the business model adaptation process, firms emphasize different components of the business model, before they enter into continuous adjustments of all business model components' [9]. Again, we can observe that by 'continuous adjustments' the authors are referring to BME. We could argue that BME is based on continuous and gradual changes of a few components of the Business Model.

Table 10 summarizes the statements of core review authors regarding the frequency of the processes of BMI, BMA and BME.

Table 10. Frequency of the processes of BMI, BMA, and BME.

Changes in Business Model Components	Findings	Author
'Several studies characterize business model innovation as a continuous, evolutionary process, and emphasize the role of learning in business model innovation.'	BMI is an evolutionary process.	(Landau et al., 2016) [9]
'Business model adaptation involves a process of continuous search, selection, and improvement in value creation, value proposition, and value capture, based on the surrounding environment.'	BMA is a continuous process.	(Dopfer et al., 2017) [58]

Authors like Landau et al. and Dopfer et al. argue that BMI and BMA are continuous and evolutionary processes [9,58]. In both cases, this is a vision of BMI and BMA from the lenses of Dynamic Capabilities not from the process point of view. Non-core authors agree that managers tend to avoid radical change and leave their "comfort zone", 'since such changes would require them to question their mental models and the dominant logic' [15].

Sosna et al. [73], another non-core reviewed authors, divides the business model development process into the two fundamental phases of exploration and exploitation. These two phases can be applied either to BMI and to BMA as the authors only refer to the business model development process and do not differentiate between the creation of a new business model (BMI) or de-adaptation of the existing one (BMA). We can argue that the phase of exploration of different Business Models requires a long trial-and-error-based learning, but the phase of exploitation requires stability as 'a firm cannot afford to continuously uproot, deconstruct, and innovate its extant business model' [72].

Summary

Business Model Evolution and Business Model Adaptation are similar from the perspective that they both entail organizational processes that bring about adjustments (as opposed to disruptions) to the business model. They differ, however, in the way that BME processes occur more naturally and incrementally over the lifespan of the firm's business model while BMA occurs periodically.

On the other hand, Business Model Innovation occurs infrequently as companies need a certain stability in their Business Models, but from the perspective of dynamic capabilities, both BMI and BMA, should be part of the strategic actions seeking sustained value creation in companies.

4.3.5. Is BMA for Start-Ups or Is It for Incumbents?

Core review authors analyze BMA from different perspectives regarding who is the target for such a process. Some authors consider that adaptation is a basic process for all new businesses as 'innovative business models start with an entrepreneurial idea and imagination of an offering that will serve novel value to customers. From this idea to successful implementation, new ventures experience an iterative, nonlinear, and feedback-driven process to find a match between their offering and market wants and needs' [58].

In this same line, authors like Andries and Debackere state that 'Changes to its original business model are thus needed as initially unavailable and unknown information becomes known' [52]. In addition, Balboni and Bortoluzzi are of the same mind 'In this study, we explore the connections between Business Model Adaptation and the success of new ventures' [63].

It is clear that the adaptation of their business model is a success key factor for start-ups. In addition, Andries and Debackere state that 'Especially for new technology-based firms, defining an appropriate business model from the beginning is difficult, and adaptation of the initial business model is therefore crucial for success' [52].

Authors such as Chesbrough and Rosenbloom [28] that consider adaptation a part of a BMI process even state that incumbents are not very likely to adapt their business model 'the process of adaptation appears to be either more highly motivated or more easily implemented in independent ventures than in established firms. Several of our cases suggest that the process of adaptation is triggered by the realities in the context of an independent business enterprise, which enable search processes for models far from the familiar business model of the parent company. Entrepreneurs securely employed in a large enterprise, itself with a strong culture—including its beliefs and dominant logic derived from a successful and well-established business model—may feel little incentive to search for alternatives outside that successful model' [28].

In Table 11, we address authors analyzing 'adaptation' from the point of view of start-ups.

Table 11. BMA is a process for Start-ups.

Changes in Business Model Components	Findings	Author
'The process of adaptation appears to be either more highly motivated or more easily implemented in independent ventures than in established firms. '	New companies are highly motivated to change their business model.	Chesbrough and Rosenbloom (2002) [28]
'Entrepreneurial firms are less constrained by path dependencies which makes them more flexible in designing more radical business models from scratch'	Entrepreneurial firms design more radical BM.	Bohnsack et al. (2014) [53]
'Especially for new technology-based firms, defining an appropriate business model from the beginning is difficult, and adaptation of the initial business model is therefore crucial for success'	BME is needed for start-ups.	Andries and Debackere (2006) [27]
'Companies tend to avoid major business model revisions (...) the focus on current profitable customers inhibits the exploration of emergent technologies in new commercial segments; in consequence, new business opportunities have often not been realized by incumbents, but by new ventures'	A change of BM is more likely to be done by a start-up that by an incumbent.	Cavalcante et al. (2011) [60]
'A key success factor for emerging businesses of new ventures in turbulent and uncertain environments is therefore business model adaptation, characterized by rapid learning and adaptation to market changes'	Adaptation is a key success factor for new businesses.	Dopfer et al. (2017) [58]
'(. . .) to reduce uncertainty about ecosystem participants' needs, entrepreneurs can adapt their business model in an effort to better meet ecosystem needs '	Adaptation is the way entrepreneurs evolve their business model to meet ecosystem needs.	Snihur et al. (2018) [10]
'In this study, we explore the connections between Business Model Adaptation and the success of new ventures' 'The ability to dynamically adjust the business model to changing environmental conditions and emerging market opportunities is a key capability expected to increase a start-up's likelihood of survival in the short term and to support its growth in the medium and long term'	BMA is a key factor for the success of new ventures.	Balboni and Bortoluzzi (2015) [63]
'We derived a model detailing the implications of different components of disruptive innovation and unveiling how incumbents can react through BMA.'	BMA is the response of the incumbents to a disruptive innovation.	Cozzolino et al. (2018) [74]

Dopfer et al. [58] cite Bhide that coins the term 'opportunistic adaptation' [75] to refer the phenomena where entrepreneurs adapt their business model to unexpected circumstances in an 'opportunistic' fashion as they have limited funds and have little reason to devote much effort to prior planning and research due to the high uncertainty of

their business. The author stays that 'their response derives from a spur of the moment calculation made with the intention of maximizing immediate cash-flow' [75].

Other authors consider that BMA is ideal for incumbents. This latter is the case described by Landau et al., stating that when incumbent firms enter a new market 'Firms have to innovate and adapt their business models to better fit the specific context of these international markets' [9]. In addition, it is also described by Cavalcante et al. affirming that 'the focus on current profitable customers inhibits the exploration of emergent technologies in new commercial segments' [60].

In Table 12, we address the authors that refer BMA specifically to incumbent companies.

Table 12. Regarding incumbents.

Changes in Business Model Components	Findings	Author
'This is an important step as there is mounting evidence of multiple threats to utility firms which require long-term business model transition and adaptation to address'.	BMA is a long-term key success factor for well-established firms.	Wegner et al. (2017) [64]
'Firms have to innovate and adapt their business models to better fit the specific context of these international markets'.	BMA is a success factor when incumbents enter a new market.	Landau et al. (2016) [9]
'For established firms, BMI could be either the adaptation of its existing (core) business model or the development and introduction of a new business model adjacent to its core business'	In established firms, BMA is a part of BMI.	Mezger (2014) [37]

Other core authors believe that BMA is necessary either for star-ups or for incumbents 'Put together, our study provides specific pointers to managers and entrepreneurs looking to create opportunities in emerging markets through business model adaptation' [8].

Cavalcante et al. state that 'radical change is recognizably more difficult and stressful' [60] and remind us that, decades ago, Joseph Schumpeter emphasized the role of the entrepreneur in 'promoting new combinations which trigger economic development, and which in turn may lead to episodic instances of creative destruction' [76].

As seen in the previous point, non-core authors like Markides agree that managers of incumbent companies do not welcome radical changes and tend to avoid leaving their 'comfort zone' [15]. The academic literature suggests three exceptions to this generalization. Specifically, established firms would, on average, find it advantageous to create disruptive business-model innovations in the following circumstances:

1. When they enter a new market where entrenched competitors have first-mover advantages (e.g., Canon entering the copier market). In such a case, the new entrant must attack by breaking the rules [15,77].
2. When their current strategy or business model is clearly inappropriate and the firm is facing a crisis (e.g., Kresge introducing the discount retail concept in the 1960s and renaming itself K-Mart) [15].
3. When they are attempting to scale up a new-to-the-world product to make it attractive to the mass market [15].

Summary

Business Model Evolution implies minor adjustments in Business Models and can be applied either to start-ups or incumbents.

Business Model Adaptation is suitable for all types of companies, extant literature shows that incumbents tend to adapt their business models when changes come from an evolution of the market.

Business Model Innovation is suitable for all types of companies, but young companies are more motivated to do radical changes and to try new and disruptive ways of attacking a market to find competitive advantages, as established firms have many other alternatives

to consider, including 'investing its limited resources in adjacent markets or taking its existing business model internationally' [15].

4.3.6. The Market Makes You Change, or Are You Changing the Market?

It is well known that established and currently very successful business models cannot be understood as permanent [3,4,17]. In times of environmental change, continuous changes to, and the development of business models, are key aspects in sustained value creation and capture [23]. Otherwise, the misfit between the new context and the firm's business model would weaken the firm. Firms neglecting to adapt their business model in reaction to changes in the competitive situation or new contexts run an increased risk of failure [78].

Disruptive Innovation Theory has created a significant impact on management practices and aroused plenty of rich debate within academia [15]. As seen in the state-of-the art at the beginning of this article, from the lenses of the Disruptive Innovation Theory, a company can have the will to disrupt the market, can be the victim of a market disruption, or can be neutral towards the market, for example changing its business model to be more sustainable [50]. In our research, we have realized that this is precisely what some authors consider the main differences between BMI and BMA to be. While BMI is 'the process by which management actively innovates the business model to disrupt market conditions' [7], BMA is the reaction to a market change [7,58,72].

Furthermore, for Saebi et al., 'Business Model Adaptation and innovation differ in the important ways. (. . .) while Business Model Adaptation is a response to external causes, Business Model Innovation may be driven by internal as well as external factors [7] and state that 'In adapting the business model to changing external conditions, the firm aims to attain alignment with the environment' [7] while an important motivation for Business Model Innovation is to 'shape markets or industries by means of creating disruptive innovations' [7].

Core reviewed authors also state that firms are increasingly confronted with fundamental environmental alterations, such as new competitive market structures, governmental and regulatory changes, and technological progress, and therefore require managers to adapt their business models [9,47]. Other studies have linked changes in business models to unusual events in an established market. The adaptation of the business model of all industries is required; this is the case, for example, of the Portuguese footwear industry after China's entry in the WTO in 2001, analyzed by Corbo et al. [16].

However, not all adaptations are due to disrupting changes, the perception of opportunities in a new market can also engage a BMA process. Wegner et al. state that 'the combination of low barriers to entry (for incumbents) and a robust, sizeable value pool, suggests adapting utility business models to capture this revenue would be an attractive option' [64], and Achtenhagen declares that 'when companies succeed in the market with their business model and realize that there is further potential to expand, strategizing actions often lead to adaptations in the value creation logic' [23].

Landau et al. specify that 'Being able to adapt business models to different institutional settings and customer preferences are key capabilities required for firms seeking to benefit from doing business in emerging markets' [9]; therefore, not only the adaptation should be due to the result of market changes, but also to better fit a new context. In this same line, we found Sharma et al. stating that 'our main thesis of Business Model Adaptation is based on the premise that localization is necessary, and, therefore, firms need to adapt the models that are adopted from developed markets' [8].

In Table 13, we show the different motivations that drive the adaptation of a business model.

Table 13. BMA motivations.

Definition	Findings	Author
'Firms are increasingly confronted with fundamental environmental alterations, such as new competitive market structures, governmental and regulatory changes, and technological progress, which often require managers to significantly adapt one or more aspects of their business models.'	BMA is the reaction to environmental changes such as market, regulations, and technological progress.	Wirtz et al. (2010) [47]
'Business Model Adaptation is a form of Business Model Innovation that addresses the development of a business model to better fit a new context'	Adaptation can be sequential to step-by-step overcome the challenges of operating in an emerging market and to design a model that fits the new context.	Landau et al. (2016) [9]
'The process by which management actively innovates the business model to disrupt market conditions.'(. . .) 'BMA is the reaction to a market change'	BMI is a way to disrupt a market while BMA is the reaction of a market change.	Saebi et al. (2017) [7]
'Business Model Adaptation involves a process of continuous search, selection, and improvement in value creation, value proposition, and value capture, based on the surrounding environment.'	BMA is based on the changes of the surrounding environment.	Dopfer et al. (2017) [58]
'While innovation, when attached to business models, is defined as the process by which firms actively innovate their business model to disrupt market conditions, the focus of this article is on how business models change in response to an external trigger. These changes have been defined as business model adaptation, that is, the process by which firms align their business model with a changing environment'	BMI aims to disrupt a market while BMA is the process by which firms align their business model to changing environments.	Corbo et al. (2018) [16]
'The combination of low barriers to entry (for incumbents) and a robust, sizeable value pool, suggests adapting utility business models to capture this revenue would be an attractive option.'	The perception of opportunities in a market can drive to BMA.	Wegner et al. (2017) [64]
'When companies succeed in the market with their business model and realize that there is further potential to expand, strategizing actions often lead to adaptations in the value creation logic.'	The perception of opportunities and lead to BMA.	Achtenhagen et al. (2013) [23]
'Our main thesis of Business Model Adaptation is based on the premise that localization is necessary, and, therefore, firms need to adapt the models that are adopted from developed markets.'	BMA firms need to adapt the models from developed markets to better fit local environments.	Sharma et al. (2016) [8]

Summary

When the technology push acts as an internal driver for innovation and the opportunity to disrupt the market leads to change in the business model, the phenomenon can be tagged as Business Model Innovation.

Instead, when the shift in focus goes from product solutions to customer solutions, and there are external pressures for change, that is to say, the market pulls to change the business model, the phenomenon can be tagged as Business Model Adaptation.

Regarding Business Model Evolution, the need to change could be internal or external as the need for changes arises when information that was unavailable or was unknown appears [58].

4.4. Comparing and Synthesizing (II): Findings on Theories to Explain BMD

This chapter summarizes the different theories that have been raised from the analysis of the different instances of Business Model Dynamics by the core review authors.

4.4.1. BMA and BMI as a Dynamic Capability of a Firm

Dynamic capabilities are a set of specific and identifiable processes and routines [79] that enable business enterprises to create, deploy, and protect the intangible assets that support superior long-run business performance [80].

Several non-core authors adopt the dynamic capabilities framework as a theoretical lens for observing BMI [2,12,40,81,82] and also to analyze the adaptation of business models [27,80,83,84] stating that 'if routines can be identified, then it would suggest that adaptation is indeed a dynamic capability' [27].

As shown in Table 14, in our core review, five of the papers make use of the dynamic capabilities view to explore deeper on BMA: Dottore [1], Cavalcante et al. [60], Achtenhagen et al. [23], and Balboni and Bortoluzzi [63].

Table 14. Dynamic capabilities view of BMA by core review authors.

Dynamic Capabilities	Findings	Author
'The dynamic capabilities framework appears to hold significant prospect for aiding the research into Business Model Adaptation and innovation.'	BMA is a determinant of sustained superior performance in fast moving and high technology markets.	Dottore (2009) [1]
'If understood as part of a firm's dynamic capabilities, the adaptation of the business model to a firm's innovation activities assumes key strategic importance.'	BMA can be understood as part of a firm's dynamic capabilities.	Cavalcante et al. (2011) [60]
'We employ an activity-and capability-based view on what is needed to achieve business model change.'	BMA can be analyzed from the lens of dynamic capabilities.	Achtenhagen et al. (2013) [23]
'The ability to dynamically adjust the business model to changing environmental conditions and emerging market opportunities is a key capability expected to increase a start-up's likelihood of survival in the short term and to support its growth in the medium and long term.' 'The firms' dynamic capabilities have been critical in keeping them alive and kicking in three highly dynamic business environments.'	The dynamic adaptation of the business model acts as a driver of the success of the new venture. The authors analyze how three firms implemented BMA in an agile way.	Balboni and Bortoluzzi (2015) [63]
'Firms create a new business model by combining, integrating and leveraging internal resources with the capabilities and resources of the ecosystem'	BMA depends on the internal resources as well as the capabilities and the resources of the ecosystem.	Sharma et al. (2016) [8]

Summary

It seems clear that both processes BMI and BMA have in common that they have been studied through the dynamic capabilities' theoretical lens. This is even more so for the authors that consider BMA a form of BMI and therefore consider BMA a form of dynamic capability. The findings demonstrate that BMI can be conceptualized as a distinct dynamic capability. This capability can be disaggregated into a firm's capacity to sense business model opportunities, seize them through the development of valuable and unique business models, and reconfigure the firms' competencies and resources accordingly' [37].

4.4.2. BMA and BMI and the Resource-Based View (RBV)

Dopfer et al. [58] analyze BMA from the lenses of the resource-based view (RBV) theory. This theory, rooted in evolutionary economics, originates in the idea that a firm's sustained competitive advantage relates to the exploitation of its available resources [85].

The authors answer the question 'How do new ventures organize their business model components in order to meet their available resources?' and state that new ventures face huge challenges 'as they adapt the business model based on limited resources in order to find the product-market fit' and that 'the venture needs to go through an iterative process of adaptation to achieve complementarity between business model components and a firm's available resource base' [58].

In another of the core reviewed articles, Wegner et al. [64] also adopt a resource-based view of the firm to argue, while analyzing the evolution of the energy market in the U.K., that 'quantifying the relative size of the markets created and destroyed by energy transitions can provide useful insight into firm behavior and innovation policy' [64].

Furthermore, Landau et al. declare that 'The activity system-based view addresses business model adaptations due to institutional factors and lack of external value creation partners' [9]. In addition, Sharma et al. state that 'Firms create a new business model by combining, integrating and leveraging internal resources with the capabilities and resources of the ecosystem' [8].

Table 15 summarizes the statements of core review authors regarding BMA under the lenses of the RBV theory.

Table 15. BMA and the resource-based view.

BMA the Resource-Based View	Findings	Author
'The activity system-based view addresses business model adaptations due to institutional factors and lack of external value creation partners.'	This is a proper view to analyze BMA.	Landau et al. (2016) [9]
'Firms create a new business model by combining, integrating and leveraging internal resources with the capabilities and resources of the ecosystem'	BMA depends on the internal resources as well as the capabilities and the resources of the ecosystem.	Sharma et al. (2016) [8]
'New ventures face huge challenges 'as they adapt the business model based on limited resources in order to find the product-market fit' 'the venture needs to go through an iterative process of adaptation to achieve complementarity between business model components and a firm's available resource base'	BMA depends on the use of the limited resources of a company.	Dopfer et al. (2017) [58]
'Quantifying the relative size of the markets created and destroyed by energy transitions can provide useful insight into firm behavior and innovation policy'	Resource-Based View is useful to understand a firm behavior when adapting its business model.	Wegner et al. (2017) [64]

Summary

We observe that, as the Resource-Based View (RBV) of the firm is the proximate antecedent of the dynamic capabilities' framework [1], BMA can be analyzed from its lenses.

5. Discussion

BMA and BMI are complex concepts and, as we have realized in our literature review, rather poorly defined terms. The use of multiple historical definitions of Business Model Innovation (BMI) causes logical inconsistencies, self-contradictions, and conceptual ambiguity, that is to say, conceptual incoherence in the use of this term. On top of that, there are some authors that use the term 'adaptation of a Business Model' to refer to minor and recurrent changes to the Business Model, and this can be the source of confusions with the phenomenon called 'Business Model Adaptation'.

Furthermore, in addition to the effects of the conceptual incoherence of the terms to refer to the different instances of BMD, our literature review allows to propose different

roles for each instance related to the implementation of the strategy. Organizational Learning is going to help in clarifying these different roles.

In the following sections, both aspects are delimitated.

5.1. Conceptual Coherence of BMD Instances

The results of our meta-synthesis of extant literature have shown that three terms can be defined from different nuances of the changes that can take part in Business Model Dynamics: Business Model Evolution, Business Model Adaptation, and Business Model Innovation.

Business Model Evolution. It is a recurrent and continuous process of adaptation of an actual Business Model to new information, internal or external, that is made available to the business [3,27]. Its final objective is the maintenance and constant adaptation of a Business Model, it does not seek to disrupt the market, and it aims to preserve its relevance [63]. It implies minor changes on different components of a Business Model [61] and often is part of the fine-tuning of a broader process of Business Model Innovation [53]. All types of business can implement processes of Business Model Evolution and, in fact, from the perspective of the dynamic capabilities theory, it is advisable to continuously 'search for competitive advantages thanks to the changes on the Business Model' the constant adaptation of a Business Model should be part of the strategic actions seeking sustained value creation in companies [60,63].

Business Model Adaptation. It is a change in an actual Business Model that searches the alignment with changes in the environment [8,13,23,47,58,64]. BMA can be innovative or not, depending on the degree of novelty of the changes implemented [8,13]. If it is innovative, it can be incremental or radical [52,59]. In this process, many components of the Business Model are changed and adapted [9,47,63]. Business Model Adaptation is a process suitable for all types of companies, but incumbents are more motivated to the adaptation of their actual Business Model than to change it radically and create a new one [9,60].

Business Model Innovation. It is the process of creation of a new Business Model with the final objective to disrupt the market [7,17,58] or their ecosystem [10]. Often, the degree of innovation is radical, although it can be incremental in some cases [59]. Often, the process of Business Model Innovation implies changes in many components of the Business Model and entails the creation of new core activities and processes [9]. BMI is for all type of companies, but young companies are more motivated to implement radical changes and to try new and disruptive ways of attack a market to find competitive advantages, as established firms have many other alternatives to consider [15].

Table 16 summarizes the main characteristics of each instance of Business Model Dynamics: Business Model Evolution, Adaptation, and Innovation using the dimensions that appeared in the literature review.

5.2. Connection of BMD Instances to Strategy Implementation

Our research work roots on the strategic perspective that Business Model Dynamics require different perspectives to understand changes in the business model of a firm and value capture. In the previous section, our discussion allows for clarifying the delimitation of the different terms that are used for BMD instances. Each BMD instance refers to a different concept regarding the effects of the strategic settings into a firm's Business Model. In summary, each BMD instance represents a different level of participation in the implementation of the Business Model and therefore all of them are necessary and have to be used in an appropriate way.

In addition to the conceptual delimitation, each BMD instance exhibits a specific relationship regarding strategy implementation and value appropriation. At this point, our goal is to understand, from a strategic perspective, what differences can be derived among BMD instances. Taking into account that each BMD instance is a different logic or rationale for the implementation of the strategy [2,12,14,24,25,86], our work borrows the organizational learning [19,20] approach to shed some light on the strategic implementation

of each BMD instance when a change appears in the strategic settings, and new value needs to be captured.

Table 16. Comparing different dimensions of the processes.

	Dimensions	Business Model Evolution	Business Model Adaptation	Business Model Innovation
1	Process or component	Component of BMI process	A process by itself but could be a form of BMI if innovative	A process by itself
2	Type of Business Model Change	Non-innovative & Innovative	Non innovative & Innovative	Innovative
3	If innovative, type of innovation	Incremental	Incremental & Radical	New BM and sometimes Radical
4	Magnitude of the changes	Few BM components are changed	Many components are changed	Many components are changed
5	Frequency of change	Continuous	Periodically	Infrequently
6	Type of companies that benefits from the process	All	All can, but incumbents could be more motivated	All can, but young companies could be more motivated
7	Attitude towards market disruption	Neutral	Victim of disruption	Seeks the disruption

From the analysis in Section 4.4, theoretical frameworks used to study Business Model Dynamics allow for understanding that specific firm's capabilities (see Section 4.4.1) and resources (see Section 4.4.2) are in place in firms to respond to the changes on the strategic settings. The BMD actions require the question firm's mental model and leave the current "comfort zone" [15] (see Section 4.3.4), and this is necessary in the exploration and exploitation phases of the business model (see Section 4.3.5) and in reaction to technology push and market pull effects (see Section 4.3.6). All of these aspects are related to the change situation of the business model and require an action for strategic implementation.

Following the organizational learning approach, on the one hand, adjustments as in BMA and BME can be assimilated to effects on the theory-in-use [19,20] that can be implemented through single loop learning efforts. On the other hand, disruptions like in BMI can be assimilated to changes in the espoused theory and could require double loop learning efforts. Although this first analysis could explain the basic foundations between the instances of BMD and the strategy implementation, our literature review allows for postulating that this is not the case. Concretely, strategic adjustments as in BMA and BME can require leaving the comfort zone and questioning the firm's mental model and consequently requiring updating of the espoused theory. In this case, adaptation to the new strategic settings would be only possible by double loop learning efforts.

In summary, what the literature review exhibits is that a clear delimitation of the different BMD instances is necessary; however, the connection of each instance to the strategy implementation actions has to be related to learning capabilities of the firm.

6. Conclusions and Implications

For firms to remain competitive in today's environment—where the VUCA conditions, open innovation strategic implementation settings, the pandemics, and the strong disruptors affect firm's competitiveness—they must continuously evolve and adapt their strategic settings for a convenient value appropriation. Sustained superior performance in these new and fast-moving environments depends crucially on the deployment and redeployment of superior strategy in the firm's business model.

The aim of the paper and the purpose of this meta-synthesis is to gain knowledge and comprehension in the field of Business Model Dynamics and, firstly, to signal the evidence of a conceptual incoherence in value appropriation as a result of the use of the terms "Business Model Innovation", "Business Model Adaptation", and "Business Model Evolution" as synonyms. We consider that this is one of the causes why this phenomenon remains poorly understood, despite its importance for managers, policy makers, and academics alike. Secondly, although each BMD instance has a specific influence on adapting a business model to the new strategic settings, this delimitation is not enough to understand the success in the conversion of the new strategic challenges to sound business models. In this sense, organizational learning helps to understand the connection

of each BMD instance to strategy implementation. What our literature research exhibits is that each BMD instance can propose changes that can affect the theory-in-use or the espoused theory of the firm and to face each one of them firms should develop adequate learning capabilities.

In the book chapter 'Business Model Evolution, Adaptation or innovation?, a contingency framework on business model dynamics, environmental change, and dynamic capabilities' written in 2014, Tina Saebi describes the differences between these three terms and analyzes five different perspectives (planned outcome, scope of change, degree of radicalness, frequency of change, and degree of novelty) [72]. In our literature review, we synthesize 22 articles corroborating, in some aspects, Saebi's work, and we increase the perspectives to seven dimensions adding the type of company and the attitude towards market disruption to complete the concepts' delimitations.

Our delimitation of the three concepts BME, BMA, and BMI is wide enough to accommodate concepts like 'to pivot' [87], a metaphor widely used by practitioners meaning 'changing the business model'. Companies can pivot their business model following either the process of BMA or the process of BMI, depending on the scope of the changes, the kind of value to be captured, and the seven dimensions of our definition of BMD processes.

6.1. Theoretical Contributions

Our paper shows that there are nuances that escape the constraints of BMI when changing a Business Model to adapt it to fit to changes suffered by a market and to capture the new value that emerges. These two concepts differ mostly in the nature of their implementation and the final goal they seek. Therefore, it is important to use one or the other depending on the context, but not both instinctively as synonyms. This is even more interesting, in those cases where the implementation of BMI requires minor adaptations of the business model that some authors have labeled as Business Model Evolution.

We maintain there is a conceptual incoherence in the Business Model Dynamics literature with respect to the adaptation of business models because of the imprecise use of the terms 'Business Model Adaptation' and 'Business Model Innovation' and that, in order to advance in the knowledge of this field, practitioners and researchers should use the appropriate word for each concept.

In this vein, this research work provides a delimitation of the BME, BMA, and BMI concepts based on the results of a meta-synthesis of research works published from September 2000 to December 2019. Anchoring on the theories of incremental and radical innovation, disruptive innovation, dynamic capabilities, and resource-based view, the outcome of this research work can propose that BME, BMA, and BMI exhibit a behavior that has to be analyzed from a specific perspective and it makes no sense, from a conceptual endeavor, to treat each one of these Business Model Dynamics instances under the same theoretical approach. By properly describing the contents of BME, BMA, and BMI, we contribute to the research field of Business Model Dynamics.

Moreover, our work connects BMD instances to strategy implementation by using organizational learning approaches. In this vein, although business models are the rationale of strategic implementation, the different BMD instances require a specific analysis to understand the learning capabilities that a firm must develop to be able to apply the new strategic settings to the rationale behind the updated business model.

6.2. Limitations

As any research effort, this study is not exempt from limitations. First of all, we first acknowledge that the different characteristics of BME, BMA, and BMI will require further validation. Although we remain confident in the reliability of the differences between the three instances of Business Model Dynamics, a sounder testing would be worthwhile to consolidate the characterization of these processes. In this vein, quantitative measures of the characteristics of each process would enable a further validation of our work. Secondly, the methodological approach used in this work is based on a meta-synthesis and

a qualitative analysis of the core contributions. On the one hand, in a meta-synthesis, the scope of the research work included could have weaknesses. On the other hand, the qualitative analysis presents some limitations. In other words, future research should go beyond the methodological choices for a better consolidation of the strategic perspectives of business models. Finally, the proposal to consider BME, BMA, and BMI as different instances of Business Model Dynamics would require further validation from a strategic management perspective.

6.3. New Lines for Further Research

In addition to overcoming the limitations of this research work, the authors propose additional efforts to understand, first, if scenario modelling can help to understand processes of Business Model Dynamics and, second, if the different processes can be affected by contingencies' caveats.

6.3.1. Scenario Modeling

Adaptation of the business model is needed when the market is disturbed by the irruption of new competitors, as seen in one of the core reviewed articles analyzing the effect of the entry of China in the Portuguese footwear industry [16], or new products as seen in the analysis of the effect of electric car in electric markets [64]. Entry of new competitors or new products are scenarios that can enlighten strategic decisions over Business Model Adaptation, but, to date, scenario modeling has not directly addressed firm strategy and behavior. Only Wegner et al., the authors of one of the reviewed articles, established a possible relationship between BMA and scenario modelling [64]. More research on both concepts would be desirable.

6.3.2. BME, BMA, and BMI from the Lenses of the Contingency Theory

Different environmental conditions, such as a change in competition or a technological breakthrough, need different organizations' responses [82]. We believe that a systematic examination of what are the relevant drivers of BMA, and what kind of changes on the different components of a Business Model are required is missing to date from extant Business Model literature. In our core authors' review, we have only found BMA analyzed from the lenses of Dynamic Capabilities and from the lenses of the Resource Based view, but not from the Contingency Theory. We believe that research from this perspective would help to shed new light in this field.

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APPENDIX 2 – Article 2

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Article

Business Model Adaptation to the COVID-19 Crisis: Strategic Response of the Spanish Cultural and Creative Firms

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Abstract: Surviving in a humanitarian disaster such as the COVID-19 pandemic is a big challenge for micro, small, and medium-sized enterprises in all industries. Furthermore, cultural and creative firms face additional challenges. Many of those firms have survived the effects of the pandemic by proposing redesigned business models that have brought new added value in response to environmental hostility; they have strategically responded to the crises by adapting their business model. According to the extant literature, in VUCA (volatile, uncertain, complex and ambiguous) environments, dynamic capabilities are developed to detect and seize new opportunities and reconfigure the company's assets. However, in very hostile environments, such as the COVID-19 crisis, the dynamic capabilities approach fails to explain the firm owners' strategic decisions. A cross-case comparative analysis of ten micro and small firms in Spain's cultural and creative industries has been conducted to examine how enterprises adapted to the COVID-19 crisis and the different organizational capabilities they implemented. This work proposes a new framework that postulates that business model adaptation is better understood under the emergency management theory and improvisational capability, instead of only under the dynamic capabilities lens. Organizational proximity in the diffusion of innovations under the open innovation paradigm is also critical to understanding the business model adaptation. From an academic perspective, this article enriches the current understanding of business model asdaptation by micro, small, and medium-sized enterprises in very hostile environments. The new framework intends to offer managers concrete guidelines about systematically adapting their business models in hostile situations.

Keywords: business model adaptation; cultural industries; improvisation capability; open innovation; COVID-19

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1. Introduction

COVID-19 has generated a complex and exogenous shock in almost all industries and has affected most companies worldwide. The effects of the pandemic have caused significant distortions in labor markets and rendered many prevalent business models ineffective, at least temporarily. Although all companies have been affected, micro, small and medium-sized enterprises (MSME) have experienced the most important effects due to their limited capabilities to respond to the spring of unexpected competitive challenges. In 2020, 97% of Spanish companies were classified in this category. A total of 2,910,016 businesses (73%) are from the services industry, with the majority coming from the cultural industry [1]. Keeping cultural companies in good health and increasing their resilience to further environmental hostilities is essential for their survival but also for society in general. Heritage, visual and performing arts, cinema, music, publishing, and fashion design are strongly manifested in everyday life and contribute to our world's social and economic development. As the European Union Commission pointed out in the Green Paper, "Unlocking the Potential of Cultural and Creative industries" [2] at the heart of our

social fabric, culture shapes our identities, aspirations, and relationships with others and the world. Cultural and creative organizations are essential in our society.

To remain competitive in VUCA conditions, there is a consensus among researchers that organizations should develop capabilities to detect new opportunities, seize them, and reconfigure the assets available to adapt the company to exceptional circumstances. These capabilities are named dynamic capabilities.

Dynamic capabilities, by definition, are "change-oriented capabilities that help firms redeploy and reconfigure their resource base to meet evolving customer demands and competitor strategies" [3]. Dynamic capabilities englobe different routines such as sensing the market, seizing opportunities, leveraging and transforming or reconfiguring the business model [4–7]. However, a very hostile environment such as the COVID-19 pandemic makes this traditional approach obsolete in terms of strategic rethinking. When the immediate survival of the company is at stake, and harsh measures need to be promptly enforced, the dynamic capabilities approach alone fails to explain some of the strategic decisions made by firm owners.

This study intends to better understand how organizations from the Spanish cultural and creative industry have implemented business model adaptation during the COVID-19 pandemic. Following a perspective based on the resource-based view theory, this research uses an inductive approach to understand the underlying strategic foundations that lead to a successful adaptation of the business models of MSME in the Spanish cultural industry. A research framework is developed by borrowing theories from IT strategic impact and supporting operational activities to generate a new strategic impact, resource-based view, dynamic capabilities, improvisational capabilities, and open innovation.

The following research questions describe the intended contributions:

- What are the relevant factors that explain the cultural firms' ability to adapt to a hostile environment while gaining competitive advantages?
- What is the role of improvisation in the success of adapting business models on cultural MSMEs in very hostile environments?

From an academic perspective, the new framework provides new conceptual elements that help clarify the strategic endeavors that underline the strategic challenges a firm can face in a crisis such as COVID-19. From a managerial perspective, the outlined framework should propose new insights for managers and decision-makers when strong competitive challenges affect the competitive strategy of MSMEs.

2. Background

As stated, our area of interest is business model adaptation in very hostile environments. This study follows the methodological parading based upon the grounded theory perspective [8]; therefore, theoretical preconceptions should be avoided [9]. The resultant theory will be merged with the literature in the 'Discussion' section. This literature review aims to explain the key terminology in our field and delimit the concepts we will address during the discussion.

2.1. Business Model Research from a Strategic Point of View

The business model (BM) concept represents a relatively new construct that has increasingly received attention over the last fifteen years [7,10,11]. Although there is no generally agreed-upon definition, there is a strong consensus that the BM encompasses customer-focused value creation, the delivery of a value proposition to specific market segments, the structure of the value chain required to deliver the value proposition, the mechanisms of value capture that the firm deploys, and how these elements are linked together in a value architecture [10–13]. This paper adheres to this definition.

The BM construct has been proved helpful by academics researching in the fields of e-commerce, strategy, innovation, and technology management [14].

2.1.1. Business Model Dynamics

Business Models are not static constructs; they can be a source of innovation and competitive advantages [7,14,15] and evolve and pivot over time.

In this vein, a research strand derived from the evolving changes in business models has flourished under the label of "business model dynamics" (BMD) [16]. BMD has been defined as "how companies change and develop their business models to achieve sustained value creation through time" [17]. Different patterns of BMD have been proposed to delineate "different levels of strategic changes in firms due to external effects" [15] including business model innovation, business model adaptation and business model evolution.

- Business model innovation (BMI) as a process, refers to "the search and development of new and sometimes disruptive modes of value proposition, value creation and value capture" [11] to disrupt market conditions [15,17,18], disrupt ecosystems [19], or enter a new international market [18].
- Business model adaptation (BMA) is the process of adapting a company's business model to changes in the external environment to ensure its economic sustainability.
- Business model evolution is the process of incrementally reconfiguring the business model pieces that build the strategic challenges derived from the external effects. Minor adjustments in the BM are made for maintenance and fine-tuning.

"Each BMD instance represents a specific strategic value appropriation" [15].

2.1.2. Business Model Adaptation

As a specific instance of BMD, BMA identifies an update of the current BM to changes derived from the context [6,15,20]. BMA can be innovative or not, depending on the degree of novelty of the changes implemented [15,18,21]. As a consequence of the new context, several elements of the BM are promoted to answer those challenges, pivoting the BM towards new models. Companies adapt their BM when someone or something such as COVID-19 has disrupted the market.

BMA could fit any organization, but "incumbents are more motivated to adapt their current BM than to change it radically or create a new one" [15].

2.2. Business Model Adaptation and Open Innovation

Innovation in BMs not only comes from inside the companies. "Open business models" was a term coined by Chesbrough in 2006 to refer to "the desired end state of firm transformation" that has evolved from a "starting point" set up by a "closed" BM [22], "where firms collaborate with the ecosystem by building up value and innovating their business model to make use of the emerging opportunities" [23].

Saebi (2006) and Chesbrough (2006, 2014, 2017) agree on the benefits of implementing open innovation actions in firms [22,24–26]. Furthermore, Yun (2017) developed the concept of "developing circle of business models" [27] to improve the design of innovative BMs and successfully implement them under the open innovation paradigm.

Finnegan and Nilsson (2011) analyzed the effects of open innovation on the BM of govern agencies. In this case study of a set of Swedish cities, open innovation actions were promoted to identify four emergent classes of organizational transformations [28].

2.3. Resource-Based View and Organizational Capabilities

Organizational capabilities are crucial to success when changing a business model. The firm's resource-based view (RBV) is a theoretical framework that assists in a deeper analysis of organizational capabilities. This perspective focuses on the internal organization of firms. It assumes that competitive advantages within these firms are achieved and sustained over time, thanks to their resources [29,30]. The RBV considers that firms are bundles of different resources heterogeneously distributed. Resource differences persist over time [31,32]. The organizational capabilities are part of a company's resources to create competitive advantages [4].

Organizational capabilities are "the ability of a firm to perform a coordinated task, use organizational resources, and achieve a particular result" [30]. Organizational capabilities are well documented in the literature for large enterprises [4,7]. By comparison, there is little research to understand their applicability to small and micro-enterprises [30,33]. This paper also aims to contribute to reducing this gap.

The most widely accepted point of view is that there are two types of organizational capabilities: operational and dynamic [3–5,29,33,34].

2.3.1. Operational Capabilities

Operational capabilities are "a high-level routine (or collection of practices) that, together with its implementing input flows, confer upon an organization's management a set of decision options for producing significant outputs of a particular type" [35]. Particularly, operational capabilities enable the firm to execute its main operating activities on a daily basis without significant changes, maintaining the current techniques, with no changes to the scale, supporting the same products and services for the same segments of customers [3]. Routines such as continuous improvement, strategy development and strategy implementation are considered operational capabilities [33].

2.3.2. Dynamic Capabilities

While operational capabilities are essential to sustaining and improving business performance, dynamic capabilities are "the firm's ability to integrate, build, and reconfigure internal and external competencies to address changing environments" [4].

Teece (2007) claims that "dynamic capabilities enable firms to gain competitive advantage in rapid (technological) changing markets". They also "enable firms to adapt to internal and external changes" [3]. In other words, organizations develop dynamic capabilities to deal with change.

2.4. Emergency Management

Emergency management is "the managerial function of dealing with risk and risk avoidance" [36]. It can be defined as "the study of how humans and their institutions interact and cope with hazards, vulnerabilities, and resulting events (i.e., emergencies, disasters, catastrophes, and complex humanitarian crises), particularly through activities related to preparedness, response, recovery, and mitigation" [37].

2.5. The Strategic Improvisation

Improvisation is defined as "the simultaneous conception and execution of an action" [38]. In other words, improvisation is the act of doing something spontaneously without planning as a rapid response to a problem. Although for decades, strategic planning has been considered the best way of ensuring competitive advantage by corporate leaders (Mintzberg, 1994), firms face substantial challenges in emergency environments that require different strategic responses.

Organizations that operate in a turbulent environment are more likely to improvise [39,40]. In their study, Villar and Miralles explore how organizations can employ improvisation to attain specific objectives during emergencies, such as the one caused by the Typhon Haiyan that impacted the Philippines in 2013. They demonstrate that improvisation "can be absorbed as a conscious mechanism that can aid the attainment of pre-established goals" [39].

2.6. Environmental Hostility and Business Model Adaptation

Recently, Rezaei et al. carried out extensive work to advance the research in business environmental hostility focusing their research on the adaptation of businesses and organizations after terrorist attacks. The outcome of this work demonstrates that two components can summarize the hatred of the business environment: competitive turbulence and regulatory turbulence [41].

Competitive turbulence is "a managerial perception of how much competition is in the market" and is related to the level of competition in the industry [41]. Competitive turbulence describes the increase of competition when a terrorist attack or a natural disaster reduces the customer base. In this situation, the 'environmental hostility theory' states that changes in organizations have to be expected due to market movements [41].

On the other hand, regulatory turbulence refers to "changes in government or regulation policies that can promote changes at the corporate level". Four components have been identified for regulatory turbulence: legal factors, political factors, economic factors, and social factors [41].

3. Methodology

This paper is based on a multiple qualitative case study design [42]. The methodological paradigm followed is based on Glaser and Straus's grounded theory perspective [8]. Glaser and Strauss articulated this methodology during their study—'Awareness of Dying' [8]. Its main aim is to develop a theory based on systematic data collection and analysis [9]. This model advocates that social scientists work "from the bottom up": to derive theory from observations, not observations from theory [43].

The methodological goal has been to work with decision-makers of micro and small organizations from the cultural and creative industry to develop rich, detailed descriptions of their strategy and actions to adapt their BM to survive the COVID-19 crisis. Therefore, the phenomenon of interest is learning how firms survive the pandemic by adapting their business model to a very hostile environment. The unit of analysis is micro and small organizations from the Spanish cultural and creative industry. The observations were used as a starting point to develop a conceptual model [44,45].

3.1. Why a Multiple Case Study?

The ability of the case study as a research method is to answer "how" and "why" questions within real-world contexts. Yin (1994) described this method as: "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not evident". The case study method is used when researchers want to understand a phenomenon and its context in depth. The data is collected from a limited number of cases (ten in this research) to "focus on fewer subjects but more variables within each subject" [42]. A case study can follow one of two designs: a single case study or a multiple case study [46]. Each case should be viewed as a separate experiment in analyzing and interpreting multiple case studies.

3.2. Theoretical Sampling

The concept of theoretical sampling was first described by Glaser and Straus (1967) to generate theory from data. The process includes data collection and subsequent coding and analysis [8]. Ten managers from the cultural and creative industry companies were interviewed to obtain meaningful information about the topic. Ten cases gave the study sufficient theoretical saturation [47]. In subsequent conversations with other managers, it was clear that "incremental learning was minimal due to observing similar phenomena" [47]. Additional empirical investigations thereby ceased. Companies were chosen to have a broader view of the industry using convenience and purposive sampling, which are both non-probabilistic sampling techniques [48].

Researchers use them to select a sample from a population when randomization is impossible since it is too vast [48]. They are considered adequate when generalization is not an issue in the research aims. We decided to combine both techniques, and we obtained ten interviews that show a rich scope of cases representative of all of the essential cultural activities across this industry in Spain.

Companies were selected from the following primary subindustries: music and concert venues, event producers and festival organizers, artists/performers and companies, art

galleries and art schools, museums and singular homes, to cover a wide range of the Cultural industry. They all agreed to participate in the research.

3.3. Data Collection

Various methods of data collection were employed:

- Semi-structured interviews with managers and decision-makers of MSMEs from Spanish cultural and creative industries were used to know more about the company's whereabouts during the pandemic.
- Archival records from their websites were used to document their value proposition, public objective, and income models.
- Social networks were consulted to analyze how companies maintained their relationship with customers during the pandemic.

Interviews were carried out between April and September 2021. An online Zoom platform was used to hold the meetings. The interviews lasted from 50 min to 2 h and were video recorded with their permission. The content was transcribed with NVivo software and coded using this tool.

The managers interviewed were asked to describe their daily actions and strategy during the three stages of the pandemic: (1) full lockdown during March, April and May 2020; (2) intermittent lockdown from June 2020 to April 2021; and (3) "new normal" after April 2021. The interviews were semi-structured and open-ended. These interviews were complemented with written literature (e.g., pamphlets and websites) about their company or the cultural events created by themselves. The written materials were used to supplement details that were not mentioned or were unclear during the interviews.

The managers were asked to describe the practices and strategies that helped them overcome the crisis. Table 1 shows the ten cases analyzed. They all survived the COVID-19 crisis.

Table 1. Case overview.

	Case Label	Case Description
1	Festival organizer	This company organizes large festivals and events. They usually provide all of the required services in events: managing large volumes of people, setting up stages, selling tickets, hiring musicians and technical staff. Furthermore, they also provide the marketing services needed to sell the maximum number of tickets.
2	Theatre company	This theatre company has ten years of experience creating circus shows, dance-theatre, puppet theatre, and gestural theatre with live music and traditional storytelling. They perform in public places, streets, theatres, auditoriums, schools and libraries.
3	Actress	She defines herself as a woman, a mother, a creator, an entrepreneur always on the move. She has a degree in Dramatic Art from the Institut del Teatre de Barcelona, specializing in Gesture Theatre. She has been a trapeze artist for five years. She is currently based in Barcelona and is the director of a theatre company specialized in circus shows.
4	Online Ticketing vendor	This company was founded in 2011 with the aim of providing an innovative, efficient, and leading service for online event management and online ticket sales. The aim was to improve coordination between software companies, sales channels, and cultural organizers. Their customers are event organizers, museums, sports, concerts, theatres, and companies.
5	Photographer	This artist runs a store specializing in photography and image part of a national chain. His job is to photograph events, create product catalogues for his clients and perform artistic photography. At the same time, he advises customers who come to his store.
6	Online culture aggregator	This online community of culture lovers offers a membership that allows special discounts on shows and cultural proposals. It also offers users the opportunity to meet other people who share a passion for culture and participate in organized activities. They have been online for fifteen years.

Table 1. *Cont.*

	Case Label	Case Description
7	Archaeological museum	Founded in 1840, the museum has five venues that expose Catalonia's most important archaeological collection, focusing on prehistoric times and ancient history. The museum also offers its most emblematic and unique spaces to host events for companies, institutions and individuals.
8	Monument and museum	This building, a National Historic Monument since 1975, housed a museum to disseminate the work and the figure of its modernist architect Josep Puig i Cadafalch. It is privately owned.
9	Opera house	Founded in 1847 to become a beacon of the City as an "arts" center. A foundation manages the Opera House owned by the different government agencies (the regional government, the city hall, the provincial council, and the national ministry).
10	Art school	Since 2011 this art school has been a training center that works on three axes: art technique and grammar training, stimulating creative attitude, and an art therapy department. They also offer their services to regular schools as extracurricular subjects, and they organize training workshops for teams in organizations and companies.

3.4. Content Analysis of the Interviews

We were able to download the recorded meetings from the Zoom platform as soon as each interview had finished. Key phrases were identified and moved into subcategories and categories during the open coding stage. Then, axial coding was applied, and relationships were identified between categories. A core category was identified and methodically related to the other categories in the final coding stage. Categories were integrated, and a grounded theory was identified. To ensure the validity and reliability of the outcomes, two researchers compared the results at the end of each stage of the analytical process to overcome the weakness of any possible biases. A cross-case triangulation was also performed to ensure the reliability of the results. The conclusions were contrasted with the extant literature.

3.5. Categories and Core Category

At the first stages of content analysis, three categories were identified:

1. The core category: the strategic response to the COVID-19 pandemic.
2. A secondary category: what changes were applied to the different components of their business model?
3. A secondary category: the digitalization of some processes.

After the three initial interviews, it emerged that many of the actions undertaken by the managers were improvised. There was also evidence that innovation was taking place thanks to network proximity following the open innovation paradigm.

Questions about their degree of improvisation and innovation diffusion were included in the interviews that followed, and the first three managers were contacted and interviewed again. Two different secondary categories were added to the content analysis.

1. Actions and strategies that can be considered improvisation.
2. The origin of their innovation.

4. Findings

These are the most relevant findings regarding the strategic response and the adaptation of the BM of the companies and organizations in the cultural and creative industry:

1. Three different strategic behaviors were observed among the organizations that survived: radical change, non-adaptation, and moderate adaptation.
2. Companies and organizations adapted different components of their business model to survive.
3. IT implementation had a vital role in the strategic adaptation of the companies.
4. Organizational proximity had a prominent role in innovation diffusion.

We elaborate on these four findings in the following points.

4.1. Three Strategic Behaviours Were Observed among the Companies and Organizations That Survived

During the interviews, managers of the artistic and cultural companies and organizations revealed that they felt like victims of a terrorist attack, a war, or a typhoon. They were not prepared for anything. Even when the COVID-19 pandemic was raging in Italy, the Spanish government kept saying its health system was duly prepared and that no significant consequences were expected. A week before the restrictive measures were enforced, people were still carrying on as usual. No one had contingency plans when the total lockdown was imposed in Spain on 15 March 2020.

Table 2 shows the three strategic responses observed among the companies and organizations interviewed.

Table 2. Strategic response to the crisis.

	Case Label	Strategic Intents	Description
1	Festival organizer	Adapted their BM	At the beginning of the crisis, the company collaborated with several councils to organize screenings for potentially infected people. They also help other companies handle cancellations and ticket returns, and create services to assist in the cleaning and disinfection of theatres and events.
2	Theatre company	Did not adapt	Bookings were cancelled, and no one contracted their shows. They have been waiting for months for the sector to recover and new projects to start appearing.
3	Actress	Adapted her BM	Seeing that she could not work with her company, in October 2020, she created a website and began marketing online body expression courses while looking for one-off collaborations with other artists.
4	Online Ticketing vendor	Adapted their BM	Many entertainment companies required their online sales services. In this sense, COVID benefited the company. They also had to create specific return and ticket exchange services.
5	Photographer	Did not adapt	With events cancelled and no weddings, communions or baptisms, the photographer concentrated his income on the physical store he ran when he could reopen.
6	Online culture aggregator	Adapted their BM	During COVID, the membership they charged their users was suspended, and they focused on maintaining relationships and looking for new members.
7	Archaeological museum	Adapted their BM	The museum focused on maintaining relationships with its users, creating virtual tours, and when they were able to reopen their doors, they started selling tickets online (something they had not done before).
8	Monument and museum	Adapted radically their BM	Seeing that tourism had come to a standstill in Barcelona and there were no indications that tourists would be back in the near future, the museum closed its doors, they stopped selling tickets to visit the building, and all of the spaces were rented for offices and other businesses.
9	Opera house	Did not adapt	They waited for the situation to return to normal without representing the operas. While the lockdown was extended, the opera choir made videos of their performances, and the community managers broadcast some interviews with members of the opera staff.
10	Art school	Adapted their BM	They immediately realized that the classes had to go online. Nevertheless, that takes time. Meanwhile, they set up an e-commerce merchandising through a dropshipping store with drawings of their students.

Companies that survived the crisis caused by the COVID-19 pandemic adopted three different strategic responses: (1) changed their business model radically (the monument and museum); (2) did not adapt their business model and "waited for the storm to pass" until the environment became stable (the theatre company, the photographer, and the opera house); and (3) adapted their business model, closing only the months of mandatory total lockdown (the festival organizer, the actress, the online ticket vendor, the online cultural aggregator, the archaeological museum, and the art school).

4.1.1. Companies Changed Their Business Model Radically

Some companies and organizations changed their business model radically to survive the crises. This is the case, for example, of the privately-owned monumental museum. Due to the lack of tourists, the owners decided to close the museum at the beginning of October 2020 and stop selling tickets to visit this listed building. At this moment, their income comes from renting the premises to a restaurant, a bank, a coworking, and a diverse group of businesses that have located their offices in the building. The museum, as such, has disappeared. They will most likely reopen it again in the near future.

4.1.2. Companies Did Not Adapt Their Business Model and "Waited for the Storm to Pass" until the Environment Had Become More Stable

We observed that some interviewed managers believed that adaptation was impossible. They decided to wait and see. This is the case of the opera house and many other organizations that are not part of this study, such as La Sagrada Familia, the under-construction basilic created by the modernist architect Gaudí; and La Pedrera, another singular building designed by Gaudí, that at present hosts a museum and different spaces for events. The same behavior could be observed with the photographer and the theatre company. They all had in common that they did not adapt their business model. They paused for months without any activity while waiting for environmental stability. They relied on their financial muscle (the opera house) or turned to other jobs (the photographer and the theatre company members).

4.1.3. Companies Adapted Their Business Model, Closing Only the Months of Mandatory Total Lockdown

If the managers' perception was that adaptation was possible, they decided to adapt their business model. This is the case for many companies interviewed, such as the art school, the archaeological museum, the online aggregator, the ticket vendor, and even the actress. They changed several BM components to adapt their business model during the COVID-19 crisis or the "new normal".

4.2. Companies and Organizations Adapted Different Components of Their Business Model to Survive

The companies that survived had in common that they adapted some BM components. Following the Business Model Canvas proposed by Osterwalder and Pigneur (2010), nine building blocks or components can be identified in the structure of a business model: the customer segments, the value proposition, the distribution channels, the customer relationship, the revenue streams, the key resources, the key activities, the key partnerships, and the cost structure [10]. We have chosen this model to analyze the changes made by cultural companies in their business models. Table 3 shows the changes on each component.

Table 3. Changes in the business model.

Case Label	BM Components That Were Adapted	Description
Festival organizer	Market segments Value proposition Customer relationship Distribution channels Cost structure	Few festivals could be held in 2020, so this company decided to look for competitive advantages by transforming its value proposition (entertaining big masses of people), offering new services, looking for new customers using the Internet and mastering online sales to offer this service to other festivals. At the same time, they tried to minimize risks by reducing staff temporarily and renegotiating the prices of the rent of their offices. Its main challenge has been managing the uncertainty over whether or not festivals could be held. In some cases, they did not know it until 48 h before.
Actress	Market segments Value proposition Customer relationship Key assets Income streams	Her theatre company could not perform any function for a long time, so her income was zero for many months. The actress created her website and created acting courses, and marketed them through her page. She also created some videos with a musician, where they explained stories to children through a new Youtube channel. She received some funding for autonomous workers from the government that helped her during the worst days of the crisis.
Online Ticketing vendor	Market segments Value proposition	On the one hand, many organizations that did not sell tickets online began to do so, and therefore they significantly increased customers. On the other hand, since the dates of the events changed from one day to the next, they created a new service to manage the changes of dates and the massive returns and refunds of their customers.
Online culture aggregator	Customer relationship Cost structure	Since their services were already online, they did not need much adaptation. Using an online marketing agency, they conducted more than 30 interviews with cultural professionals during the pandemic, broadcasted via Instagram, later creating videos with them and a free book with transcripts of the content. At the same time, they reduced staff and minimized their company's expenses.
Archaeological museum	Market segments Value proposition Customer relationship Distribution channels	The museum adapted its audio guides, converting them into 360-degree videos of seven unique archaeological sites to allow people to enjoy them through their mobile devices. A blog was created to follow up on the museum whereabouts. Once open, admission was free until June 28th (a month) to attract local visitors, and after that period, they began to sell tickets online for the first time. They reduced the advertising budget and turned it into content creation on media.
Singular home and museum	A radical change of their value proposition and Income streams	Due to the pandemic and the lack of tourism, the owners decided to close the museum and stop selling tickets to visit this singular building at the beginning of October 2020. Currently, their income comes from renting the premises to other businesses.
Art school	Market segments Value proposition Customer relationship Distribution channels	They created online courses. As the services turned to online courses, they tried to reach students from all geographical areas of Spain. They increased the use of social networks to maintain their customer relationship. While waiting for the creation of the online courses, they created an online print-on-demand shop.

4.3. IT Implementation Had a Vital Role in the Strategic Adaptation of the Companies

The role played by Information and Communication Technologies (from now on, ICT) has become an essential factor for economic growth in all types of industries. Researchers such as Viaene (2013) and Bassis (2018) agree on the importance of strategic value creation and value delivery through ICT and its role in business model innovation [49,50].

Technology is becoming an integral part of the products and services of diverse industries. There is a growing interest in understanding how organizations can succeed in their digital transformation. In companies, tensions spring from the opposition between investing in digital tools that generate value in the long-term and obtaining value in the short term. MSMEs, however, also suffer from another problem: the fact that digital tools are constantly changing and must be adapted as innovation and competitive pressure progresses. Failure to see short-term performance causes them to be reluctant to implement technological changes [51].

At the beginning of the COVID-19 crisis, customers were not allowed to physically go to the premises of the cultural companies, therefore managers needed digital products and services and despite initial reluctance, these did appear. Nevertheless, the implementation

of ICT solutions takes time, and during the first phase of BMA, they had to improvise immediate solutions with the current stock of ICT assets that managers had on their hands. In the second phase, the implementation was carried out. Virtual tours were created, e-commerces were in place, and online courses were offered.

4.4. Organizational Proximity Had a Prominent Role in Innovation Diffusion

For MSMEs it is essential to identify cooperative opportunities or competitive challengers from their knowledge flow network. All companies agreed that being part of an association or a network of peers had helped them keep up-to-date with innovations and help them find viable solutions to the required adaptation of their business.

The actress also highlighted that belonging to a theatre association provided her with moral support during the pandemic. The marketing manager of the archaeological museum made the same statement about the advantages of being part of a network of museums and cultural venues "we have been working weekly with the Catalan network of museums, sharing innovations and possible solutions to our common problems", he stated.

5. Discussion

At the beginning of the pandemic, customers' needs were altered. People stayed at home and could not attend any type of live cultural event. Companies and organizations began to analyze the new customer needs and change their value proposition accordingly: planned virtual tours and online services. Nevertheless, as the COVID-19 pandemic was an emergency, the reaction could not wait to create all-new planned services and products.

Researchers such as McGrath (2009) agree that in emergencies, companies and organizations must simultaneously "reduce risk and seize opportunities" [52]. Therefore, disasters such as the COVID-19 pandemic can also be an "agent of social change in recovery and reconstruction" [53] if companies are capable of seizing the opportunities and gaining competitive advantages by adapting their business models. We have observed this phenomenon in the companies interviewed.

5.1. The Three Phases of Business Model Adaptation to a Crisis Environment

Analyzing the interviews, it was clear that the adaptation had been made in three phases:

1. In the first months, companies and organizations improvised to reconfigure their assets and capabilities to respond to market needs rapidly while planning new strategies and actions for the future.
2. After a few months, the planned actions were in place, and the companies implemented what they considered necessary for their value architecture.
3. At the time of writing, companies are adapting old assets and capabilities, plus the new ones acquired, to the "new normal". This new competitive environment is labelled as "new normal" to emphasize that it differs from before the COVID-19 pandemic.

5.1.1. Phase 1—The Reaction

The conception of the actions to adapt the cultural business to its daily reality and its executions were simultaneous. No planning or strategy was used to deal with the uncertainty of every day. Most of the companies interviewed openly agreed that their strategy in this first month was "not having a strategy" working day by day, confronting their challenges.

For example, the archaeological museum did not offer formal virtual tours but after analyzing the current assets and the current IT stock, they created short videos with images from Google Street View and matched them with the content of the audio guides. They improvised virtual guided tours and offered them to online visitors while the museum was closed and planned a proper virtual tour.

Another example of improvisation can be observed by analyzing the behavior of the managers from the art school. Due to COVID-19, students were not allowed to attend the art school, and the school could not carry out any of the activities they had been offering to

other schools. To maintain a source of income until their online courses were ready, they created an e-commerce website to sell merchandising of drawings made by their students using a drop shipping business model (print on demand). This action was not planned; it was improvised to create an alternative source of income during the development of the planned behavior.

Finally, we have example of Marta, the actress and the director of a theatre company. The company had not been able to perform for almost a year. In November 2020, Marta created her website to market the online training courses she had just made up.

The behavior of these organizations is consistent with the theory of planned behavior (PBT), which states that "the intentions to perform a particular behavior can be predicted from the subject attitude toward the behavior, subjective norms, and perceived behavioral control" [54]. By definition, planning is impossible when norms constantly change, and improvisation is the only way to face everyday challenges.

Business models had to be changed and adapted, improvising to fit the urgent needs of the customers. The innovation was created by reconfiguring the current assets, the companies' existing capabilities, and the IT stock they had at that moment. "The higher the turbulence of the business environment, the more critical the enterprise's" improvisational capabilities become [55].

Organizations that operate in a turbulent environment are more likely to improvise [39,40]. In their study, Villar and Miralles explore how organizations can employ improvisation to attain specific objectives during emergencies, such as the one caused by the Typhon Haiyan that impacted the Philippines in 2013. They demonstrate that improvisation "can be absorbed as a conscious mechanism that can aid the attainment of pre-established goals" [39].

5.1.2. Phase 2—Planned Adaptation

In Phase 2, customers' needs were still different to pre-pandemic times, but months had passed, and companies and organizations had had enough time to plan and act accordingly to their new strategies. Business models changed how their value was communicated, the delivery of their services, income models and the public objective while adapting their value proposition to the situation. Innovation was created by sharing information between peers, associations and observing the entire cultural ecosystem. Without being consciences of it, a new parading of business model open innovation was in place: a collaborative open business model. Learning from the experiences of others, new technology was acquired, and new competencies were learned.

5.1.3. Phase 3—Stabilization

In Phase 3, the new business models were in place, and companies and organizations were adapted to the "new normality". Those who adapted and survived learned new capabilities, implemented new technology, and found new competitive advantages, becoming more resilient to new environmental hostility.

Those who did not adapt and survived since they had enough financial muscle, consumed part of it and diminished its resilience but are still on the market.

Figure 1 shows a proposed framework to understand the different phases of adapting the business model in the cultural and creative industry.

5.2. COVID-19 from the Lenses of the Emergency Management Theory

From the lenses of the emergency management theory and considering the improvisation capability, the adaption of the business models of cultural and creative MSMEs in the first phase is easier to understand. The findings suggest that in a hostile environment such as the COVID-19, in the first phase of their adaptation, cultural and creative firms applied different improvisational actions to adapt some business model components to survive the effects of the crisis.

	BEFORE THE PANDEMIC	PHASE 1 REACTION	PHASE 2 ADAPTATION	PHASE 3 STABILIZATION
User needs	Current needs	New needs	New needs	New & previous needs
Business Model	Current BM	Partially adapted BM	New BM	Business Model Adaptation
BM Innovation	Efficiency-centric Business Model	User-centric Business Model	Collaborative Open Business Model	Efficiency-centric Open Business Model
IT stock	Current stock	Reconfiguration of current stock	New stock	New & previous
Competences	Current competences	Reconfiguration of current competences	New competences	New & previous
		IMPROVISED ADAPTATION	**PLANED ADAPTATION**	**NEW NORMAL**

Figure 1. The three phases of business model adaptation in the cultural and creative industry.

This research aims to understand the relevant factors that explain the cultural firms' ability to be adaptative. To do so, a conceptual framework to explain the results and the survival path to a successful business model adaptation (see Figure 2) is proposed.

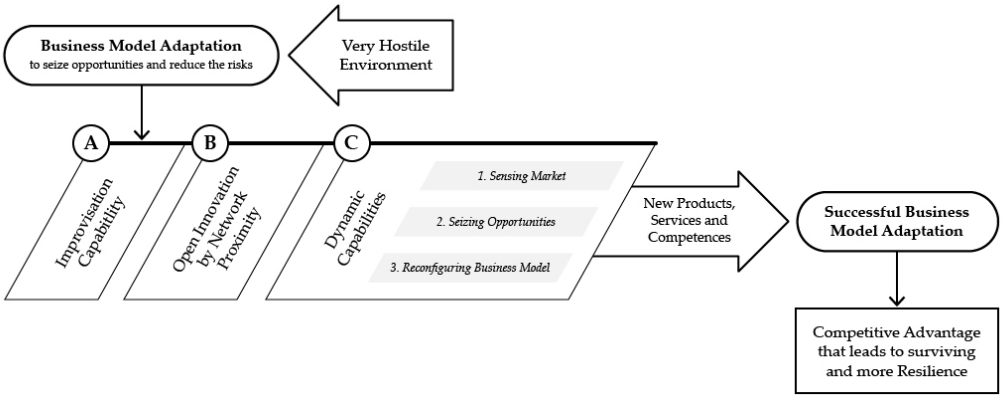

Figure 2. This research framework is the survival path to successful BMA of the firms in terms of the BM emergency management perspective.

The relevant factors that explain the cultural firms' ability to adapt and gain competitive advantages and more resilience in times of very hostile environment: (A) The immediate deployment of some characteristics that can be found in organizational improvisation behavior; (B) the capacity to absorb innovation from its network and ecosystem; (C) and the acquisition and deployment of dynamic capabilities such as absorption capacity and uncertainty management.

5.2.1. COVID-19 Crisis and Environmental Hostility

During the first COVID-19 lockdown, the traditional cultural industry market disappeared from March to May in Spain due to mobility restrictions. After the total lockdown, premises were allowed to reopen but with restrictions. The environmental hostility theory states that, when faced with a lack of customers, organizational behavior changes as business activities become more influenced by market movements [41].

Companies and organizations from the cultural industry have suffered regulatory turbulence for more than two years. Restrictions on the seating capacities or entrance restrictions in theatres, museums, or public events have fluctuated throughout the pandemic. Managers have had to face constantly changing post-confinement regulations and constraints, sometimes as often as every week, as waves of infection circled the globe. Regulatory forces have had a massive impact on the Cultural industry companies and organizations and have been a great source of pressure and stress for the managers.

On top of that, a domino effect caused by layoffs and provisional downsizing plans of many companies triggered a change in the social status of many families as their quality of life and their lifestyle plunged, affecting all industries, but especially the consumption of cultural goods and services, shrinking the market and causing competitive turbulence as well.

In short, the COVID-19 crisis has created a very hostile environment, and companies have been forced to adapt their business models to survive, especially in the cultural and creative industry.

5.2.2. The Development of Some Characteristics That Can Be Found in Organizational Improvisation Behavior

Dynamic capabilities cannot fully explain the adaptation of cultural and creative companies and organizations; improvisation capabilities must be considered. There is a link between strategic improvisation and company performance in times of emergency and crisis. When the immediate survival of a company is in question, long-term strategies lose effectiveness and management resort to improvisational processes [55–58].

Research on organization theory such as Weick (1998) and Barrett (1998) suggested the jazz band metaphor to explain the functioning of an organization. Drucker (1998) suggested that "the twenty-first-century leader will be like an orchestra conductor" [59].

Improvisational working practices need a supportive organizational culture in order to flourish. This type of organizational culture is linked to the company's decision-makers self-confidence and ability to improvise effectively given a range of possible actions and results.

Improvisation to adapt the company's business model to seize possible opportunities has many similitudes to the "opportunity-driven entrepreneurship" concept. This complex term is defined as "the entrepreneurial decisions motivated by the perception and exploitation of innovative business ideas that can lead to gains and business growth" [60]. When a new opportunity to obtain sources of income appears, entrepreneurs go for it without great strategic plans or even without a long-term plan.

Some authors do not consider improvisation a dynamic capability or an operational capability, arguing that it is not a routine—"learned, highly patterned, repetitious or quasi-repetitious, founded in part in tacit knowledge" [35]. Other authors consider that improvisation can drive strategic advantages in turbulent environments and therefore should be regarded as a third type of capability. They describe it as "the learned ability to reconfigure operational capabilities spontaneously" [55]. "The higher the turbulence of the business environment, the more critical the enterprise's dynamic and improvisational capabilities become" [55].

In other words, and answering our research question "what is the role of improvisation in the success of the adaptation of business models on cultural MSMEs in very hostile environments" we conclude that improvisation has been their primary capability, although dealing with complex problems, learning new abilities, and having organizational flexibility are also some of the capabilities that saved them from bankruptcy.

5.2.3. Open Innovation by Network Proximity

At the same time, open innovation by network proximity must be considered to fully understand the adaptation of enterprises from the cultural and creative industry. Without the help and collaboration of peers, innovation would not have been possible.

Proximity influences the diffusions of innovation and is one of the driving forces for creating an open innovation ecosystem and leading its evolution [61]. Zhang and Wang (2021) identified four dimensions of proximity: technological proximity, spatial proximity, organizational proximity, and temporal proximity [61]. Their results show that "organizational proximity positively affects the diffusion of innovations". Ferras-Hernandez et al. (2018) studied the relationship between enterprise innovations and proximity, focusing their research on innovation activities. They identified the primary factors driving the industrial cluster's innovation transformation; organizational proximity was among them [62].

5.2.4. The Acquisition and Deployment of New Capabilities

Despite the distance, all of the companies and organizations studied had to learn to work together. The archaeology museum indicated that this had been one of the significant challenges since they have had to learn to communicate jointly from the different departments from their own homes. It should also be noted that although distance group communication tools already existed, no one had previously used them so intensively. Zoom, Google Meet, MS Teams, and all of these tools were un-used by much of the cultural industry. Everyone had to learn how to use them and how they could be incorporated into the work dynamics of each company.

For the museum, reviewing all of the digital content to see if it could be used to create virtual tours or communicate has also been helpful to realize certain shortcomings. For example, when reviewing the audio guides, they realized that while the guides were inclusive in the sense that they are helpful to people in the languages in which the guides are narrated, the guides have no use for blind people as they did not describe the pieces. Thanks to the revision, there is now a project to redo the audio guides and make them inclusive for the blind.

The adaptation itself has been a learning experience. All innovation activities require new competencies. Until the COVID-19 pandemic, organizations had not worked methodically to create online content, virtualize user experiences, or work remotely as a team. All interviewees highlighted the learning effort they had to make. The knowledge absorption capability has been crucial in all organizations.

Instead of being fully cancelled, many concerts, theatre acts, expositions, and events were rescheduled for later dates after a few months. All interviewees have indicated that they had to learn to work with the uncertainty of whether things could be carried out. Uncertainty management is a skill that everyone had to learn.

Business models will most probably continue to adapt as the post-COVID-19 scenario develops. Despite the vaccine and achieving herd immunity in certain cities, managers are still uncertain about what the future holds. When asked when they expect to resume normal operations, they perceive that at least another year will be needed to reach normality.

5.3. Theoretical Implications: BMA in Very Hostile Environments Is Better Understood under the Lenses of Emergency Management Theory and Improvisation Capabilities

A revision of the existing literature has shown that much attention has been paid to studies on innovation in business models in companies and public organizations [63,64]. Researchers have paid limited attention to better understanding how cultural and artistic organizations can manage and evolve their BM [63].

Ernst et al. demonstrate in a case study of BMI in the publicly-funded cultural and creative industry (specifically, the Van Abbe Museum in Eindhoven-Netherlands) that cultural venues can act as laboratories of BMI [65]. Schiuma and Lerro introduce and analyze the "Business model prism for the arts and cultural organizations" as a multidimensional framework to map the "as is" structure and the logic of their business model [63].

This article proposes a new perspective and a framework to understand the business model adaptation in very hostile environments. It suggests that in environments such as the crises created by the COVID-19 pandemic, business model adaptation can be better

delimited using the emergency management theory and improvisational capability than solely under the dynamic capabilities lenses.

The improvisation capability of an MSME is a crucial factor to its survival. At the same time, network proximity has a prominent role in disseminating innovations and unveils itself as a critical factor in the thriving BMA of cultural and creative companies and organizations.

5.4. Managerial Implications: Successful Business Model Adaptation

Museums, theatres, concert halls, and festivals have been forced to close for months, leaving artists and performers without work for nearly a year. Some organizations have not been able to adapt, while others have improvised in response to whatever they came up against and adapted different components of their business model. The issues raised in this article offer some light on how managers can gain concrete guidelines about systematically and purposefully approaching BMA in hostile environments.

The first step is to identify the key drivers of change and understand these drivers' impact on the business model. The second step is to identify the key capabilities needed to respond to the drivers of change. The third step is to identify the gaps between the current capabilities and the needed capabilities to adapt the business model successfully. The fourth step is to develop a plan to close the identified gaps while at the same time, confronting the emergency with the current stock of assets and capabilities, improvising to maintain the company afloat while the adaptation plan is deployed. The fifth step is to monitor the results of the action and adapt the company or organization to the new and less hostile environment—all sharing knowledge with peers from the same industry.

6. Conclusions, Limitations, and Future Research Perspectives

This study aims to understand organizational capabilities in the cultural and creative industry to respond to the COVID-19 crisis. Literature on business model dynamics affirms that, in VUCA environments, dynamic capabilities are developed to sense new opportunities and seize them, while reconfiguring the current assets to adapt the company to the unique situation. However, in very hostile environments such as the COVID-19 crisis, business model adaptation is better understood under the emergency management theory rather than just under the dynamic capabilities lenses.

6.1. Conclusions

6.1.1. BMA Has Been Implemented in Three Phases

The evidence of this study suggest that the BMA has been implemented in three phases:

Phase 1—The Reaction: the conception of the actions to adapt the cultural business to its daily reality and its executions are simultaneous. Companies improvise their immediate adaptation while planning for the near future and analyzing the gap between their assets and the assets they need.

Phase 2—Planned Adaptation: the future actions planned during phase 1 are now in place. Companies have a new BM and a new stock of competencies. Innovations are shared with other organizations.

Phase 3—The Stabilization: companies adapt to "the new normality" and return to their efficiency-centric BM with new and old components and capabilities.

6.1.2. Survival Strategies

In this research, we have observed that companies and organizations from the cultural and creative industries had three different survival strategies. As the emergency management theory predicts, the first two options are to adapt their business model radically or incrementally to minimize the risks and seize the opportunities arising from the crisis. The third strategy has been to put everything on stand-by and wait for "the storm to pass", although they can rely on their financial muscle and the funding from COVID-19 aids.

6.1.3. Improvisation as a Key Factor to Understanding the Survival of MSMC

The COVID-19 crisis has created a very hostile environment, and companies have been forced to adapt their business models to survive, especially in the cultural and creative industries. In this article, the authors postulate that to fully understand BMA in times of environmental turbulence and hostility such as the COVID-19 pandemic, the improvisation capability of an MSME is a crucial factor for its survival. To make fast decisions without in-advance planning leads to survival if the decisions are correct.

6.1.4. The Leading Role of Open Innovation by Network Proximity

Open innovation by network proximity plays a primary role in fully understanding the cultural and creative industry's adaptation, and it is critical for the diffusion of the innovations. This fact's management and policy implications are clear; politicians and decision-makers need to support proximity between innovation entities.

6.2. Limitations

This paper is a new step of a comprehensive research project in business model adaptation. We realize that the improvisation capability and the innovation by network proximity were present in the companies' actions that led to their business model adaptation during the COVID-19 crisis, but we do not know more about the firms that did not adapt. On the other hand, as with all qualitative research, the outcome lacks any potential generalization effort. It is unclear to what extent the results can be made valid for other companies and organizations. A quantitative approach to the same subject would be advisable. At the same time, we analyzed the behavior of the companies and organizations of the cultural and creative industry in Spain; we think that a broader take on other industries and other countries would enrich our proposal to analyze BMA from the emergency management theory and improvisational capabilities.

6.3. Future Research Perspectives

More research is needed to better understand the relationship between how a leader approaches the act of improvising and the company's resilience. It is necessary to deepen the analysis on how the leader's resilience intervenes in improvisation. Furthermore, exploring leadership improvisation based on the resilience of the leaders can shed some light on a deeper understanding of the first phase of business model adaptation during the COVID-19 crisis. We also believe that an analysis of the correlation between the effects of the COVID-19 pandemic and the change to more sustainable business models suggested by Popescu (2020) [66] would be attractive from the research point of view.

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APPENDIX 3 – Article 3

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Open and sustainable business model innovation: An intention-based perspective from the Spanish cultural firms

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ABSTRACT

SMEs, including cultural and creative firms, are encountering increasingly difficult obstacles in today's competitive landscape. In particular, during the COVID-19 pandemic, these SMEs had to confront significant challenges that endangered their survival, requiring a shift in their business model. Many successful firms responded to this crisis by adopting business model innovation (BMI) as a strategic solution. The pandemic also emphasised the importance of sustainable practices and the necessity to enhance readiness for and responsiveness to future challenges. This study proposes examining Sustainable Business Model Innovation in the light of the Theory of Planned Behavior. While some studies have explored BMI through the TPB framework, we expand the interpretative schema by introducing an additional predictor: the influence of open innovation ecosystem partnerships. From an open innovation perspective, the new construct proposes how peer professional organisations and technological clusters play a significant role in managers' intentions to implement SBM. A purposive sample of 122 Spanish cultural and creative firm managers and business owners was surveyed and analysed using PLS-SEM. The data collected supports the model and supports the prominent role of open innovation environments as a mediation effect of the intention to implement a sustainable and innovative business model. The study adds new insights into the theoretical framework to better understand the implementation of sustainable business models' innovation actions, with specific support for the role of open innovation ecosystems such as professional organisations and technological clusters. Practitioners and open innovation ecosystem promoters can gain new clues for initiatives to promote the diffusion of innovations among creative and cultural SMEs.

1. Introduction

The cultural and creative industry faces growing challenges due to the VUCA (volatility, uncertainty, complexity, and ambiguity) trends in the competitive environment. This environment pushes managers, mainly from SMEs, to face growing challenges that require sustainable and innovative solutions (Balboni and Bortoluzzi, 2015; Teece, 2018).

On top of that, the COVID-19 crisis has exposed cultural and creative SMEs to unprecedented challenges, requiring business model changes to maintain competitiveness and survival. Business model innovation (BMI) has emerged as a strategic response to the crisis, particularly for surviving companies (Peñarroya-Farell and Miralles, 2022).

Despite the challenges, the cultural and creative industry plays a significant role in economic and cultural development, generating employment and revenue. In Spain, for example, the cultural industries contributed approximately €27.4 billion in revenue in 2019, representing about 2.5% of the country's GDP and employing approximately 1.2 million people (I.N.E., 2022).

The COVID-19 pandemic has also brought attention to sustainability issues, with changes in consumer behaviour and increasing interest in local and sustainable brands. Against this backdrop, there is a growing

Abbreviations: OIE, Open Innovation Ecosystems; BMI, Business Model Innovation; SBMI, Sustainable Business Model Innovation; CCI, Cultural and Creative Industries; TPB, Theory of Planned Behaviour

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need for sustainable and innovative solutions to support the competitiveness of cultural and creative SMEs. During the COVID-19 crisis, this industry was highly impacted by the lockdown, and the posterior regulatory turbulences and the number of people employed went down to 2,9% of the country's total employment (I.N.E., 2022).

At the same time, the COVID-19 pandemic significantly impacted how people live and work and has also brought attention to sustainability issues. The lockdowns and other measures taken to control the spread of the virus led to changes in consumer behaviour, with many people turning to online shopping and supporting local and sustainable brands giving momentum to the interest in sustainability (Alexa et al., 2021).

During the COVID-19 crisis, Cultural and Creative industries were highly impacted by the lockdown, and the posterior regulatory turbulences and the number of people employed went down to 2,9% of the country's total employment (I.N.E., 2022).

This study aims to explore the role of BMI in enhancing the sustainability and competitiveness of cultural and creative SMEs, focusing on the Spanish context. Adopting sustainable practices is a trend in the cultural and creative industries. However, what psychological factors prompt managers from this industry to adopt sustainable and innovative practices has not been fully addressed.

Despite prior research highlighting the importance of SMEs identifying collaborative opportunities from their knowledge-flow network to survive environmental changes (Peñarroya-Farell and Miralles, 2022; Blundel, 2003; Zhang and Wang, 2021), there is a lack of clear evidence demonstrating the link between knowledge sharing and the intention to adapt business models in an open innovation environment.

To address this gap, this study proposes a model based on the theory of planned behaviour (TPB) (Ajzen, 1991) to explain managers' intentions to implement more sustainable and innovative business models in cultural and creative companies. Specifically, the TPB model is extended to include the effect of participating in open innovation ecosystems, such as peer and professional organisations within a proximity network.

Given this focus, the primary research question of this research work has been formulated as: "To what extent does open innovation ecosystem partnerships affect cultural and creative industry managers' perception of implementing innovative business models based on a sustainable perspective in their firms?".

By addressing this question, we aim to contribute to a better understanding of the role of open innovation ecosystems in enhancing the sustainability and competitiveness of cultural and creative SMEs.

The academic contribution of this research is to provide a better understanding of the factors that influence managers' intention to adopt sustainable and innovative practices. At the same time, the model proposed in this study, can guide managers in developing effective strategies to collaborate with peer and professional organisations to enhance their sustainable and innovative practices.

Most cultural and creative firms belong to the group of SMEs, and managers strongly influence how the firm faces competitive challenges (Schiuma and Lerro, 2017). In this vein, this research study's target sample comprises managers and business owners from cultural and creative SMEs in Spain. Based on the size of the companies, the position title may differ; some standard titles include manager, owner, general manager, director, and senior staff member. Therefore, the term "managers" is used in this article to unify and include all people with a certain amount of executive power to change a business model.

An extension of the Theory of Planned Behaviour model that includes a construct for open innovation ecosystem partnerships is used to develop a questionnaire administered using an online survey.

The model has been positively tested with survey data of managers from 122 Spanish cultural & creative SMEs conducted from May to October 2022 and analysed using Partial Least Squares Structural Equation Modeling, a multivariate analysis technique that can be used for both exploratory and confirmatory analyses, and that is particularly useful when the sample size is relatively small, and the relationships between variables are complex and nonlinear.

There are multiple sections in the paper. Section 1 is the introduction to the study. In Section 2, cultural and creative industries (CCI) are defined, and the literature on sustainability, business models, sustainable business models, open innovation, and the theory of planned behaviour is reviewed. Section 3 describes the data and the appropriateness of structural equation modelling for the research. Finally, in Section 4, the main results are presented, and in Section 5, conclusions are offered and discussed.

2. Literature review and hypothesis development

The econometric models applied to study managers adopting sustainable business model practices generally employ a range of determinants such as manager and firm characteristics, institutional setting, and individual perceptions of the economic environment (Pan et al., 2022; Ibrahim et al., 2018; Short et al., 2014). This paper extends this research by introducing psycho-social constructs to explain cultural and creative industry managers' intention to adopt sustainable practices when innovating in their business models by applying Ajzen's Theory of Planned Behaviour (TPB) (Ajzen, 1985).

2.1. Cultural and creative industries

Cultural and creative industries (CCI) are diverse economic sectors that produce and distribute cultural and creative goods and services (Throsby, 2008; Pratt, 1997). CCI are broadly defined for this paper as audiovisual creation and management, popular culture and traditions, management of cultural heritage (museums, singular houses, etc.), books and press, musical production, creation and performance, services related to culture (advertising, consultancy, ticketing, digitisation, etc.), and other industries that produce or use creative content or intellectual property. This study scope includes the artists, skilled technicians, and support infrastructure (material and organisational) necessary to reproduce these cultural endeavours. These industries are diverse and can vary significantly in size, business models, and markets, but they all play a crucial role in shaping and reflecting cultural values and identities (European Union Commission, 2010).

Current competitive challenges require innovation in business models, with a sustainable focus, following the experience during the COVID-19 crisis (Peñarroya-Farell and Miralles, 2022). The pandemic has highlighted the need for companies to be more resilient and adaptable in emergencies (Gregurec et al., 2021).

By adopting more sustainable business models, companies can weather the current crisis and be better prepared for future challenges. In addition, consumers increasingly demand that companies operate more sustainably, and those that do may have a competitive advantage in the marketplace. CCI are not an exception, but the dynamics of the innovation in BM and managers' current practices make adapting the business models difficult (Dopfer et al., 2017; Boons et al., 2013).

2.2. Business model, business model dynamics, and business model innovation

A business model (BM) is a blueprint for how a company creates, delivers, and captures value. This framework has proven helpful in diverse CCI management research (Peñarroya-Farell and Miralles, 2022; Ernst et al., 2015; Palmi and Madaro, 2020; Koronis and Ponis, 2018).

A BM describes the various elements that make up a company's strategy for generating revenue and profit, including the value proposition it offers to customers, the market segments it targets, the channels it uses to reach customers, the relationships it builds with stakeholders, and the resources and capabilities it uses to deliver value (Osterwalder et al., 2005; Markides, 2006; Bocken et al., 2014). These elements work together to create a cohesive plan to deliver value to customers and stakeholders, capture revenue, and generate profit. The BM framework has also been proven helpful by academics researching e-commerce (Osterwalder and Pigneur, 2010; Bryant et al., 2018; Amit and Zott, 2001; Remane et al., 2016; Bouwman and MacInnes, 2006), business strategy and innovation (Chesbrough and Rosenbloom, 2002; Jensen and Sund, 2017; Casadesus-Masanell and Ricart, 2007), technology management (Amit et al., 2011), and sustainability (Bocken et al., 2015; Bohnsack et al., 2014; Wu et al., 2021).

Conveniently adapting a company's BM can be a source of competitive advantage and help companies maintain their competitive edge in a rapidly changing business environment (Chesbrough, 2006). As a company's competitive strategy needs to evolve, the company's BMs evolve and pivot over time. Business model dynamics refers to how companies change and develop their business models over time to create sustained value (Peñarroya-Farell and Miralles, 2022; Casadesus-Masanell and Ricart, 2007; Corbo et al., 2018; Peñarroya-Farell and Miralles, 2021). Several patterns of business model dynamics have been identified: business model innovation, business model adaptation, and business model evolution (Peñarroya-Farell and Miralles, 2021; Saebi, 2014). Business model innovation involves the creation of new business models or the radical transformation of existing ones (Osterwalder et al., 2005; Casadesus-Masanell and Ricart, 2007; Bhide, 2000; Pucci et al., 2017). Business model adaptation refers to modifying an existing business model in response to changes in the external environment (Balboni and Bortoluzzi, 2015; Peñarroya-Farell and Miralles, 2021; Dottore, 1995; Foss and Saebi, 2017; Landau et al., 2016). Business model evolution involves the incremental changes and improvements made to an existing business model over time (Peñarroya-Farell and Miralles, 2021; Demil and Lecocq, 2010; Axelson and Bjurström, 2019).

2.3. Sustainability and sustainable business models

Sustainability refers to the capability of a system, process, or activity to be maintained or continued over time without depleting or damaging resources or causing negative environmental or social impacts (Moore et al., 2017; Johnston et al., 2007). This concept is often applied to using natural resources, such as water, land, and minerals, as well as the impact of human activities on the environment.

In a business context, sustainability at a firm level often requires finding a balance between the company's economic development, social welfare among all its stakeholders, and environmental protection so that the present needs of the company can be met " without compromising the ability of future generations to meet their own needs" (Tolkamp et al., 2018).

Sustainability is a trend gaining traction in the business innovation world. There is a rise in sustainable business practices and initiatives: Many companies are adopting more sustainable practices, such as reducing their carbon emissions, using eco-friendly materials, and supporting local communities (Chen et al., 2011; Buffa et al., 2018; Menozzi et al., 2015). Also, there is considerable progress in sustainable industries: Industries related to sustainability, such as renewable energy and green building, are experiencing significant growth (Bryant et al., 2018; Singh et al., 2018; Chan and Lau, 2002). Consumers also request that companies operate more sustainably, increasing the demand for eco-friendly and socially responsible products and the increasing popularity of sustainability-focused consumer brands (Wu et al., 2021; Chan and Lau, 2002; Liu et al., 2018). Finally, if the role of government and regulatory bodies are examined, it is clear that sustainability is an important policy priority and is likely to continue to be a trend in the business world (Bryant et al., 2018; Chan and Lau, 2002).

CCI are no exception, and CCI managers' tendency to implement sustainable business model innovations after the COVID-19 crisis has been highlighted in academic work (Palmi and Madaro, 2020; Teevan, 2020; Dragicevic and Stefanovic, 2020). Dealing with the crisis has helped CCI companies identify new opportunities for growth that are more sustainable and resilient to future crises. It also has helped them to consider new products, services, or markets that could be developed to capitalise on the changing landscape (Alexa et al., 2021; Gregurec et al., 2021; Valenzuela-Fernández et al., 2022).

A sustainable business model (SBM) involves using resources efficiently and responsibly and developing and implementing products, services, and practices that are environmentally and socially responsible (Wu et al., 2021; Tolkamp et al., 2018; Vuorio et al., 2018; Batista and de Francisco, 2018). Corbin & Strauss (Corbin and Strauss, 2012) point out some examples of sustainable business model innovations:

- Using renewable energy sources and reducing greenhouse gas emissions
- Developing and selling products that are made from recycled materials or that can be easily recycled or repurposed
- Using sustainable sourcing and supply chain practices
- Implementing circular business models, in which products or services are designed for reuse or recycling
- Offering products or services that enable customers to reduce their environmental footprint

Investing in digital transformation has also been proven to lead to more SBMs; it increases efficiency and reduces costs (Pfeiffer, 2016; Stojanova et al., 2022). Companies should consider leveraging technology to automate processes, improve customer service, and create new revenue streams. By developing a SBM, a company can improve its environmental and social performance, create long-term value for its stakeholders, and improve its competitiveness (Boons et al., 2013; Amit and Zott, 2001; Bocken et al., 2015; Corbin and Strauss, 2012; Chesbrough, 2010; Johnson and Christensen, 2008; Teece, 2010).

Integrating a sustainable business model with the radical transformation of the BM using a business model innovation effort is often referred to as Sustainable Business Model Innovation (SBMI) (Pan et al., 2022; Minatogawa et al., 2022; Chuang et al., 2022; Bashir et al., 2022).

SMBI can drive the designing and implementation of innovative business models that are both financially viable and environmentally and socially sustainable (Pan et al., 2022; Minatogawa et al., 2022; Chuang et al., 2022). Furthermore, for SME owners and managers, SBMI will result in enhanced SME performance and competitive advantages (Bashir et al., 2022). Bashir et al. (2022) developed a scale to measure SBMI.

2.4. Open innovation and Open innovation ecosystems in CCI

Innovation is widely recognised as a primary driver of economic growth and development at a firm level, but the dynamics of innovation systems are still difficult to address (Markides, 2006; Schumpeter, 1934). The innovation process can be challenging for firms to do independently. Firms must look externally for partners willing to share their knowledge to develop new products and processes (Yun et al., 2016).

Some potential benefits of OIE in CCI include tapping into new sources of creativity and innovation, access to new markets and distribution channels, and building stronger relationships with customers and other stakeholders (Dragicevic and Stefanovic, 2020). By partnering with other organisations, CCI firms can access expertise and technologies they might not have in-house and benefit from their partners' complementary strengths and resources (Chesbrough, 2006).

At the same time, Open innovation can help businesses recognise the need to adapt their existing business models. Interacting in OIE can help managers identify new opportunities, challenges and emerging trends, which can increase their awareness of the need for adaptation of their business models (Peñarroya-Farell and Miralles, 2021; Yun, 2017a). Additionally, open innovation can foster the development of new business model innovations by bringing together different expertise and perspectives. By leveraging the knowledge and resources of external partners, businesses can create more innovative and sustainable business models (Peñarroya-Farell and Miralles, 2021; Yun, 2017a).

Academics agree that OIE can benefit the cultural industries and the organisations they collaborate with (Peñarroya-Farell and Miralles, 2022; Dragicevic and Stefanovic, 2020; Saebi and Foss, 2015). Previous research showed the managers' tendency to collaborate in open innovation ecosystems when an emergency strikes: a multiple qualitative case study was developed among cultural and creative firms that survived the COVID-19 crisis using BMI as a strategic response (Peñarroya-Farell and Miralles, 2022). It was established that CCI companies turned to their network of peers, this is to say, an open innovation ecosystem, not only to keep up-to-date with innovations but, much more importantly, their primary motivation was to get help and assistance in finding viable solutions to the required adaptation of their business models (Peñarroya-Farell and Miralles, 2022).

In order to survive, managers had to develop their collaborative capabilities.

Collaborative capabilities are the skills, resources, and processes a firm has to collaborate with external partners effectively (Bocken et al., 2015) they are part of the set of capabilities named Dynamic Capabilities (Teece, 2007), a firm's ability to adapt and change in response to external changes and internal resources. Collaborative capabilities include identifying and approaching potential partners, negotiating and managing partnerships, and effectively sharing and integrating knowledge and resources with partners (Foss and Saebi, 2017; Saebi and Foss, 2015).

2.5. The theory of planned behavior

Extant literature has examined multiple influences to increase managers' support for innovation to attain BMI with sustainable practices (Bryant et al., 2018; Wu et al., 2021; Tolkamp et al., 2018; Vuorio et al., 2018). However, given that the implementation of sustainable business models (SBMs) can be understood as a planned behaviour, this study offers a new perspective: it applies the Theory of Planned Behaviour (TPB) with the mediating effects of managers' interaction whit their peers in an open innovation ecosystem.

The theory of planned behaviour (TPB) is a psychological model that explains how people make decisions about their behaviour—proposed by Ajzen in 1985 (Ajzen, 1985) as an extension of the theory of reasoned action; it suggests that people's behaviour is guided by their intentions, which are influenced by three personal determinants: their attitudes, subjective norms, and perceived behavioural control.

- Attitude refers to a person's evaluation of the behaviour in question and the outcomes likely to result from it.
- Subjective norm refers to a person's perception of the expectations of relevant others, such as friends or family, regarding the behaviour.
- Perceived behavioural control refers to a person's belief in their ability to perform the behaviour.
- In some degree non-motivational factors as resources (e.g., time, money, skills, cooperation of others; see Ajzen, 1985, for a discussion) can influence the behaviour. This is the actual control over the behaviour, not the perceived one.

Fig. 1 illustrates the standard TPB model.

2.5.1. The behavioural intention's role as a behaviour antecedent

The intention, sometimes described as "motivation" (Ajzen, 1991; Armitage and Conner, 2001), has been proposed as a good predictor of behaviour. Armitage & Conner (Armitage and Conner, 2001) presented a quantitative integration and review of 185 independent studies based on the TPB, concluding that intention was the highest predictor of behaviour among all predictors in the studies analysed.

Furthermore, consumer-based sustainability studies (Taylor and Todd, 1995; Schwepker and Cornwell, 1991; Cheung et al., 1999; Chan and Bishop, 2013) reflect high levels of support for the effect of intention on environmental behaviour; managerial studies in adopting sustainable practices (Chen et al., 2011; Anthony Swaim et al., 2016; Luo et al., 2017) also provide empirical support for this path.

2.5.2. Attitude

Ajzen and Fishbein define attitude as "an individual's evaluation of the favourable or unfavourable outcome from the performance of such behavioural action" (Ajzen, 1985), which means that attitude is a personal belief and that when a person has a "more positive attitude toward a behaviour," the person will "want to engage in that certain behaviour" (Ajzen, 1985).

Many researchers suggest an essential link between sustainability attitudes and behaviour intention. Specifically, in the environmental sustainability domain, a positive relationship between attitude and behavioural intentions has been demonstrated with sustainable agriculture (Menozzi et al., 2015), waste reduction & recycling (Taylor and Todd, 1995; Cheung et al., 1999), the purchase of green products (Kirchoff et al., 2011), choosing green hotels (Liu et al., 2018) and sustainable manufacturing (Menozzi et al., 2015). Still, others indicate that environmental behaviour can occur without underlying attitude alignment (Chan and Bishop, 2013).

The following hypothesis is consequently proposed:

- **H1:** Managers' attitude towards SBMs positively influences the intention to implement it.

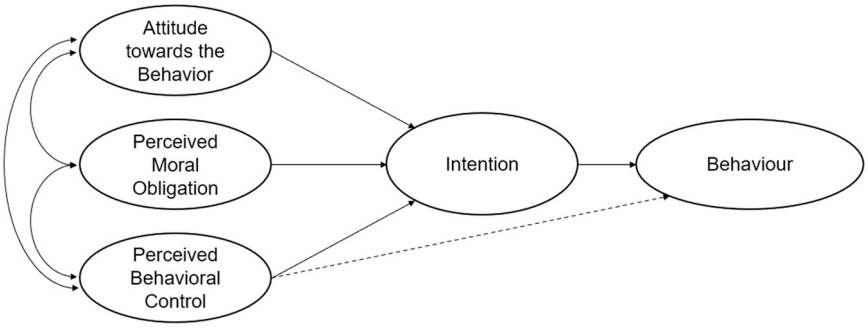

Fig. 1. Standard TPB model (Ajzen, 1991).

2.5.3. Perceived behavioural control

The TPB model sustains that people are more likely to engage in actions that they perceive as easy and less likely to engage in actions that they perceive as difficult. In this sense, Perceived behavioural control (PBC) reflects a person's perception "of the ease or difficulty in performing a behaviour" (Ajzen, 1985).

Studies of environmental sustainability behaviour found a direct link between PBC and intention (Alexa et al., 2021; Chan and Lau, 2002). However, PBC has not always been an essential factor in adopting sustainable practices when the behaviour is not complex; for example, the study in sustainable university dining services (Chen et al., 2011) did not support the path connecting PBC and intention, and in the wastepaper-recycling behaviours the PBC did not have a significant effect (Liu et al., 2018; Cheung et al., 1999; Chan and Bishop, 2013).

In our study, managers' beliefs about performing a successful BMI following sustainable practices depend on the firm's internal capabilities. That becomes a complex task requiring specific knowledge and concrete skills that cannot be assumed as other sustainability actions in this sense. Consequently:

- **H2:** Managers perceived behavioural control to adapt the business model more sustainably positively influences the intention to implement it.

2.5.4. Subjective social norm

Subjective social norms are shaped "from the individual's willingness to comply with their perceptions of the beliefs of important others" (Ajzen, 1991), e.g., parents, friends, co-workers, or shareholders (Ajzen, 1991, 1985).

The original model of the TPB also states that social norms directly affect the attitude toward behaviour and the perception of control over the behaviour. Therefore, the following hypotheses are formulated:

- **H3**: Subjective social norms positively influence the managers' attitude towards Sustainable Business Models.
- **H4**: Subjective social norms positively influence the perceived behavioural control over Sustainable Business Models.
  Moreover, professional peer associations are a part of the social norm and pressure managers to adopt sustainable behaviour. Thomas and Lamm introduced the concept of "moral legitimacy" to refer to the degree to which an organisation's actions or attributes align with prevailing social norms or implicit moral obligations or align with values related to humanistic or biospheric altruism (Thomas and Lamm, 2012). The moral dimension of sustainability legitimacy involves a normative evaluation of its "rightness" irrespective of the costs or benefits to the organisation. In other words, most provably, the question being asked among the ecosystem members is, "Is it morally right to do?". Therefore:
- **H5**: Subjective social norms positively influence open innovation ecosystems.

2.5.5. Open innovation ecosystems and behavioural intention

The COVID-19 crisis naturally led to an open innovation system created by professional associations and cluster members where firms could exploit technological innovations by sharing knowledge with their peers (Peñarroya-Farell and Miralles, 2022). Professional organisations can be a valuable source of information and support for professionals looking to learn about new trends and technologies and businesses seeking to stay up-to-date with the state-of-the-art developments in their field (Peñarroya-Farell and Miralles, 2022). They are a form of open innovation ecosystem (OIE).

When managers from CCI combine their knowledge, working together in open innovation ecosystems, sharing knowledge with their peers, and explaining their own experiences adapting their business model, their attitude towards SBMI changes as they are more aware of the benefits or the contras changing their attitude towards SBMI (Chan and Bishop, 2013).

Therefore:

- **H6**: Participating in an OIE positively influences the managers' attitude towards SBMI.
  The innovation process becomes a relationship between various parties from the same network who combine their knowledge to solve everyday challenges; in other words, innovation diffusion is done by "open innovation through network proximity" (Zhang and Wang, 2021).
  Furthermore, sharing experiences with peers can help managers to achieve the competencies necessary to implement Sustainable Business Models successfully and change their perception of the feasibility of SBMI (Peñarroya-Farell and Miralles, 2022). Therefore:
- **H7**: Being part of an OIE positively influences the perceived behavioural control over SBMI.
  Being part of an OIE and sharing among peers the need to implement more sustainable practices in their companies can directly affect the managers' intention to implement the changes needed to accomplish a successful SBMI, although in some entrepreneurial studies, the relationship between perceived social norms, the antecedent of OIE partnerships does not affect the intention to be entrepreneur (Su et al., 2021)
- **H8:** Participating in an OIE positively influences the managers' intention to implement Sustainable Business Models.

2.5.6. Construct operationalisation

In this study, an extension to the TPB model is proposed by adding a new construct, "open innovation ecosystems partnerships," which is

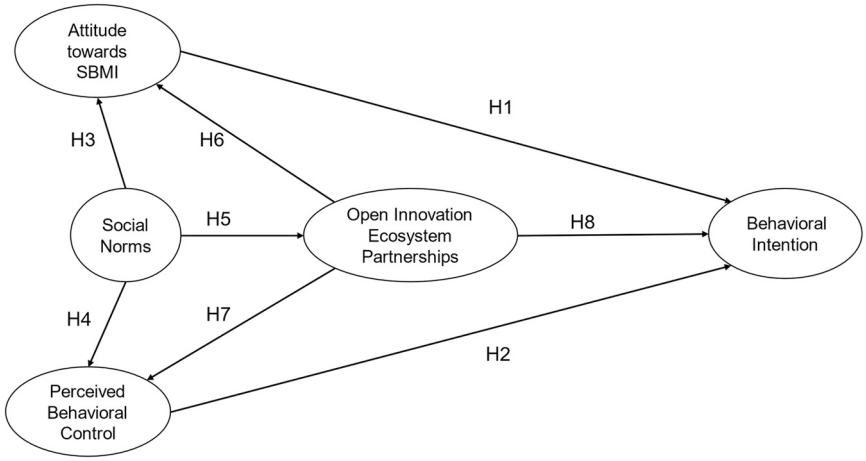

Fig. 2. Proposed research model and Hypothesis.

hypothesised to mediate the relationship between the existing constructs of the classical TPB and the managers' intention in implementing innovative sustainable initiatives in their firms.

This new construct plays a crucial role in the relationship between the existing constructs and the outcome variable. By including this new construct in the model, the study tests whether it significantly impacts the outcome variable beyond the existing constructs.

It's important to emphasise that while the proposed model is not the standard TPB model, the essence of the model is the same in that it aims to predict human behaviour based on psychological constructs. This extension adds to the existing literature by testing a new hypothesis about the role of open innovation ecosystem partnerships in shaping managers' intentions to implement sustainable and innovative business models. It also enhances its completeness and practical applicability to real-life scenarios, such as those examined in this study on CCI firms.

Fig. 2 shows the proposed research model for the role of open innovation ecosystem partnerships on the intention to implement Soustainable Business Models.

3. Methodology

The research model (Fig. 2) was tested via an online survey of managers and owners from Spain's cultural and creative industries (the questionnaire has been described in Table 2). The researchers translated the questions into Spanish to allow the respondents to read the questionnaire without difficulty. Expert translators validated the translation. Once answered, the questions were translated into English for this paper. This process was double-checked by two of the authors.

A pilot survey at a small-scale version was conducted to eliminate any ambiguous or inappropriate wording in the questionnaire items and to improve the content validity of the questionnaire items (Churchill, 1979; Bernard, 2006). To ensure the respondents understood the research concepts, a definition and examples of business model, business model innovation, and sustainable business model innovation were included in the survey for respondent context. Participants were offered a digital guide on business model innovation for CCI (Creative and Cultural Industries) upon competition of the survey to increase the response rate.

The model was built using different references (see Table 2) that are common to test a TPB model and open innovation settings. The questions were extracted from previously validated works based on the TPB model, in general, and applied to sustainability (Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002) and open innovation (Buffa et al., 2018; Atılgan, 2019). In the final questionnaire, the items assessing the construct were separated and presented in non-systematic order.

3.1. Sample and data collection

A total of 636 companies were contacted via email between May and October 2022. 136 did answer the online form created on Google Forms, 15.7% of the total. Respondents that were mere employees were discarded. Respondents from companies with more than 50 employees were discarded too. They left a total of 122 valid responses. Table 1 shows the participation of the different cultural subindustries in the survey.

The individual managers' perception was the unit of analysis. Direct measures were used for TPB constructs, following Ajzen's methodological recommendations (Ajzen, 1991, 2002) on defining a TPB survey using composite measures of attitudes, subjective norms, and perceived behavioural control, and past research on TPB (Chen et al., 2011; Menozzi et al., 2015; Singh et al., 2018; Chan and Bishop, 2013; Hagger et al., 2002).

The behaviour analysed in this study is the implementation of SBM also labelled as Soutainable Business Model Innovation (SBMI) by CCI business managers. Following Ajzen's recommendations (Ajzen, 2002), a time element was included in some questions. The time element refers to when the behaviour is performed; in this research, it was defined as the next eighteen months. The latent variables are Behavioural Intention (INT), Attitude towards SBMI (ATT), Social Norms (NOR), Perceived Behavioural Control (PBC), and Open Innovation Ecosystem partnerships (OIE). Table 2 shows the sources and properties of scales. All items were measured on a five-point Likert scale ranging from the Spanish equivalent of "strongly disagree" to "strongly agree," with "neither agree nor disagree" as a midpoint.

Table 1
Industry Participation.

CULTURAL AND CREATIVE INDUSTRIES	SURVEYS DATA
Performing arts	33%
Audiovisual creation and management	10%
Popular culture	5%
Management of Cultural Heritage	6%
Books and press	25%
Musical production, creation and performance	12%
Services related to culture	8%
Other	18%

3.2. Measurement instrument. Data reliability and validity

SMART-PLS v4 was used to analyse the model (Hair et al., 2019). Following the standard procedures for analysing a Structural Equation Modelling (SEM) model (Hair et al., 2019, 2022), two steps were used to obtain the results. The first step is debugging the model as a measurement instrument (Cronbach, 1951; Hundleby and Nunnally, 1968; Fornell and Larcker, 1981). This is coherent with Ajzen's considerations on creating a questionnaire (Ajzen, 2002), "care should be taken to ensure that the intention items selected in the study correlate highly with each other (i.e., that the measure has high internal consistency)." Cronbach's coefficient alpha has been used for this purpose (Cronbach, 1951).

Data reliability and validity were assessed by analysing convergent validity, reliability, and discriminant validity to evaluate the measurement quality. All factor loadings ranged between 0.706 and 0.908 for the primary constructs except one of the items related to the latent variable of Social Norms (NOR). Factor loading for item NOR3 is 0.592, which is less than 0.7, affecting latent variables Cronbach's Alpha and Composite Reliability. The researchers did not remove the item NOR3 due to the suggestions in previous studies (Weston and Gore, 2006; Morgan, 2015) avoiding less than three observed variables for each construct. Therefore, the researchers decided to hold the item.

The results indicate that the scales measuring each construct had Cronbach's alpha coefficients greater than 0.70, and the composite reliability (CR) was greater than 0.70, indicating acceptable reliability. To analyse the validity of the constructs, standardised factor loadings were greater than 0.7, providing support for convergent validity. In addition, the average variance extracted (AVE) exceeded 0.50 for all constructs and reached the recommended threshold of 0.70 (Hundleby and Nunnally, 1968), indicating appropriate reliability and validity (Table 3).

Further, we checked for discriminant validity based on (Fornell and Larcker, 1981), showing the distinctness of a construct when the square root of the average variance extracted for each latent variable is higher than other correlation values among any other construct. The result showed that adequate discriminant validity had been achieved by the square roots of the AVEs, which were higher than the off-diagonal correlations for total observations (Table 4).

4. Findings

Recently, PLS-SEM has been growingly applied in various research (Hair et al., 2019); it is a technique to predict structural equation

Table 2
Constructs and Measures for Behavioural Intention.

LATENT VARIABLE	DESCRIPTION (translated to Spanish)	ITEMS	REFERENCES
Behavioural Intention	• I am willing to have a more sustainable business model in my company during the next 18 months.	INT1	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
	• I plan to adopt more sustainable practices during the next 18 months	INT2	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
	• I will reduce the environmental impact of our manufacturing/creation processes during these 18 months.	INT3	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
	• I will try to pursue more practices to achieve sustainable development in my organisation this year or in the next 18 months.	INT4	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
Attitude toward SBMI	• I try to buy products and services that have been helping society these past months.	ATT1	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
	• When evaluating a business opportunity, I consider the social impact that the business will have (poverty reduction, employment, and increasing equality)	ATT2	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
	• When evaluating a business opportunity, I consider the environmental impact that the business would have (e.g., use of natural resources, protecting biodiversity, and energy type).	ATT3	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
	• A sustainable business model implies more advantages than disadvantages to our company/organisation.	ATT4	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
Social Norms	• People that are important to me think my company should be more environmentally and socially sustainable.	NOR1	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
	• A more sustainable business model will entail great satisfaction for my customers.	NOR2	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
	• My work colleagues think we should implement sustainable practices.	NOR3	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
Perceived Behaviuoral Control	• I'm sure we can find more sustainable/local providers	PBC1	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
	• I'm sure I can measure all the sustainable changes we implement	PBC2	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
	• We will be able to achieve most of the goals that we have set for our company/ organisation	PBC3	(Alexa et al., 2021; Wu et al., 2021; Ajzen, 2002)
Open Innovation Ecosystem partnerships	• In the association of cultural companies/organisations to which I belong, we work together to obtain more sustainable business models.	OIE1	(Buffa et al., 2018; Atılgan, 2019)
	• When a challenge is tough, we discuss it at the meetings of the cultural association to which we belong.	OIE2	(Buffa et al., 2018; Atılgan, 2019)
	• In the cultural association to which my company belongs, we discuss the sustainable practices implemented by other members of our industry.	OIE3	(Buffa et al., 2018; Atılgan, 2019)

models with causal reasons (Hair et al., 2021). Thus, our data analysis proceeded to estimate the Structural Equation Modelling (SEM) using SMART-PLS version 4 and standardised bootstrapping with 5000 sub-samples with 95% confidence intervals. The model was run for the total sample to achieve an accurate result to see the path coefficients among the latent variables (Hair et al., 2021).

4.1. Data analysis and results

The fit items suggest that the model adequately represents the input data. Also, the model reached fitted the data ($\chi 2$ = 331.572, NFI = 0.694, and SRMR = 0.096). The Normed Fit Index (NFI) values are between 0 and 1, and the closer to 1, the better the fit (Lohmöller, 1989). The standardised root means square residual (SRMR) shows the difference between the observed correlation and the model-implied correlation matrix. A value less than 0. 08 is propounded as a good fit (Hu and Bentler, 1999); however, in PLS-SEM, to avoid model mis-specification value less than 0.10 is considered a good fit (Henseler et al., 2014).

According to the proposed model, the coefficient of determination Chi-square shows that the predictors of variable behavioural intention (INT) explain 60.05% of its variance. Predictors of Attitude Towards

Table 3
Construct Reliability and Validity.
Note: CR = Composite Reliability; AVE = Average Variance Extracted.

Constructs	Indicator	Factor Loadings	Cronbach's Alpha	CR	AVE
Attitude Towards SBMI(ATT)	ATT1	0.770	0.739	0.745	0.560
	ATT2	0.722			
	ATT3	0.742			
	ATT4	0.760			
Perceived Behavioural Control (PBC)	PBC1	0.799	0.738	0.757	0.658
	PBC2	0.753			
	PBC3	0.876			
Behavioural Intention (INT)	INT1	0.711	0.856	0.885	0.699
	INT2	0.863			
	INT3	0.850			
	INT4	0.908			
Social Norms (NOR)	NOR1	0.828	0.574	0.610	0.532
	NOR2	0.750			
	NOR3	0.592			
Open Innovation Ecosystem (OIE)	OIE1	0.843	0.751	0.795	0.667
	OIE2	0.706			
	OIE3	0.889			

Table 4
Discriminant Validity (Fornell-Larcker Criterion (Fornell and Larcker, 1981)).

	ATT	BEH	INT	NOR	OPI
Attitude Towards SBMI (ATT)	**0.748**				
Perceived Behavioural Control (PBC)	0.616	**0.811**			
Behavioural Intention (INT)	0.718	0.676	**0.836**		
Social Norms (NOR)	0.656	0.561	0.608	**0.730**	
Open Innovation Ecosystem (OIE)	0.544	0.474	0.484	0.508	**0.817**

Note: Bold figures on the diagonal show the square root of the average variances extracted AVEs; numbers below the diagonal represent the squared inter-construct correlations

Table 5
Structural Model Evaluation.
Note: *p < 0.05, * *p < 0.01, * **p < 0.001, n.s. = not significant, $\chi 2$ = Chi-square, NFI = Normed Fit Index, SRMR = Standardized Root Mean Square Residual, R^2 = Squared Multiple Correlations, N = Sample size.

SEM Model				
Hypothesised Path	β (Standardised Estimates)	Standard Error (SD.)	T statistics	P values
H1: ATT → INT	0.461	0.083	5.559	* **
H2: PBC → INT	0.363	0.076	4.743	* **
H3: NOR → ATT	0.512	0.071	7.185	* **
H4: NOR → PBC	0.431	0.109	3.939	* **
H5: NOR → OIE	0.508	0.076	6.664	* **
H6: OIE → ATT	0.284	0.073	3.906	* **
H7: OIE → PBC	0.255	0.119	2.150	*
H8: OIE → INT	0.061	0.076	0.801	**n.s.**
Goodness-of-Fit Measures				
R^2 (ATT)	0.491			
R^2 (PBC)	0.362			
R^2 (INT)	0.605			
R^2 (OIE)	0.258			
$\chi 2$	331.572			
NFI	0.694			
SRMR	0.096			
N	122			

ATT = Attitude Towards SBMI, PBC = Perceived Behavioural Control, INT = Behavioural Intention, NOR = Social Norms, Open Innovation Ecosystem (OIE).

SBMI (ATT) explain 49.1% of its variance (R^2 ATT = 0.491). Following, Chi-square for the variable Perceived Behavioural Control (PBC) is 36.2%, and R^2 for Open Innovation Ecosystem (OIE) explained 25.8% of its variance (Table 5).

4.2. Test of hypotheses

According to the result, Attitude Towards SBMI (ATT) positively affects Behavioural Intention (INT) (β = 0.461, p < 0.001); therefore, H1 is supported.

The results found a positive effect of Perceived Behavioural Control (PBC) on Behavioural Intention (INT) (β = 0.363, p < 0.001); therefore, the data supports H2.

Furthermore, as was expected, Social Norms (NOR) positively influenced Attitude Towards SBMI (ATT) (β = 0.512, p < 0.001) and Behavioural Intention (INT) (β = 0.431, p < 0.001); hence, hypotheses H3 and H4 are supported. There was a positive impact of Social Norms (NOR) on the Open Innovation Ecosystem (OIE) (β = 0.508, p < 0.001); hence, H5 is supported too.

In addition, Open Innovation Ecosystem (OIE) positively influences Attitude Towards SBMI (ATT) (β = 0.284 p < 0.001); thus, H6 holds, and as expected, OIE is positively related to Perceived Behavioural Control (PBC) (β = 0.255, p < 0.05); so, H7 is supported too.

Whereas contrary to our initial expectation, our data do not show a direct influence of OIE over INT, and consequently, the effect of the Open Innovation Ecosystem on Behavioural Intention was not significant (β = 0.061, p > 0.05); therefore, H8 is not supported (Table 5).

5. Discussion

This research postulates that open innovation partnerships can help understand how cultural and creative industry managers perceive implementing innovative business models from a sustainable perspective. In this vein, the TPB model and the data of the empirical work provide initial support to this work postulation. In the following paragraphs, an in-depth analysis of this support is described.

5.1. How the TPB model and the collected data support our hypotheses

Table 5 and Fig. 3 represent the results associated with the final model. The explained variance for the dependent variable (INT) is aligned to similar studies with the TPB model (β = 0.605). Regarding the Hypotheses, except for H8, the rest of the 'model's hypotheses received support from the data with enough statistical significance (stronger than p < 0.05).

For the main Hypotheses of the TPB model, the support is higher than 0.35: ATT- > INT (H1, β = 0.461, p < 0.001); PBC- > INT (H2, β = 0.363, p < 0.001); NOR- > ATT (H3, β = 0.512, p < 0.001); NOR- > PBC (H4, β = 0.431, p < 0.001).

This result is consistent with most research on sustainability attitudes and behaviour intention. This positive relationship is highlighted in sustainable agriculture (Menozzi et al., 2015), waste reduction & recycling (Taylor and Todd, 1995; Cheung et al., 1999), the purchase of green products (Kirchoff et al., 2011), choosing green hotels (Liu et al., 2018) and sustainable manufacturing (Menozzi et al., 2015).

The results also emphasises the mediation role of the Open Innovation Ecosystem partnerships. Hypothesis H5, variable (OIE)

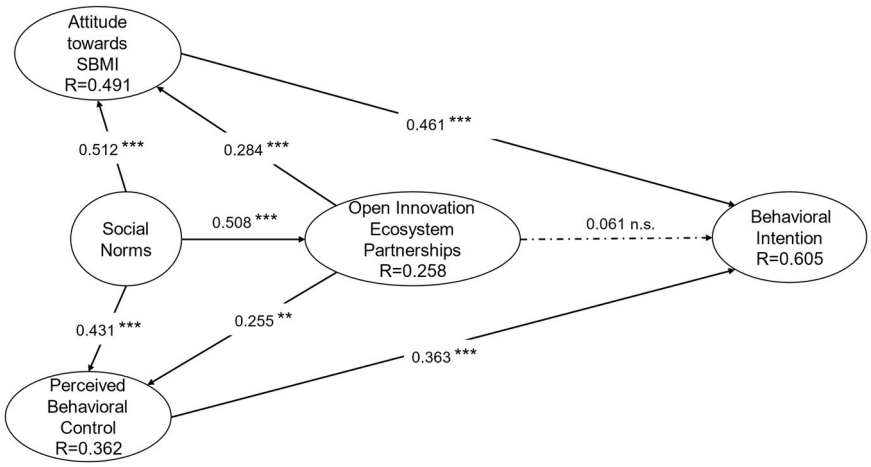

Fig. 3. Final proposed model. Note: *p < 0.05; * *p < 0.01; * **p < 0.001, n.s. = not significant. → Non supported hypothesis.

receives relevant support from social norms (NOR- > OIE, β = 0.508, p < 0.001). This effect illustrates that some of the social norm influence can be explained by the relationship to the open innovation environment, supporting the main postulation of this work.

Regarding the relationship of the Open Innovation Ecosystem partnerships on the rest of the 'model's variables, hypotheses H6 and H7 explain how OIE relates to the rest of the TPB model. In this sense, Open Innovation Ecosystem partnerships have a low but significant effect on attitude (H6, β = 0.284 p < 0.001) and on perceived Behavioural control (H7, β = 0.255, p < 0.05). These effects can be interpreted as the role of the open innovation ecosystem on managers' perception of the constructs that affect their intention to implement sustainable business model innovation.

Finally, coherently to most results of the TPB in entrepreneurial and innovation studies (Su et al., 2021), the model does not support the direct effect of social norms, in this case, mediated by the open innovation ecosystem partnerships construct, on the Behavioural intention. H8 is not supported.

5.2. The mediation structure of open innovation partnerships

Further, to understand the mediation role of open innovation partnerships, this study applied advanced bootstrapping procedures available in the results reports (Table 6), conducting a mediator analysis suggested by Hair et al (Hair et al., 2017). Thus, the indirect pathways for the latent variables were analysed to understand if there are mediation effects of attitude towards SBMI and perceived Behavioural control. Table 6 summarises all indirect effects pathways for single and multiple mediation models.

Moreover, according to the findings, our data reported no direct relationship between the Open Innovation Ecosystem (OIE) partnerships and Behavioural Intention (INT).

To analyse the mediation role of Attitude Towards SBMI (ATT) in the relationship between Open Innovation Ecosystem (OIE) and Behavioural Intention (INT), the researchers found significant standardised indirect effects to that linkage (0.131, p < 0.001), which shows that OIE indirectly and through ATT influence INT.

Likewise, OIE also is indirectly and significantly related to Behavioural Intention (INT) through Perceived Behavioural Control (PBC) (0.092, p < 0.05). Hence, it is considered that in our proposed model, Attitude Towards SBMI and Behavioural Intention are two variables that carry the indirect effects in the relationship between OIE partnerships and Behavioural Intention (Table 7).

Considering H5 and H6, we assume that the open innovation ecosystem (OIE) partnerships mediate the linkage between social norms (NOR) and attitude towards SBMI (ATT) (H3). The standardised indirect effect of NOR on ATT by OIE is 0.144 and significant (p < 0.001) since its standardised direct effects are also significant (β = 0.512, p < 0.001), interestingly OIE partnerships could partially mediate the linkage between social norms and attitude towards SBMI. However, the result shows that the standardised indirect effect of social norms (NOR) on perceived Behavioural control (PBC) through open innovation ecosystem is not statistically significant (0.129, p > 0.05), although there is a direct relationship between NOR and PBC (β = 0.431, p < 0.001) (Table 7).

There are a couple of potential explanations as to why social norms and behavioural intention may not be related in the context of Open Innovation Ecosystem (OIE) partnerships. One possibility is that there may be a lack of social pressure exerted through these partnerships, which could be why social norms are not as influential in driving sustainable practices.

Another explanation could be that other factors, such as personal attitudes, perceived behavioural control, or perceived benefits of implementing sustainable business models, may be more important in

Table 6
Specific indirect effects.
Note: *p < 0.05, * *p < 0.01, * **p < 0.001, n.s. = not significant, ATT = Attitude Towards SBMI, PBC = Perceived Behavioural Control, INT = Behavioural Intention, NOR = Social Norms, OIE = Open Innovation Ecosystem.

Pathways of Indirect effects	Standardised Estimates	Standard Error	T statistics	P values
NOR - > OIE - > ATT - > INT	0.067	0.024	2.794	* *
OIE - > ATT - > INT	0.131	0.041	3.180	* **
NOR - > OIE - > PBC - > INT	0.047	0.026	1.791	n.s.
NOR - > PBC - > INT	0.156	0.060	2.617	* *
NOR - > OIE - > PBC	0.129	0.070	1.840	n.s.
NOR- > OIE - > ATT	0.144	0.045	3.218	* **
NOR - > ATT - > INT	0.236	0.055	4.290	* **
OIE - > PBC - > INT	0.092	0.045	2.051	*
NOR - > OIE - > INT	0.031	0.041	0.750	n.s.

Table 7
Mediation Tests.

Pathways of Indirect effects	Standardised Indirect Effect	β (Standardised Direct Effect)	Result
OIE → ATT → INT	0.131 (***)	0.061 (n.s.)	-
OIE → PBC → INT	0.092 (*)	0.061 (n.s.)	-
NOR→ OIE→ ATT	0.144 (***)	0.512 (***)	Partial Mediation
NOR - > OIE - > PBC	0.129 (n.s.)	0.431(***)	-

Notes: *p < 0.05., * *p < 0.01., * **p < 0.001, n.s: Not significant.
ATT = Attitude Towards SBMI, PBC = Perceived Behavioural Control, INT = Behavioural Intention, NOR = Social Norms, OIE = Open Innovation Ecosystem.

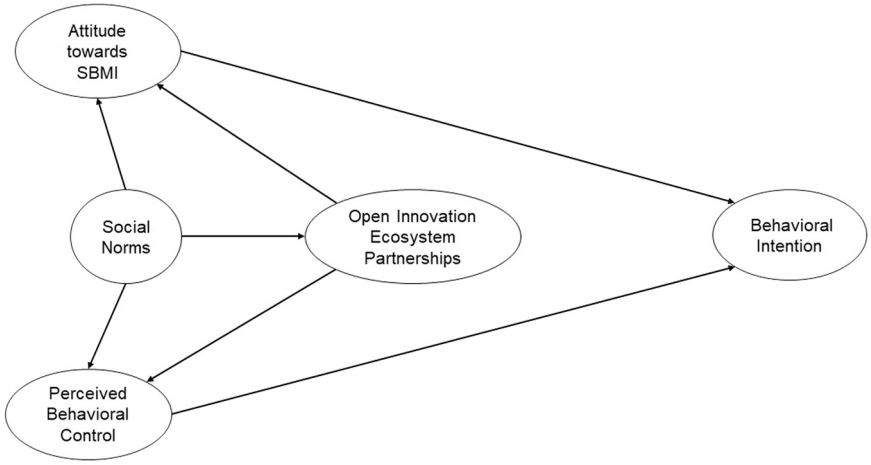

Fig. 4. Final model.

influencing intentions to adopt such practices. This is consistent with other sustainability behaviour research (Su et al., 2021). However, our data do support a direct influence of OIE partnerships on these other factors, emphasising the importance of considering OIE partnerships in understanding the intention to implement sustainable business models in the Cultural and Creative Industries (CCI).

More research is needed to understand better the factors that drive the intention to implement sustainable business models and the role that social norms play in this process.

Fig. 4 shows the final model.

5.3. Open innovation culture and sustainable business models

Open innovation culture can play a crucial role in promoting sustainable business models and SBMI. An open innovation culture encourages collaboration, sharing of knowledge and expertise, experimentation, and risk-taking, all of which can help organisations develop and implement sustainable business models (Minatogawa et al., 2022; Yun and Liu, 2019; Yaghmaie and Vanhaverbeke, 2020; Weiblen, 2016; Yun, 2017b). The case of the cultural and creative industries is just an example of how open innovation ecosystems can influence the perception of sustainable business models and how difficult their feasibility is (behavioural control).

Being a member of an open innovation ecosystem (OIE) can be a very effective way for cultural industries to access new ideas and technologies and to collaborate with other organisations on projects. This collaboration can be done through professional organisations, like the Spanish CCI case, or with other partners, such as universities, research institutions, or other out-of-the-ecosystem companies. Both ways can be helpful in effectively accessing new knowledge and resources that can help drive innovation (Chesbrough and Rosenbloom, 2002; Chesbrough, 2006; Yun and Liu, 2019; Chesbrough, 2017). Yun (2019) analysed the dynamics of open innovation and the role played by various stakeholders, including industry, government, university, and society (Yun and Liu, 2019).

Open innovation ecosystems also enable organisations to identify and address sustainability challenges, such as resource scarcity or climate change, by collaborating with partners with unique perspectives and expertise (Minatogawa et al., 2022; Yun and Liu, 2019).

In addition, an open innovation culture can help organisations to embrace and adopt sustainable practices by fostering a sense of shared responsibility and accountability for sustainability outcomes (Bocken et al., 2014).

5.4. Implications and contribution

From an academic perspective, we suggest that the results significantly contribute to the knowledge of Sustainable Business Models and expand the research base of Business Model Innovation, exploring the role of professional organisations and technological clusters (open innovation ecosystems) in the diffusion of innovations among peers.

This study also demonstrates that collaborative capabilities, a form of dynamic capabilities, are critical to successfully implementing SBM.

At the same time, the proposed framework offers an expanded model of the Theory of Planned Behaviour applied to managers' intentions to change or adapt a business model.

From a managerial perspective, the results provide critical insights for government agencies formulating sustainability policies and open innovation ecosystems fostering sustainable practices. First, the study emphasises the importance of finding a scientific and rational system to diffuse innovation among peers and members of industry organisations and technological clusters. Furthermore, understanding the principle that when people perceive an action as complex, they may be less likely to pursue it because they feel that it will be too time-consuming or challenging can be helpful for organisations trying to encourage people to engage in certain behaviours or adopt new practices. Making an action or behaviour such as implementing SBM seem easy or convenient is more likely to be adopted by their members.

This study demonstrates that an open innovation culture can support the development and implementation of sustainable business

models by utilising external resources and knowledge, tackling sustainability challenges, and fostering shared responsibility for sustainability outcomes. Thus, it is crucial to encourage SME managers to participate actively in open innovation ecosystems and share their knowledge to promote their economic and social growth.

6. Conclusion, limitations, and future research perspectives

The current competitive environment pushes managers from cultural and creative firms to face growing challenges requiring sustainable and innovative solutions. In this context, a TPB model is proposed to support preliminary studies. The results confirm the claims mentioned above (Peñarroya-Farell and Miralles, 2022) that open innovation partnerships influence sustainable behaviours in cultural and creative companies, although indirectly through changing the managers' attitude towards the implementation of sustainable business models and at the same time, making them perceive more control over the actions needed to implement them.

6.1. Conclusions

An extended TPB model received support from the data surveyed 122 managers of cultural and creative firms in Spain. The model was supported at the same level as other implementations of the TPB for business model dynamic initiatives. Furthermore, the hypothesised role of the open innovation partnerships construct, fits within the confidence and significance levels of the model. Although indirectly, these partnerships are relevant for implementing sustainable and innovative initiatives in cultural and creative SMEs because they can provide access to new ideas and technologies to help a company transition to a more sustainable business model.

Additionally, OIE partnerships can help to build support and commitment among stakeholders, including employees, customers, and investors, for a more sustainable business model. This support can be essential when transitioning to a more sustainable model may involve significant changes to a company's operations or require significant investments. Considering all this, it is clear that OIE partnerships affect the manager's attitude towards SBMI and, consequently, the intention to implement the needed changes.

OIE partnerships also provide access to expertise and resources that can support the implementation of more sustainable practices. Seeing other peers implementing sustainable business models in their companies shows managers how easy or difficult the actions needed can be from the perspective of the organisational effort required, the amount of time or resources needed, and any psychological barriers or challenges that may be present.

Finally, if made public, open innovation partnerships can help build credibility for a company's commitment to sustainability, which can be important for attracting and retaining customers, investors, and other stakeholders. This can be particularly important in cases where sustainability is an essential consideration for stakeholders, as it can help to differentiate a company from its competitors and build trust.

6.2. Limitations and further research

As with all research efforts, this study needs to clarify some limitations and opportunities for further research. On the one hand, the focus of the study on a specific sample imposes some initial limitations.

First, the sample of managers was limited to cultural and creative firms in Spain. In this sense, the results must be understood from the perspective of this limited sample. However, although the research is concentrated on the Spanish territory, we believe the results can be relevant to other cultural settings. The extension of this research to other territories will allow the framework to be further corroborated with new geographical studies.

Secondly, creative and cultural firms have experienced a significant impact due to COVID-19 and are also affected by other competitive challenges. In this vein, managers have to explore new avenues of ideas to implement sustainable and innovative business models; however, other industries are facing the same kind of competitive challenges. In this vein, taking the research results as a starting point; the next step should be to extend the analysis to other industries and explore what is expected in participating in open innovation ecosystem partnerships.

On the other hand, the study's methodological approach produces another set of limitations. First, a specific model was decided for the study, the TPB model. However, this model is based on behavioural intention as a dependent variable, and the variance explained by the behavioural intention of the behaviour itself of an entrepreneurial venture is not higher than 45% (van Gelderen et al., 2008). Other models can be tested to understand the focus of this study further.

Regarding the description of the model, some characteristics of the managers can deserve a better analysis—for example, their previous experience in other innovation ventures, in the same or other industries. Our research deals with sustainable and innovative initiatives in firms, both research fields, sustainability, and innovation, have generated plenty of studies on how to deal with new ventures. New lines of research could be related to proposing new perspectives from an open innovation perspective.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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