

**DOCTORAL PROGRAM IN BUSINESS ADMINISTRATION AND  
MANAGEMENT**

**FEMALE AND SUSTAINABLE  
ENTREPRENEURSHIP:**

PRACTICAL IMPLICATIONS

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**Female and Sustainable Entrepreneurship:  
Practical Implications**

**Doctoral Thesis**

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*La vida es como un libro repleto de capítulos. Unos más largos, otros más cortos, algunos más trascendentales y otros menos. Sin embargo, todos ellos necesarios para darle sentido a la historia.*

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*“La vida no consiste en esperar a que pase la tormenta, sino en aprender a bailar bajo la lluvia”*

*Vivien Greene*



# **Abstract/Resumen/Resum**

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## Abstract

The main objective of the doctoral thesis is to identify the factors and conditions that influence female entrepreneurs, deepening the ties to their sustainable entrepreneurial spirit. In this way, we aim to improve the understanding of the managerial implications addressed to them.

Given the current fragmentation of the literature in this field, we combine different techniques of analysis that allow us to enrich the study and shed light on existing trends.

In the **first phase**, the focus is set on **female entrepreneurship**. We developed a systematic literature review followed by a bibliometric analysis that allows us to detect main knowledge gaps and delimit emerging concepts such as crowdfunding. Our results uncover the role of institutions and family, among other factors, and their connections in women entrepreneurs' literature.

In the **second phase** of this research, we analyze the intersection between **female and sustainable entrepreneurship**. A combination of descriptive and content analysis is conducted. On the one hand, descriptive indicators provide an up-to-date multidisciplinary understanding. For instance, India is outlined as the country with the most publications at the intersection of female-sustainable entrepreneurship. On the other hand, the content analysis maps clusters outlining the main existing topics. We seek to show how sustainability is intertwined with female entrepreneurship and which factors enhance it. Within the terms identified by the clusters, innovation, education, and the multiplicity of the context appear as crucial elements.

In the **third phase**, from an empirical angle, we analyze under which causal configurations **female entrepreneurial intention** is promoted. Therefore, we applied Qualitative Comparative Analysis (QCA) using a sample of 203 professionals. In this vein, perceived attitude towards entrepreneurship and sustainable commitment are presented as significant variables, given their level of consistency.

Based on the results obtained, we develop the **fourth phase** to provide an answer to the main objective of the doctoral thesis. Our study highlights the most relevant contributions, focusing on the key factors inferring female entrepreneurs' development and their sustainable ties. Then, we propose specific managerial implications in this field addressed to policymakers, future researchers, and decision-makers.

We reflect on the Education for Sustainable Entrepreneurship (ESE) concept and the need to adopt this educational perspective in schools, universities and professional training centres. In particular, it would be interesting to introduce it in entrepreneurship training programmes. This approach may have a positive social impact and help mitigate inequalities, thus improving the achievement of Sustainable Development Goals (SDGs) targets. In this vein, around the holistic concept of

family, we outline the usefulness of family-oriented educational initiatives, the role of inclusive innovation and the power of digitalization. These factors can promote and facilitate access to resources and the maintenance of women's entrepreneurial projects.

Although our study provides valuable guidance, there is a need for future research to delve deeper into fostering innovation and improving financial literacy in the framework of education for female entrepreneurs. Furthermore, we set out a specific research agenda to be more specific with the desired pathways. One of the future paths needs to address the measurement of financial literacy in Education for Sustainable Entrepreneurship (ESE) and its impact on female entrepreneurial intention. For instance, studying the knowledge of financial tools, such as microcredit or crowdfunding, in greater detail can improve the environment and options for female entrepreneurs.

**Keywords:** female entrepreneurial intention, new perspectives and managerial implications.

**JEL Classification:** L26; M10; Q01.



## Resumen

El objetivo principal de la tesis doctoral es identificar los factores y condiciones que influyen en las mujeres emprendedoras, profundizando en los vínculos establecidos con su iniciativa empresarial sostenible. De esta forma se busca mejorar el entendimiento de las implicaciones de gestión dirigidas a ellas.

Dada la fragmentación actual de la literatura en este campo, combinamos diferentes técnicas de análisis que nos permiten enriquecer el estudio y visibilizar las tendencias existentes.

En la **primera fase**, nos centramos en el **emprendimiento femenino**. Desarrollamos una revisión sistemática de la literatura seguida de un análisis bibliométrico que nos posibilita detectar las principales lagunas de conocimiento y delimitar conceptos emergentes como el crowdfunding. Nuestros resultados señalan el rol de las instituciones y la familia, entre otros factores, y sus conexiones establecidas en la literatura.

En la **segunda fase** de la presente investigación, analizamos la intersección entre **emprendimiento femenino y sostenible**. Se realiza una combinación de análisis descriptivo y de contenido. Por un lado, los indicadores descriptivos proporcionan una comprensión multidisciplinar actualizada. Por ejemplo, la India se perfila como el país con más publicaciones en la intersección del empresariado femenino-sostenible. Por otra parte, el análisis de contenido mapea clústeres que esbozan las temáticas existentes más relevantes. Pretendemos mostrar cómo la sostenibilidad se entrelaza con la iniciativa empresarial femenina y qué factores la potencian. Dentro de los términos identificados por los clústeres, la innovación, la educación y la multiplicidad del contexto aparecen como elementos cruciales.

En la **tercera fase**, desde una perspectiva empírica, analizamos bajo qué configuraciones causales se promueve la **intención emprendedora femenina**. Para ello, aplicamos el Análisis Cualitativo Comparativo o Qualitative Comparative Analysis (QCA), utilizando una muestra de 203 profesionales. Los datos obtenidos presentan la actitud hacia la iniciativa empresarial y el compromiso sostenible como variables significativas dado su nivel de consistencia.

A partir de los resultados alcanzados, desarrollamos la **cuarta fase** para dar respuesta al objetivo principal de la tesis doctoral. Nuestro estudio destaca las aportaciones más relevantes, centrándose en los factores clave que infieren el desarrollo de las emprendedoras y sus vínculos sostenibles. Además, proponemos implicaciones específicas de gestión en este campo dirigidas a responsables políticos, futuros investigadores y responsables de la toma de decisiones.

En este sentido, reflexionamos sobre el concepto de Educación para el Emprendimiento Sostenible o Education for Sustainable Entrepreneurship (ESE) y la necesidad de adoptar esta

perspectiva educativa en escuelas, universidades y centros de formación profesional. En particular, sería interesante introducirla en los programas de formación para emprendedores. Este enfoque puede tener un impacto social positivo y contribuir a mitigar las desigualdades, mejorando así la consecución de las metas de los Objetivos de Desarrollo Sostenible (ODS). En esta línea, en torno al concepto holístico de familia, destacamos la utilidad de los programas educativos orientados a la familia de las mujeres emprendedoras, el papel de la innovación inclusiva y el poder de la digitalización. Estos factores pueden promover y facilitar el acceso a los recursos y el mantenimiento de los proyectos empresariales femeninos.

Aunque nuestro estudio aporta valiosas orientaciones, es necesario que futuras investigaciones profundicen en el fomento de la innovación y la mejora de la cultura financiera en el marco de la educación de las mujeres emprendedoras. Además, establecemos una agenda de investigación específica para ser más concretos con las vías deseadas. Una de las futuras vías debe abordar la medición de la formación financiera en el concepto de Educación para el Emprendimiento Sostenible y su impacto en la intención emprendedora femenina. Por ejemplo, estudiar con más detalle el conocimiento de las herramientas financieras, como el microcrédito o el crowdfunding, podría favorecer las opciones de las empresarias y como enfrentan el entorno en el que se encuentran.

**Palabras clave:** intención emprendedora femenina, nuevas perspectivas e implicaciones de gestión.

**Clasificación JEL:** L26; M10; Q01.



## Resum

L'objectiu principal de la tesi doctoral és identificar els factors i condicions que influeixen en les dones emprenedores, aprofundint en els vincles establerts amb la seua iniciativa empresarial sostenible. D'esta manera es busca millorar l'enteniment de les implicacions de gestió dirigides a elles.

Donada la fragmentació actual de la literatura en este camp, combinem diferents tècniques d'anàlisi que ens permeten enriquir l'estudi i visibilitzar les tendències existents.

En la **primera fase**, ens centrem en **l'emprenedoria femenina**. Desenvolupem una revisió sistemàtica de la literatura seguida d'una anàlisi bibliomètrica que ens permet detectar les principals llacunes de coneixement i delimitar conceptes emergents en este camp com el micromecenatge. Els nostres resultats assenyalen el rol de les institucions i la família, entre altres factors, i les seues connexions establides en la literatura.

En la **segona fase** de la present investigació, analitzem la intersecció entre **emprenedoria femenina i sostenible**. Es realitza una combinació d'anàlisi descriptiva i de contingut. D'una banda, els indicadors descriptius proporcionen una comprensió multidisciplinària actualitzada. Per exemple, l'Índia es perfila com el país amb més publicacions en la intersecció de l'empresariat femení-sostenible. D'altra banda, l'anàlisi de contingut mapea clústers que esbossen els principals temes existents. Pretenem mostrar com la sostenibilitat s'entrellaça amb la iniciativa empresarial femenina i quins factors la potencien. Dins dels termes identificats pels clústers, la innovació, l'educació i la multiplicitat del context apareixen com a elements crucials.

En la **tercera fase**, des d'una perspectiva empírica, analitzem sota quines configuracions causals es promou la **intenció emprenedora femenina**. Per a això, apliquem l'Anàlisi Qualitativa Comparativa o Qualitative Comparative Analysis (QCA), utilitzant una mostra de 203 professionals. Les dades obtingudes presenten l' actitud envers la iniciativa empresarial i el compromís sostenible com a variables significatives donat el seu nivell de consistència.

A partir dels resultats aconseguits, desenvolupem la **quarta fase** per a donar resposta a l'objectiu principal de la tesi doctoral. El nostre estudi destaca les aportacions més rellevants, centrant-se en els factors clau que infereixen el desenvolupament de les emprenedores i els seus vincles sostenibles. A més, proposem implicacions específiques de gestió en aquest camp dirigides a responsables polítics, futurs investigadors i responsables de la presa de decisions.

En este sentit, reflexionem sobre el concepte d'Educació per a l'Emprenedoria Sostenible o Education for Sustainable Entrepreneurship (ESE) i la necessitat d'adoptar aquesta perspectiva educativa en escoles, universitats i centres de formació professional. En particular, seria interessant



introduir-la en els programes de formació per a emprenedors. Este enfocament pot tindre un impacte social positiu i contribuir a mitigar les desigualtats, millorant així la consecució de les metes dels Objectius de Desenvolupament Sostenible (ODS). En esta línia, entorn del concepte holístic de família, destaquem la utilitat dels programes educatius orientats a la família, el paper de la innovació inclusiva i el poder de la digitalització. Estos factors poden promoure i facilitar l'accés als recursos i el manteniment dels projectes empresarials femenins.

Malgrat que el nostre estudi aporta valuoses orientacions, és necessari que futures recerques aprofundeixin en el foment de la innovació i la millora de la cultura financera en el marc de l'educació de les dones emprenedores. A més, establim una agenda de recerca específica per a ser més concrets amb les vies desitjades. Una de les futures vies ha d'abordar el mesurament de la formació financera en el concepte d'Educació per a l'Emprenedoria Sostenible i el seu impacte en la intenció emprenedora femenina. Per exemple, estudiar amb més detall el coneixement de les eines financeres, com el microcrèdit o el micromecenatge, podrien millorar l'entorn i les opcions de les empresàries.

**Paraules clau:** iniciativa empresarial femenina, noves perspectives e implicacions de gestió.

**Classificació:** JEL: L26; M10; Q01.





# Index

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Chapter 1. Introduction .....	33
1.1. Introduction.....	35
1.2. Objectives.....	39
1.3. Structure .....	40
1.4. Method.....	42
1.5. References.....	43
Chapter 2. Researching personal and contextual factors toward female entrepreneurs’ development: new insights from bibliometric analysis.....	51
2.1. The influence of personal factors on women entrepreneurs .....	53
2.2. The influence of contextual factors on women entrepreneurs .....	56
2.3. Method .....	60
2.4. Major gaps detected within female entrepreneurship literature: descriptive and analytical overview.....	64
2.4.1. Descriptive overview of the factors affecting female entrepreneurship.....	64
2.4.2. Analytical overview of the factors affecting women entrepreneurship using VOSviewer .....	68
2.4.3. Emerging keywords on female entrepreneurship.....	79
2.5. Discussion and conclusion .....	81
2.6. Research agenda.....	82
2.7. References .....	83
Chapter 3. Approaching the role of innovation, education and multiplicity of context in female-sustainable entrepreneurship .....	103
3.1. Female entrepreneurs and their contribution to societies.....	105
3.2. Exploring the origins and development of the female entrepreneur’s literature	106

3.3. Exploring the bibliometric analysis on sustainable entrepreneurship through Web of Science (WoS).....	109
3.4. Are women entrepreneurs developing ties to sustainable entrepreneurial spirit? .....	114
3.5. Method .....	116
3.6. Data analysis.....	118
3.6.1. Descriptive exploration within the tie between female and sustainable entrepreneurship .....	118
3.6.2. Analytical exploration: cooccurrence analysis and cluster identification.....	121
3.7. Conclusions.....	129
3.8. Future research lines.....	131
3.9. References .....	131
Chapter 4. Assessing the development of female entrepreneurial intention from an empirical angle. ....	143
4.1. Introduction .....	145
4.2. Entrepreneurial Intention and its environment .....	147
4.3. Variables development and propositions definition .....	149
4.3.1. Perceived attitude towards entrepreneurship .....	149
4.3.2. Risk Perception. How does risk perception affect financial risk to EI? .....	150
4.3.3. Sustainable Commitment and equal access to finance.....	151
4.3.4. Education for Sustainable Entrepreneurship and financial literacy .....	154
4.3.5. Family Support and networks creation.....	156
4.4. Model presentation.....	157
4.5. Data description.....	159
4.5.1. Survey Design.....	159
4.5.2. Sample Description .....	159

4.6. Method .....	159
4.7. Results.....	160
4.8. Conclusions .....	165
4.9. References .....	168
Chapter 5. Conclusions.....	181
5.1. Conclusions .....	183
5.2. Managerial implications.....	187
5.3. Limitations .....	189
5.4. Future research lines.....	191
5.5. Research agenda.....	192
5.6. References .....	193
Appendix.....	227





# Summary of figures and tables

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Both summaries are divided according to the number of the chapter to which they belong.



## Summary of figures

### Chapter 1

Figure 1. Thesis theoretical sequence.....	38
Figure 2. Research structure.....	41

### Chapter 2

Figure 3. PRISMA flow diagram.....	63
Figure 4. Evolution of all papers in a respective year and cumulative citations around female entrepreneurship.....	65
Figure 5. Research topics on female entrepreneurship. Result of co-occurrence analysis.....	71
Figure 6. Empowerment keyword in cluster 4.....	77
Figure 7. Keywords according to the recent average publication year.....	80

### Chapter 3

Figure 8. Structure of chapter 3.....	106
Figure 9. Diagram of the effect of sustainable entrepreneurship.....	110
Figure 10. Advanced search with a focus on the intersection between research field.....	118
Figure 11. Evolution of the number of publications on female entrepreneurship and sustainable entrepreneurship.....	119
Figure 12. The impact of women entrepreneurial innovation.....	124
Figure 13. Multiplicity of context.....	125
Figure 14. Links between SDGs and women entrepreneurship.....	127
Figure 15. Education.....	129

**Chapter 4**

Figure 16. Characteristics of the entrepreneurial environment.....149

Figure 17. Risk perception.....151

Figure 18. Proposed model.....158

**Chapter 5**

Figure 19. Sub-objectives segmentation by chapter.....183



## Summary of tables

### Chapter 2

Table 1. Studies addressing personal and contextual factors impacting women entrepreneurs.....	53
Table 2. Studies addressing personal and contextual factors impacting women entrepreneurs.....	57
Table 3. Articles according to the highest number of citations.....	66
Table 4. Characteristics of the co-occurrence analysis.....	69
Table 5. Keywords with the highest number of occurrences per cluster.....	70

### Chapter 3

Table 6. Bibliometric analyses of female entrepreneurship.....	108
Table 7. Bibliometric analyses of sustainable entrepreneurship.....	111
Table 7. Continuation.....	112
Table 8. Phases of chapter 3.....	117
Table 9. Countries with the most publications.....	120
Table 10. Research areas and main categories using the classification of the Web of Science (WoS) .....	121
Table 11. Characteristics of co-occurrence analysis.....	122
Table 12. Top keywords with a minimum of two occurrences.....	122

### Chapter 4

Table 13. National conditions supportive of female entrepreneurs by national income level.....	153
Table 14 (a) Logistic Regression.....	160
Table 14. (b)Coefficients.....	161

Table 15. Analysis of necessary conditions for Entrepreneurial Intention.....161

Table 16. Recipes for Entrepreneurial Intention.....162

**Chapter 5**

Table 17. Synthesis of the main contributions .....183

Table 17. Continuation.....184





# Chapter 1. Introduction

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## 1.1. Introduction

In recent years, the number of women-led businesses and ventures has grown substantially, driving economic growth (Ertac & Tanova, 2020), innovation (Nair, 2020), job creation (Santos et al., 2018), and internationalization (Moreira et al., 2019; Anggadwita & Indarti, 2023). Female entrepreneurship is considered a mechanism for society's development (Brush et al., 2006; Kaciak & Welsh, 2020). There is a positive social impact and sustained evolution facilitated by the growth of female entrepreneurship (Rey-Martí et al., 2016).

To acknowledge the need for the promotion of women's entrepreneurship, the United Nations (UN) created UN Women. Likewise, the Global Entrepreneurship Monitor (2022) highlights female entrepreneurship as a condition to achieve sustainable international growth.

Previous work has analyzed the factors driving the performance of female entrepreneurs (Pathak et al., 2013; Meyer, 2018; Cardella et al., 2020). Usually, scholars have divided those factors into two groups. On the one hand, there is a set of **personal characteristics**, such as motivation (Akehurst et al., 2012; Yuniati et al., 2021), self-efficacy (Wilson et al., 2007; Gódnay & Mura, 2021) family support (De Clercq et al. 2022) education (Pimpa, 2021) and skills (Ubfal et al., 2022) which are unique to each individual. On the other hand, there are also **contextual and environmental conditions** (Shetty et al., 2023), such as political-legal (Welsh et al., 2018; Chen et al., 2023), cultural (Shuvam & Mohanty, 2020), social (Santos et al., 2018), sustainable (Figueroa et al., 2022), economical (Rajvanshi, 2017) and technological (Reyes & Neergaard, 2023) elements which determine the development of women entrepreneurs. Thus, understanding the personal and contextual characteristics surrounding female entrepreneurial initiative is crucial for delving into its motivation and intention (Corrêa et al., 2022).

Regarding personal characteristics motivation arises as a key concept. Women entrepreneurs feel more motivated to develop new projects when they are part of a group, relate to each other, and generating synergies through these relationships (Yuniati et al., 2021). These relationships between family and friends can facilitate their access to

financial resources (Sullivan & Meek, 2012). In this vein, Kayak and Welsh (2020) included the term *network affiliation*, showing that group relationships encourage entrepreneurship and positively influence motivation. Nevertheless, Harrison et al. (2020) added that generating women-only networks would not help empower women. In this sense, it is vital to analyse the role played by the social networks women entrepreneurs belong to, although this does not always play a determining role in their motivation (Erogul & Quagraine, 2017).

Following with the contextual factors around female entrepreneurship, country differences and political regulations may be considered. Some countries may have an environment with unfavorable normative regulation for the entrepreneurial progress of women (Khazaeli et al., 2018).

However, according to the Global Entrepreneurship Monitor (GEM, 2022), female entrepreneurship in some developing countries is growing faster than in countries with higher-income economies. Specifically, a quarter of women in low-income countries start entrepreneurial ventures. This high rate may be because women in emerging countries see entrepreneurship as a way to change their situation. The Global Entrepreneurship Monitor (GEM) is a worldwide recognized indicator for general understanding of the environment surrounding women entrepreneurs.

Therefore, government action through policies that encourage female entrepreneurship development is essential (Bansal et al., 2019). Corrêa et al. (2022) stated that the focus should be placed on differences in developing countries. Especially in emerging economies, support for women should be encouraged because women are responsible for much of the small business economy (Ogundana et al., 2021; Barrachina et al., 2021).

Beyond the significance of personal and contextual factors, the **sustainable motivation** of female's entrepreneurial projects is currently highlighted by literature. Notably, women pursue not only economic goals but also aspire to generate a positive impact on the planet (Otsios and Farooqi., 2017). This approach addresses whether the evolution of female entrepreneurship and this development is sustainable or not has only been acknowledged in the last decade (Pathak et al., 2013). Thus, there is a gap of knowledge

that represents an opportunity for scholars, as they can enrich the understanding about the factors influencing this trend.

Besides the motivation of women in the first phase of the entrepreneurial process, the access to financial resources is presented as another of the challenges faced by female entrepreneurs (Teixeira & Sharifu, 2017). In addition to the obstacles arising from the need of financial inclusion, another key point in undertaking an entrepreneurial project for women may lie in the capacity for innovation and the technology use (Ojong et al., 2021). Therefore, education emerges as a key tool for the growth and continuity of women-led entrepreneurial projects (Saiz-Santos et al., 2017; Tillmar et al., 2022). Interestingly, sustainability also affects the capacity of innovation (Chaparro-Banegas et al., 2023).

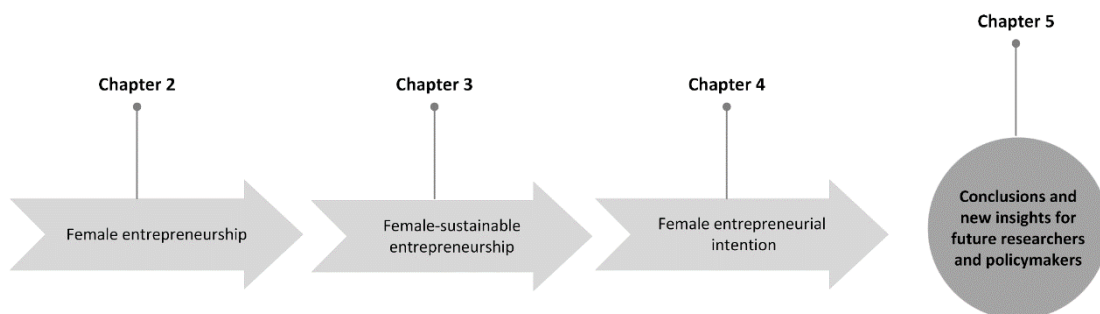
Beyond country differences, it is crucial to analyze the impact and benefits of policies applied in specific contexts within each country and region (Baraibar-Diez et al., 2019, Harrison et al., 2020; Silva & Moreira, 2022) to better understand the degree of digitalization and innovation in each scenario. The degree of social and political development of a country determines the factors that directly affect both the support and obstacles faced by women entrepreneurs (Barrachina et al., 2021). In this regard, government policies should be approached as something other than a tool to deal with the underperformance of women entrepreneurs where they are seen as a problem to be resolved (Pettersson et al., 2017). Such a perspective would still generate gender inequality. In this sense, literature shows several cases analyzing women entrepreneurs in a specific region taking a local perspective (see for examples: Khazaeli et al., 2018; Bonne & Michels, 2019; Moreira et al., 2019; Gaies et al., 2023; Kacar, 2023; Atarah et al., 2023). For this reason, the analysis through women entrepreneurs needs to combine a local and macro perspective (Harrison et al., 2020).

To analyze personal and environmental factors as well as the mentioned gender differences, quantitative and qualitative data must be used. Different perspectives should be applied. Thus, qualitative analyses should not be based solely on personal judgments.

Quantitative and mixed studies should also be used to give specific numerical data (Cardella et al., 2020; Deng et al., 2020).

As introduced before, studies are often limited to a single factor or country (Gu & Wang, 2022) and lack generalizability. This segmented approach, implies a **little integrated knowledge of the elements and conditions influencing female entrepreneurs** (Harrison et al., 2020) and how to provide scalability to such factors depending on personal and environmental characteristics (Mozumdar, 2020). Thus, the current **fragmentation of scholarly work** offers an excellent opportunity for developing a broader understanding of the development of female entrepreneurs (Nair, 2020; Barrachina et al., 2021) and their entrepreneurial intentions. Moreover, it is advisable for societies and scholars to shed light on the theoretical and managerial background on women entrepreneurship (GEM, 2022). Consequently, **it is crucial to show a holistic and integrative perspective that delves into the conditions affecting women entrepreneurial intention.**

Subsequently, this thesis sheds light on the gap outlined before, providing, at the same time, valuable insights to policymakers and scholars. Such insights are structured in a managerial guide oriented on how to look for practical solutions considering the idiosyncrasies of contextual and personal characteristics of women entrepreneurs. Figure 1 shows the theoretical sequence that the thesis will follow, in order to improve its visibility and understanding.



**Figure 1. Thesis theoretical sequence.** Source: Own elaboration

## 1.2. Objectives

This doctoral thesis has one main objective and three specific subobjectives.

The **principal objective** of the present doctoral thesis is to identify the factors and conditions that influence female entrepreneurs, deepening the ties to their sustainable entrepreneurial spirit while improving the understanding of its managerial implications.

The **three specific subobjectives** are detailed below:

In the first phase, our research focuses on the factors influencing female entrepreneurship from a holistic approach. In this step, we look for an answer to the first subobjective:

**OBJ 1:** The understanding about how different literature streams discuss the influence of personal and contextual factors affecting female entrepreneurship.

Secondly, we conduct an analysis of the intersection between female entrepreneurship and sustainable entrepreneurship using the advanced search of the Web of Science (WoS) database. Based on the research gaps identified in the literature review, we address the second subobjective:

**OBJ 2:** The identification of the key terms that define the crossroads of female and sustainable entrepreneurship.

Thirdly, we disseminate and analyze the female Entrepreneurial Intention (EI) seeking to address the third subobjective of our research as defined below.

With the third sub-objective presented below, we aim to uncover the fundamental elements for women entrepreneurs' intentions.

**OBJ 3:** The recognition of the conditions under which Entrepreneurial Intention (EI) is promoted.

Therefore, our research answers to the main objective as well as the three subobjectives in the conclusions section of each chapter of the doctoral thesis.



### 1.3. Structure

This doctoral thesis is structured into five chapters (see fig. 2). Chapter 1 corresponds to the introduction. Chapters 2, 3, and 4 consist of three articles addressing different subtopics. Chapter 5 presents the final general conclusions. Further details about each chapter are detailed below:

**Chapter 1** develops the introduction, objectives, structure, and methods of the doctoral thesis.

**Chapter 2** corresponds to the article "*Approaching personal and contextual factors toward female entrepreneurs' development: new insights from bibliometric analysis*".

This study involves a systematic literature review focusing on personal and contextual variables influencing female entrepreneurship. Subsequently the study conducts a bibliometric analysis on female entrepreneurship concept. The purpose is to identify the principal keywords and major gaps in this research field, shedding light to the first subobjective. The article is currently undergoing the review process at the *Journal of International Entrepreneurship*.

**Chapter 3** corresponds to the article "*Approaching the role of innovation and education in sustainable and female entrepreneurship*".

This article conducts a descriptive and analytical review exploring the intersection between female and sustainable entrepreneurship, providing essential insights into the second subobjective. The mentioned article has been accepted in the *Economics and Business Journal of ESIC Market*.

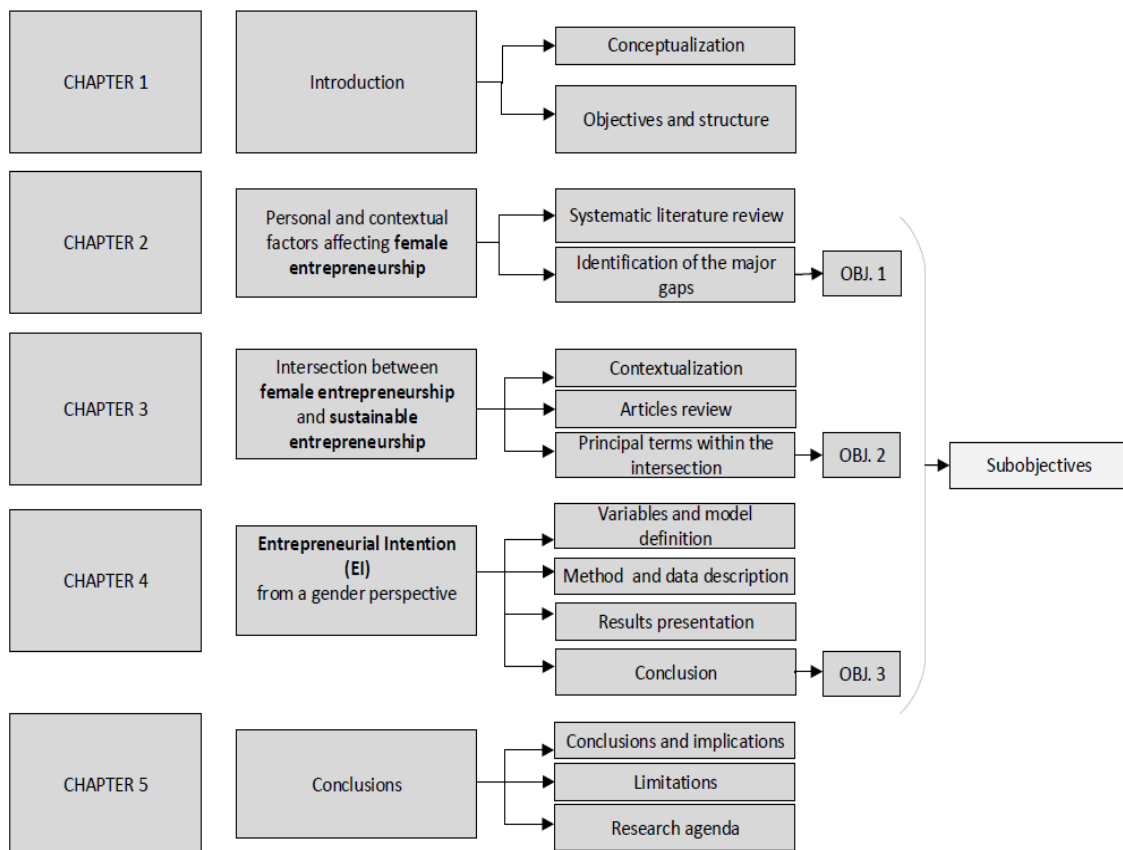
**Chapter 4** corresponds to the article "*Assessing the development of female entrepreneurial intention from an empirical angle*".

This research focuses on the Entrepreneurial Intention (EI) from an empirical angle. Moreover, it involves an in-depth theoretical review of the main variables in the study, accompanied by the propositions shaping them. The study develops various variables,

such as Perceive attitude towards entrepreneurship, Risk perception, Sustainable commitment, Education for Sustainable Entrepreneurship (ESE) and Family support, while outlining five propositions; providing justification for the propositions developed and the generated model. This study aims to achieve the third subobjective. Finally, it is noted that the article has been submitted to the *International Review of Economics & Finance*.

Finally, **Chapter 5** consolidates the conclusions of this doctoral thesis, emphasizing different theoretical and managerial contributions.

Consequently, limitations and future research directions are explained. Finally, a specific research agenda is defined. Although each chapter has its references, Chapter 5 comprises the general bibliography, including the references of the previous chapters.



**Figure 2. Research structure.** Source: Own elaboration

## 1.4. Method

In this section, we delineate the method employed in chapters 2, 3, and 4. Given that Chapter 1 corresponds to the introduction, and Chapter 5 to the general conclusions. We note that the methods used in the doctoral thesis are developed in greater detail in the corresponding chapter.

In Chapter 2, a **systematic literature review** was conducted, followed by a quantitative **bibliometric analysis** on the concept of female entrepreneurship. This procedure generates visibility on the gaps that are formed in the different areas of research and, therefore, allows us to identify the contributions that are made (Hood and Wilson, 2001). Bibliometrics is focus on the study of bibliographic content through quantitative methods (Broadus 1987; Pritchard 1969). Furthermore, it is noted that this methodology goes a step beyond traditional literature reviews (Bakker et al., 2005).

The Web of Science (WoS), Core Collection, served as the database. To complement the bibliometric study, a co-occurrence analysis was performed using VOSviewer software. This chapter facilitates the identification of keywords and major gaps in the female entrepreneurship literature.

Concerning Chapter 3, the focus lies on the intersection between female entrepreneurship and sustainable entrepreneurship. To achieve this, an advanced search was executed through the Web of Science (WoS). An indispensable factor in bibliometrics is the definition of the parameters to be treated in the analysis of the information (Merigó et al., 2015). Subsequently, bibliometric indicators were analysed, and the study was enriched with a **co-occurrence analysis using VOSviewer**. This study allows the delimitation of the level of interest among researchers around the sustainable entrepreneurial initiatives lead by women, along with key terms found at the intersection.

Finally, in Chapter 4, a **Qualitative Comparative Analysis (QCA)** was employed to identify the conditions under which Entrepreneurial Intention is promoted. This method examines causal conditions that are necessary or sufficient to achieve the outcome. Moreover, the Qualitative Comparative Analysis (QCA) is presented as an innovative

method by researchers that combines the advantages of quantitative and qualitative methodology (Mas-Tur et al., 2021; Roig-Tierno & Arcagni, 2021) thus enriching the scholar's value contributions. The procedure is carried out through a bottom-up process of pairwise combination (Poveda & Martínez, 2013). This methodology is increasingly accepted in recognised journals within the scientific community and has experienced great growth since 2007 (Roig-Tierno et al., 2017). Additionally, the study of Thomann & Maggetti (2020) reinforces the importance of the research context on QCA method.

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**Chapter 2. Researching personal  
and contextual factors toward  
female entrepreneurs'  
development: new insights  
from bibliometric analysis**

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## 2.1. The influence of personal factors on women entrepreneurs

Understanding the numerous personal factors that lead women to start a venture is difficult. Due to individual conditions are composed of several elements such as motivation (Akehurst et al., 2012; Yuniati et al., 2021), family support (De Clercq et al., 2022), self-efficacy (Wilson et al., 2007; Gódnány & Mura, 2021), education (Pimpa, 2021; Feng & Sumettikoon, 2022.) and skills (Ubfal et al., 2022). Personal factors positively affect entrepreneurial-minded women (Abdelwahid & Kaoud, 2022), and there is still room for progress to comprehend them further (Santos et al., 2021; Xie & Wu, 2021; Kusa et al., 2021). Table 1 summarises relevant studies on the personal elements that affect women entrepreneurs. Following the presentation of Table 1, we develop the knowledge of these elements to shed light on personal factors affecting female entrepreneurship.

**Table 1. Studies addressing personal factors impacting women entrepreneur.**  
Source: Own elaboration

PERSONAL FACTORS	AUTHORS
	(Kusa et al., 2021; Santos et al., 2021; Abdelwahid & Kaoud, 2022; Ślusarczyk et al., 2023)
Motivation	(Akehurst et al., 2012; Erogul & Quagraine, 2017; Jafari-Sadeghi, 2020; Yuniati et al., 2021; Yadav et al., 2022; Emami et al. 2023)
Family	(Cardella et al., 2020; Ayatakshi-Endow & Steele, 2021; De Clercq et al. 2022; Qazi et al,2022; Bozoğlu & Armutlulu, 2020; Alreshoodi et al., 2022; Vasileiou et al., 2023)
Self-efficacy	(Wilson et al., 2007; Gódnány & Mura, 2021; Bastian et al., 2023)
Education	(Sullivan & Meek, 2012; Pimpa, 2021; Murphy et al., 2021; Alreshoodi et al., 2022; Feng & Sumettikoon, 2022; Huamán et al., 2022; Al-Qahtani et al., 2022)
Skills	(Saiz-Santos et al.2017; Xheneti et al., 2019; Ubfal et al., 2022; Tovmasyan, 2022; Ślusarczyk et al., 2023)

One of the first studies pointing to the motivations for promoting female entrepreneurship was performed by Moore et al. (1999). **Motivation** is a primary lever of female entrepreneurship (Akehurst et al., 2012; Jafari-Sadeghi, 2020), composed of intrinsic characteristics based on personal experience (Erogul & Quagraine, 2017). To gain deeper empirical knowledge of the entrepreneurial motivation propensity, GEM Report (2021) provided the data indicating the global average of motivations for entrepreneurial activity defined as Total Early-Stage Entrepreneurial Activity (TEA). For the score list, see Appendix A. The TEA is the rate of adults aged between 18 and 64 years

who are nascent entrepreneurs, run, or own new businesses. GEM (2021) identifies three crucial motivations for women: (1) to make a change or difference in the world, (2) to build wealth or generate a high level of income, and (3) to find a way to make a living because jobs are insecure or frightening. For the first motivation of making a difference in the world, women lag behind men only in Central and East Asia. In the rest of the world, it is one of the main motivations for women. Hence, women entrepreneurs not only look for profit in their ventures but also care about the positive impact of their ventures on society (Romero-Colmenares & Reyes-Rodríguez, 2022). For the second motivation of generating wealth or a high income, women score lower than men. Nevertheless, it is still an important motivation for women because of its high average score, especially in Central Asia, East Asia, the Middle East, and Africa. This fact implies that the development of female entrepreneurship contributes to a country's wealth creation and economic growth (Rajvanshi, 2017). The third motivation corresponds to the search for a more secure alternative to the available jobs; we delimit that the average number of women is higher than men in all the analyzed regions. Reflecting on this motivation of the search for security raises again the question of whether entrepreneurship is born of opportunity or necessity (Jafari-Sadeghi, 2020; Shivam & Mohanty, 2020).

However, apart from these personal insights, literature also shows external factors shaping motivation, such as business characteristics (Moreira et al., 2019), perceived gender discrimination (Vasileiou et al., 2023), and social relationships (Yuniati et al., 2021; Emami et al., 2023). Thus, it is argued whether women entrepreneurs' motivations are addressed to meet external expectations.

Focusing on the antecedents of female entrepreneurship, **family support** arises from the theoretical background as a relevant personal condition for female entrepreneurs (Cardella et al., 2020; Vasileiou et al., 2023). The inference of family support can vary (Ouazzani et al., 2021). On the one hand, family support improves the identification of market opportunities (Qazi et al., 2022) generates positive emotions (De Clercq et al., 2022) and increases confidence (Ayatakshi-Endow & Steele, 2021) fostering women's motivation to lead new projects. And, on the other angle, family embeddedness can

cause internal disappointment and be an obstacle in the initial phase of the female entrepreneurial process. Thus, work-family conflict and lack of entrepreneurial networks are considered relevant obstacles to female entrepreneurship motivation (Bozoğlu & Armutlulu, 2020; Alreshoodi et al., 2022). In many countries, the willingness to undertake entrepreneurship is generated because women feel insecurities in their jobs due to work-family balance barriers (Ranwala et al., 2023). Although past research has focused on the family framework, it would be desirable to further understand the family lines already studied to enrich existing gaps.

Besides insecurities, our study points out the concept of **self-efficacy**, which directly infers on women entrepreneurs' attitude (Górány & Mura, 2021) and decision-making ability (Bastian et al., 2023). The most cited article in the field of female entrepreneurship conducted by Wilson et al., (2007) introduced the concepts of entrepreneurial self-efficacy and gender roles, contributing that self-efficacy is intrinsically stronger in women than in men. Focusing on the aspects that improve the self-efficacy of women entrepreneurs, literature shows creativity (Wilson et al., 2007) and innovation (Jiménez, 2019); being gender equality a promoter of such innovation, reducing turn role-models (Veckalne & Tambovceva, 2023). In contrast, literature identifies factors limiting self-efficacy as settled societal roles and perceived gender discrimination (Xie & Wu, 2021). However, it should be note that there are factors such as personality that has a diverse effect on self-efficacy (Elshaer & Sobaih, 2023). Thus, to deeper explore self-efficacy may lead to better comprehend women entrepreneurs' performance.

In the entrepreneurial field, **education** is believed as the level of theoretical cognition and the respective skills to adequately apply it. Thus, education and competences can foster women's entrepreneurial performance (Saiz-Santos et al., 2017). Education is a tool for tackling existing social inequalities (Sullivan & Meek, 2012). Consequently, it is noted that a high degree of education improves women entrepreneurs' self-perceptions (Huang et al., 2012). For this reason, encouraging practical educational programs help the origin and maintenance of women's entrepreneurial projects (Murphy et al., 2021; Alreshoodi et al., 2022). In this vein, we shed light on interesting topics for these educational spaces. For instance, education about gender inequalities improve the



performance of female entrepreneurs (Huamán et al., 2022). Noteworthy, most women have a low education level (Franzke et al., 2022), and they express their willingness to raise it (Tovmasyan, 2022), improving their strategic vision and skills. This fact highlights the importance of considering the consequences of a low level of education for women entrepreneurs.

Personal **skills** allow the implementation of knowledge into practice. Therefore, developing such skills along with education leads to a better adaptation of women entrepreneurs' strategies (Xheneti et al., 2019), dealing better with environmental threats. Managerial skills positively infer on female entrepreneurs performance in emerging and developed countries

In this sense, theory sets that a high degree of resilience helps women not to give up during the entrepreneurial process despite adverse conditions (Shelton & Lugo, 2021). In addition to resilience, leadership is another relevant skill for women entrepreneurs, highlighted by its ambiguity (Aparisi-Torrijo & Ribes-Giner, 2022). In summary, high-quality learning should include soft skills development, technology, and problem-solving abilities (Feng & Sumettikoon, 2022).

## **2.2. The influence of contextual factors on women entrepreneurs**

Extant literature shows that the context influences female entrepreneurship (Bansal et al., 20219). Nevertheless, the inference of such environment (Harrison et al., 2020) and its positive or negative impact (Agarwal et al., 2022) on women's entrepreneurship need to be further studied. Here, the concept of context refers to the set of political-legal (Welsh et al., 2018; Chen et al., 2023), cultural (Shuvam & Mohanty, 2020), social (Santos et al., 2018), sustainable (Figueroa et al., 2020), economical (Rajvanshi, 2017) and technological (Reyes & Neergaard, 2023) elements which determine the development of women's entrepreneurs. Moreover, in a transversal way, existing gender inequalities (Jiménez, 2019) also play a crucial role. Thus, the environment where women entrepreneurs live, together with their entrepreneurial orientation and context ties, directly affects their performance (Mozumdar et al., 2020). Table 2 summarises essential studies addressed to the principal contextual perspectives which will be developed in more detail below.

**Table 2. Studies addressing contextual factors impacting women entrepreneurs.** Source: Own elaboration

CONTEXTUAL FACTORS	(Huang et al., 2001; Noguera et al., 2013; Erogul & Quagraine, 2017; Rosenbaum, 2017; Harrison et al., 2020; Aggarwal & Johal, 2021; Del Bosco et al., 2021)
Political-legal	(Marlow & Patton, 2005; Khazaeli et al., 2018; Welsh et al., 2018; Ahmed et al., 2020; Ogundana et al., 2021; Atarah et al., 2021; Imarhiagbe et al., 2021; Chen et al., 2023; Elshaer et al., 2023)
Socio-cultural	(Noguera et al., 2013; Rey-Martí et al., 2016; Santos et al., 2018; Bonne & Michels, 2019; Kayak and Welsh; 2020; Shuvam & Mohanty, 2020; Vershinina et al., 2020; Aggarwal & Johal, 2021; Shelton & Lugo, 2021; Santos & Neumeier, 2022; Bastian et al., 2023; Freund et al., 2023)
Economical	(Cavada et al., 2017; Rajvanshi, 2017; Gogoi, 2022; Atarah et al., 2021)
Technological	(Rosenbaum, 2017; Nair, 2020; Murphy et al., 2021; Tanti et al., 2021; Reyes & Neergaard, 2023)
Sustainable	(Bansal et al., 2019; Figueroa et al., 2020; Kaciak & Welsh, 2020; Aggarwal & Johal, 2021; Barrachina et al., 2021)

Despite current globalization, to consider the heterogeneity of contextual factors affecting female entrepreneurship is crucial. Regarding the **political and legal aspects**, the literature points out the role of government (Elshaer & Sobaih, 2023) and dissimilar country regulations (Ahmed et al., 2020). This disparity translates into implementing different laws based on the national systems, directly inferring the evolution of female entrepreneurship (Imarhiagbe et al., 2021). Such inference can be positive or negative. On the negative side, Pakistan offers an example of how the environment sets boundaries to the development of female entrepreneurship process because of its unfavorable normative regulation (Khazaeli et al., 2018). On the positive angle, we identify the MUDRA8 plan, a policy tool in a specific context developed by the Indian government, which seeks to provide access to sources of financing for women to support their business initiatives (Shuvam & Mohanty., 2020). As a result, the role of government and policies need to be analyzed considering the intersectionality rather than obtaining conclusions limited to a single region. In addition to the divergences between regulations, there is empirical evidence supporting the distinction in research between developing countries (Cardella et al., 2020; Atarah et al., 2021) and urban and rural areas (Aggarwal & Johal, 2021) to better understand how the contextual factors affect women entrepreneurs.

As suggested before, theoretical background has shown that the regulatory frameworks of some countries lead to unequal resource access (Marlow & Patton, 2005; Ogundana et al., 2021) and gender inequalities (Jiménez, 2019). If politicians and decision makers

consider this point, they will have more visibility to comprehend whether the female entrepreneurial process starts as a need or an opportunity (Jafari-Sadeghi, 2020; Shuvam & Mohanty, 2020). The perception of such opportunities also varies according to the multiplicity of each country's context (Kacar, 2023). In addition to the unequal access to resources in the initial phase of the entrepreneurial process, women also encounter gender bias until the final stage of their projects due to contextual factors (Liu et al., 2023). This is the reason why policymakers besides considering the idiosyncrasies of each environment, they need to address the entire entrepreneurial process scope. In addition, policies should be approached as something other than a tool to deal with the underperformance of women entrepreneurs, where they are seen as a problem to be resolved (Pettersson et al., 2017). This perspective would still generate gender inequality (Yadav et al., 2022). Thus, specific empowerment programs addressing women entrepreneurs (Ogundana et al., 2021; Barrachina et al., 2021), need to have more information about effective approaches based on previous research.

Meanwhile, **socio-cultural factors** are showed by literature as key elements, where 'fear of failure' and 'perceived capabilities' are presented as essential ones (Noguera et al., 2013). In terms of **culture**, cultural implications affect women entrepreneurs' decision-making (Bastian et al., 2023) and behavior patterns (Deng et al., 2020). Interestingly, the literature on the cultural effect offers contradictory findings. On the one hand, culture can generate gender inequalities in the entrepreneurial process (Santos & Neumeyer, 2022). To deal with such inequality, government support (Bagheri et al., 2022; Nguse et al., 2022) and institutions (Harrison et al., 2020) are essential tools. In this sense, theory shows empowerment governance impact, characterized by motivational connotations and solid cultural implications (Vershina et al., 2020). On the other hand, culture may also act as a positive factor promoting the resilience of women entrepreneurs, especially in minority groups (Shelton & Lugo, 2021). Additionally, culture along with ethnicity (Bonne & Michels, 2019) and education (Murphy et al., 2021) also promotes women entrepreneurs' growth. Culture develops according to the contextual framework (Ouazzani et al., 2021); so, it would be therefore beneficial to reduce the ambiguity of cultural factors inference on women entrepreneurs.

Through the **social** angle, including women entrepreneurs in the business environment fosters positive social long-term growth (Rey-Martí et al., 2016); reducing discrimination (Vasileiou et al., 2023). However, such growth is shaped by social and political conditions of a country (Barrachina et al., 2021). Moreover, targeting actions to break gender roles and stereotypes would encourage the inclusion of women in more innovative entrepreneurial ecosystems (Veckalne & Tambovceva, 2023). To better understand how to develop such actions, it can be helpful to look at the way women feel. Their satisfaction and trust are higher when women entrepreneurs work and build in groups (Kayak and Welsh; 2020). Therefore, social network support and shared financial resources increase the survival of female entrepreneurial projects (Ahl, 2006). From a financial perspective, literature shows new examples of social cooperation as Cooperative Lending Groups (Atarah et al., 2023) or crowdfunding (Wang et al., 2022); which facilitate access to resources for women entrepreneurs and fosters economic growth (Kleinert & Mochkabadi, 2021).

Immersed in the contextual characteristics, diverse **economic aspects** infer female entrepreneurs (Cavada et al., 2017), positively or negatively depending on the scenario. Overall, scholars state that female entrepreneurs make fundamental contributions to economic development (Atarah et al., 2021; Gogoi, 2022). Women entrepreneurs promote such economic growth in a sustained and inclusive environment (Rajvanshi, 2017). Furthermore, Barrachina et al. (2021) emphasised the importance of gender inequalities on the economic impact promoted by women entrepreneurs. Furthermore, economic evolution will increase when governments focus on reducing the gender gap (Rietveld & Patel, 2022). In this vein, the comprehension about financial tools mitigates these gender differences and accelerates economic growth (Asongu & Odhiambo, 2023). Finally, as another lever for economic development fostered by women entrepreneurs, we also highlight international business opportunities (Anggadwita & Indarti, 2023). So, a deeper analysis of the influential keywords in this research field would help to approach policies better. Thus, such an approach may foster economic growth originated by women entrepreneurs.

**Technology** is considered as the optimizer of female entrepreneurial initiatives providing greater visibility of business opportunities (Murphy et al., 2021). Thus, technological conditions affect women entrepreneurs' development (Reyes & Neergaard, 2023). In this sense, women who direct their thinking toward technological growth and continuous improvement are more able to cope with adverse situations. In order to delve into the technological factor, it is convenient to focus on the Information and Communication Technologies (ICT) (Mills & Pawson, 2012); due to the use of ICT positively impacts on the performance of women entrepreneurs (Tanti et al., 2021). For instance, empirically, Rosenbaum's (2017) study states that ICTs foster the growth and internationalisation of women's entrepreneurial projects.

Finally, our study reflects on the connection of **sustainability** and female entrepreneurs. Since there is a link between gender and sustainable impact (Figueroa et al., 2020; Aggarwal & Johal, 2021; Ertac & Tanova, 2020). Therefore, women entrepreneurs help countries to achieve sustainable goals proposed by the United Nations (UN); such as poverty reduction (Salim & Anis, 2021) and gender equality (Veckalne, R., & Tambovceva, 2023). However, female entrepreneurial contributions to the development of sustainable economies are still undervalued (Kaciak & Welsh, 2020) and very newly developed.

While prior research has increased on female entrepreneurship, to continue providing value to the existing gaps is essential. The overall literature offers an excellent opportunity to analyze which trends may follow policies addressed to women entrepreneurs (Erogul & Quagraine, 2017; Ogundana et al., 2021). In summary, our study aims to identify new insights around female entrepreneurship, shedding light on those gaps and outlining avenues for oncoming studies. Beyond scholars, our findings can help decision-makers to determine how to implement results in real-life situations.

### **2.3. Method**

As suggested before, capturing new insights to the existing literature around female entrepreneurship systematization is crucial. Our study conducts a literature review according to PRISMA guidelines (see fig. 3). The purpose of this chapter is to enrich the highly fragmented previous scholarly work. The results obtained can be useful for

oncoming researchers and decision-makers. To conduct a more precise analysis, we present the following research question:

**RQ:** *How do different literature streams discuss the influence of personal and contextual factors affecting women's entrepreneurship?*

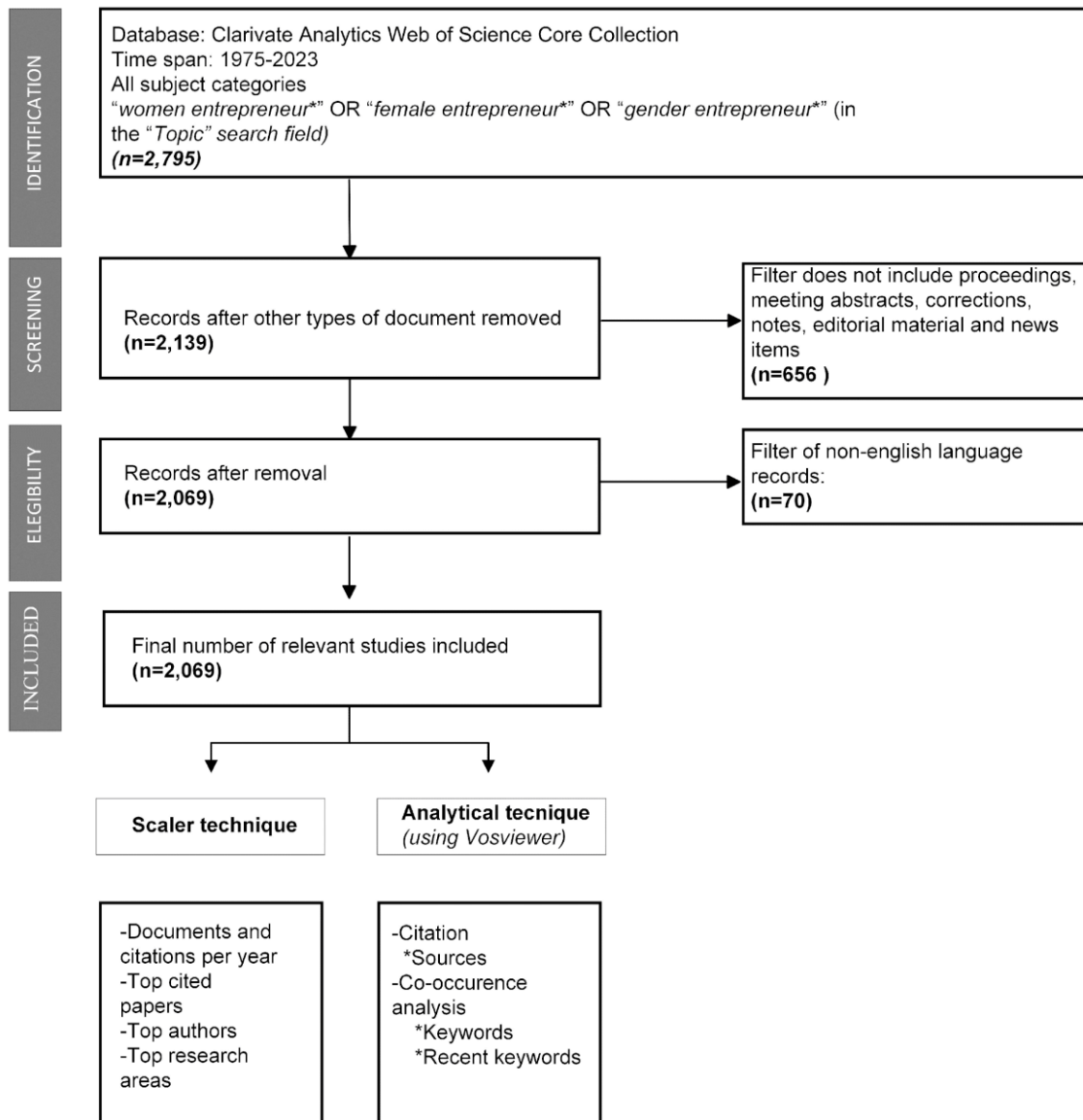
Based on our theoretical background, we started identifying the most suitable keywords for the document search. This process ensured accuracy and helped eliminate author bias. The document search used the following keywords: "women entrepreneur\*" OR "female entrepreneur\*" OR "gender entrepreneur\*" in the "Topic" search field. The selection of the search keywords was particularly used in the studies of Santos et al. (2018), Moreira et al. (2019), Deng et al. (2020), and Aggarwal and Johal (2021). These studies lend validity and objectivity to the search procedure. The initial search retrieved 2,795 documents. To achieve a finer database, we excluded proceedings, meeting abstracts, corrections, notes, editorial material, and news items (Kumar & Agrawal, 2023). Thus, the search resulted in 2,139 studies published from 1975 to 2023. Moreover, we refined by the English language, obtaining 2,069 papers. Instead of considering the use of exclusively English work as a limitation, it may enrich the study (Cardella et al., 2020) preserving the quality of the cooccurrence analysis. Since the nodes and links of information through the VOSviewer software are more clearly established.

We analyze these papers through bibliometric analysis. The Web of Science (WoS) is our primary database. Bibliometrics is based on library and information science. It focuses on studying bibliographic content through quantitative methods (Broadus, 1987; Pritchard, 1969). This procedure shows the gaps in different research areas and new tendencies. It also enables the identification of contributions in a given field of study (Hood & Wilson, 2001; Pangol-Coronel et al., 2022). Therefore, the bibliometric analysis leads us to build a robust response to the proposed research question. We aim to better comprehend current personal and contextual factors affecting female entrepreneurs. To that purpose our study combines the following approaches: scalar and analytical technique (see Fig. 3).

First, the scaler technique allows us to update the state of women's entrepreneurship field. Likewise, it provides a descriptive and solid contextualization to our study. As indicated by Merigó et al. (2015), it is important to define the items examined. The indicators used in this research are as follows: evolution of the number of publications and citations, documents with the highest number of citations, central areas of research, and most prolific authors.

Second, we performed an analysis of citation and cooccurrence. The primary goal is to conduct an in-deep exploration of the available content addressed to our research question. We use VOSviewer software version 1.6.14 (Van Eck & Waltman, 2010). VOSviewer software makes it easy to track prior research. Moreover, VOSviewer is believed as the most effective software for bibliometrics (Kumar & Agrawal, 2023) above the existing tools. The citation analysis is considered a fundamental indicator in bibliometrics (Dabić et al., 2021). Our study focuses on the most relevant sources based on the number of publications. We set a minimum of 5 documents per source, and of 757 journals, 70 meet the filters. Such papers provide visibility of the focus of this research field while outlining new growing topics.

In the cooccurrence analysis, keywords were taken as the reference unit. From the 2,069 documents we analyze 312 keywords. Our contributions reveal six clusters, mapping the information on female entrepreneurship between 1975 and 2023. The cooccurrence analysis allows us to visualize the linkages between key terms and their relevance. Thus, the clustered information provides perspective for prospective researchers and relevels current gaps in the research gateway. Furthermore, we observe the recent keywords according to the average publication year, outlining existing trends and their possible implications in female entrepreneurship.



**Figure 3. PRISMA flow diagram.** Source: Own elaboration

The figure shows the literature selection process, including the filter criteria. The figure outlines the following phases: Identification, Screening, Eligibility, and Included. Although both contain the same number of documents, we point out the eligibility and included phases to make the filters established during the process visible in detail.



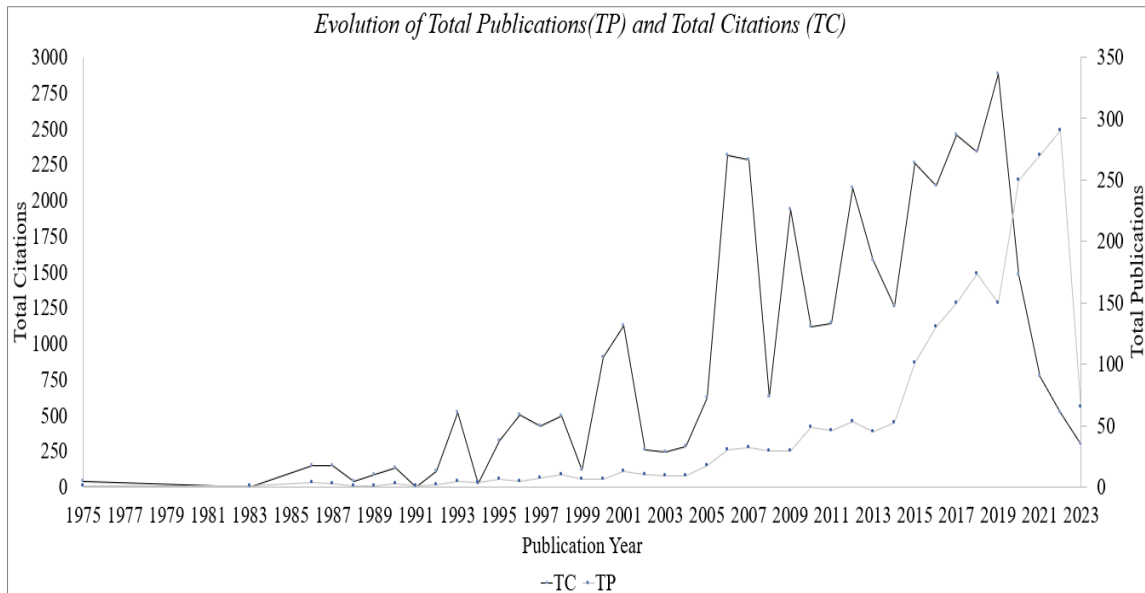
## **2.4. Major gaps detected within female entrepreneurship literature: descriptive and analytical overview**

### 2.4.1. Descriptive overview of the factors affecting female entrepreneurship

#### *2.4.1.1. Evolution of the number of documents and citations per year*

As Figure 4 shows, the origin of research on women entrepreneurship dates back to 1975. The first article, published in the *Canadian Journal of African Studies*, aimed at understanding women entrepreneurs and their performance in Nairobi. Therefore, the beginning of the study in this area comes from a context-specific perspective. Another seminal article relevant to the 1970s, was authored by Eleanor Brantley Schwartz in 1976 and published in the *Journal of Contemporary Business*. The article discusses the challenge that business creation entails for women. Such challenge depends on intrinsic and external elements affecting women entrepreneurs (Shane, 2003).

Figure 4 also shows the total publications and total citations per year in women entrepreneurship, illustrating the evolution of the number of publications. More than 50% of the articles (1375) have been published since 2018. Moreover, the high number of recent studies shows the growing trend in this field (Aggarwal & Johal, 2021). Nevertheless, further research is needed to enrich the literature gaps and highlight implications to encourage female entrepreneurial growth (Meyer, 2018). The peak in total citations was in 2019 with 2879. The most cited article from this year was authored by Urbano et al. (2019) and analyzes institutions, entrepreneurship, and economic growth, exploring why they develop. It has 153 citations and 295 references and was published in the *Journal of Small Business Economics*. The year with the most publications was 2021, with 365 and 770 associated citations. The most cited article in 2021 was also published in the *Small Business Economics*. This article (Cumming et al., 2021) analyzes crowdfunding as a driver of business financing.



**Figure 4. Evolution of all papers in a respective year and cumulative citations around female entrepreneurship.** Source: Own elaboration from Web of Science (WoS)

*This figure reports the evolution pattern of publications around female entrepreneurship. Here the TC = total cites per year and TP = total publications per year.*

#### 2.4.1.2. Articles according to the highest number of citations

This section aims to inspect the most important publications according to the number of citations using WoS. Table 3 shows the most cited articles, authors, keywords, journals, impact factor, quartile, year of publication and number of citations in the Web of Science (WoS). Three of the most cited publications are by Cliff (1998), Verheul and Thurik (2001), and Marlow and Patton (2005). These three studies have a common focus on the gender perspective of entrepreneurship, indicating the relevance of motivation and personal factors. By highlighting the most frequently cited articles, a more detailed understanding of the thematic research lines in this sector can be developed.

**Table 3. Articles according to the highest number of citations.** Source: Own elaboration through Web of Science (WoS)

Title	Authors	Keywords	Journal	Journal Impact Factor	Quartile	YoP	TC	TR
<i>Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education</i>	Wilson, F; Kickul, J; Marlino, D	expectations, attitudes	Entrepreneurship Theory and Practice	9.99	Q1	2007	884	48
<i>Why research on women entrepreneurs needs new directions</i>	Ahl, H	female business owners, gender, attitudes, decision, field, men performance, survival, credit terms	Entrepreneurship Theory and Practice	9.99	Q1	2006	842	144
<i>Research on Women Entrepreneurs: Challenges to (and from) the Broader Entrepreneurship Literature?</i>	Jennings, JE; Brush, CG	work-family conflict, bank loan officers, gender-differences, self-employment, business owners, institutional perspectives, female entrepreneurship, performance, growth, men	Academy of Management Annals	19.24	Q1	2013	487	263
<i>A theoretical overview and extension of research on sex, gender, and entrepreneurship</i>	Fischer, EM; Reuber, AR; Dyke, LS	n/d	Journal of Business Venturing	13.14	Q1	1993	419	26
<i>Work and family variables, entrepreneurial career success, and psychological well-being</i>	Parasuraman, S; Purohit, YS; Godshalk, VM; Beutell, NJ	social support, path-analysis, interrole conflict, job-satisfaction, 2-career couples, employed mothers, outcomes, gender, model, roles	Journal of Vocational Behavior	12.08	Q1	1996	418	77
<i>Does one size fit all? Exploring the relationship between attitudes towards growth, gender, and business size</i>	Cliff, JE	venture performance, entrepreneurship determinants, motivation, model, sex	Journal of Business venturing	13.14	Q1	1998	406	42
<i>All credit to men? Entrepreneurship, finance, and gender</i>	Marlow, S; Patton, D	n/d	Entrepreneurship Theory and Practice	9.99	Q1	2005	392	72
<i>Extending the boundaries: reframing entrepreneurship as social change through feminist perspectives</i>	Calas, MB; Smircich, L ; Bourne, KA	organizational theory, women entrepreneurs, gender, management, education, field	Academy of Management Review	13.87	Q1	2009	341	103
<i>Start-up capital: "does gender matter?"</i>	Verheul, I; Thurik, R	business, growth, entrepreneurship, markets, success	Small Business Economics	7.1	Q2	2001	295	60
<i>Exploring the dynamics of gender, feminism and entrepreneurship: advancing debate to escape a dead end?</i>	Ahl, H; Marlow, S	women entrepreneurs, business, sex, identity, discourses, men	Journal of Organization	3.3	Q3	2012	293	94

*This table reports the most relevant articles according to the number of respective citations. Here, YoP = year of publication, TC = total citations and TR = total references.*

#### *2.4.1.3. Most prolific authors according to the number of publications*

Regarding the most relevant authors, Appendix B lists the authors with more than 11 articles. It shows the total number of publications and citations for each author. The h-index was created by Hirsch in 2005. It combines productivity and impact using qualitative and quantitative variables (Dorta-Gonzalez & Dorta-Gonzalez, 2010).

In Appendix B, the authors are ordered according to total publications on women entrepreneurship. The most prolific author is Kaciak, who has an h-index of 11. This h-index means that Kaciak has published 11 articles with at least 11 citations. This index tends to increase over a researcher's lifetime (Cronin & Meho, 2006; Hirsch, 2005). The highest h-index is that of Marlow, who has 18 publications. The oldest publication by this author was co-authored with Patton in November 2005. The article is entitled "All credit to men? Entrepreneurship, finance, and gender". It reflects on the importance of providing easier access to sources of finance for women entrepreneurs. Coronel-Pangol et al. (2022) confirmed the relevance of funding sources for entrepreneurship in their article, "Bibliometric analysis of alternative financing for entrepreneurship", published in *Management Letters*. Kaciak and the author with the second most publications, Welsh, are cited in the study by Cardella et al. (2020) as key authors. Both consider family support a key mechanism in the growth and success of women-led entrepreneurship.

#### *2.4.1.4. Main research areas*

The objective of the next phase of analysis was to give visibility to the principal research areas. This analysis is supported by Appendix C, which shows the areas with more than 100 publications. In addition to total publications and citations, the annual average h-index is provided. In numerous studies, the main research area is still Business Economics. Notably, research in the field of female entrepreneurship is linked to the topic of business (Moreira et al., 2019). This area has four times the number of publications than the next most popular research area, Social Issues. Results suggest that other fields should be addressed by female entrepreneurship researchers. Moreover, it is underlined the need for new, more practical, and comparative approaches (Santos et al., 2018; Aggarwal & Johal, 2021). The second most commonly researched area is Social Issues. The interest in

this area highlights the link between the study of female entrepreneurship and societies development (Bansal et al., 2019).

#### 2.4.2. Analytical overview of the factors affecting women entrepreneurship using VOSviewer

##### *2.4.2.1. Citation analysis: most prolific sources*

To outline the most prolific journals, we use VOSviewer citation analysis based on sources. We set a minimum of 5 documents per source, and of 757 journals, 70 meet the filter. Thus, Appendix D shows the list of the top sources with more than five publications in the women's entrepreneurship field. Moreover, Appendix D includes other relevant indicators, such as the cumulative number of citations and the average year of publication. The journal with the most interest in the topic is the Journal of Small Business Economics, which has 81 documents and 3678 citations. These citations are twice the rate of the second-ranked information source. About the new trends in this field, our study points to the most recent journals according to the average year of publication. We highlight in grey the journals whose average year of publication is 2021 and onwards. These journals gather useful information concerning the new issues lines addressed to female entrepreneurs. Although the direction of the study to the business area continues to be strengthened, new topics such as community, sustainability, culture, and social aspects are emerging. In this vein, the most productive journals developing such issues are the Journal of Enterprising Communities-people and Places in the Global Economy (34 documents), the Journal of Business Ethics (20 documents), World Development (13 documents), and the Journal of Sustainability Issues (8 documents). This list may be helpful for future researchers to conduct their work toward emerging thematic paths with a low ratio of publications.

##### *2.4.2.2. Factors affecting female entrepreneurs through cooccurrence analysis*

In this phase of the study, we conduct a co-occurrence analysis using VOSviewer software (version 1.6.14) to set the main research streams and linkages (Donthu et al., 2020; Mas-Verdu et al., 2021) within the female entrepreneurship field. For this purpose, mapping was performed based on text data from a bibliographic database file. The file was extracted from the Web of Science (Core Collection), with 2,069 documents. The fields

considered in these documents were full record. Full count mode reflects the total number of occurrences of a term in the full set of selected documents (Van Eck & Waltman, 2020). Table 4 summarizes the characteristics of the analysis. Of the 5,662 terms included in the analysis, 312 items met the threshold of ten occurrences. Six clusters were generated.

**Table 4. Characteristics of the co-occurrence analysis.** Source: Own elaboration through Web of Science (WoS) and VOSviewer

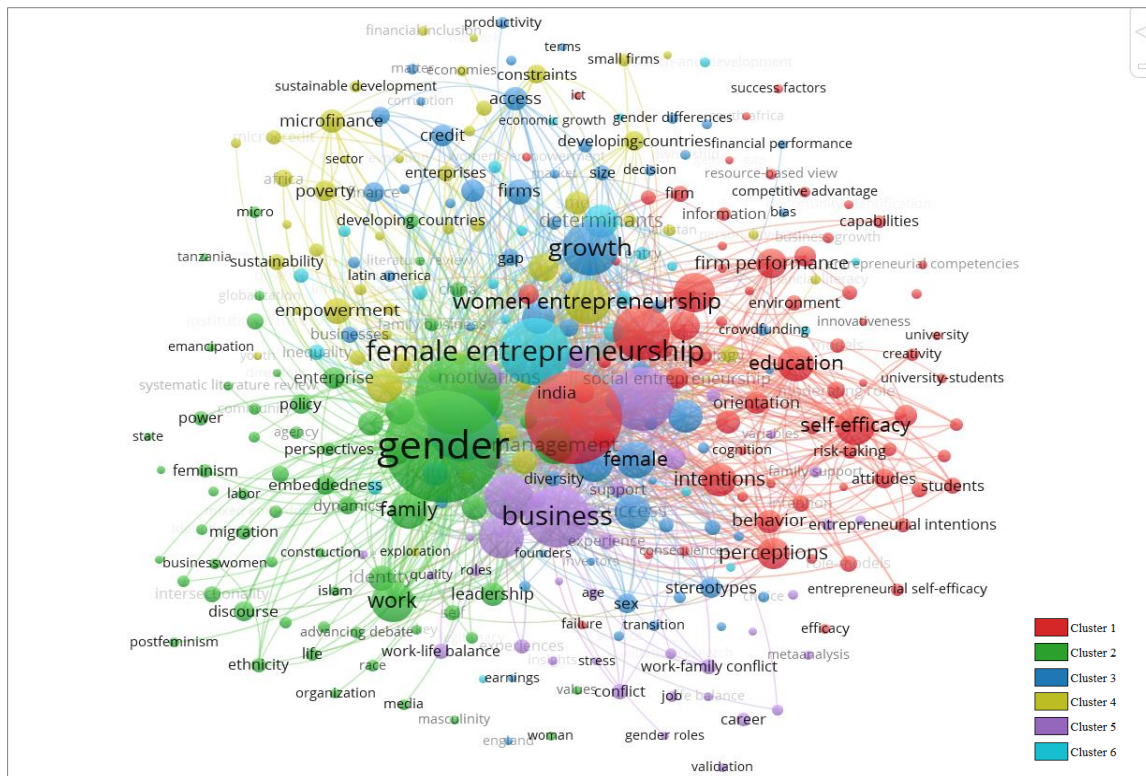
<b>Type of analysis</b>	<b>Cooccurrence</b>
Counting method	Full count
Unit of analysis	All keywords
Minimum threshold for occurrences of keywords	10
Items meeting threshold	312
Number of clusters	6
Total number of links	15,372
Total link strength	46,234

As a result, Table 4 reveals the keywords with the highest aggregated occurrences and their associated cluster, links, Total Link Strength (TLS), occurrences, average publication year, and average citations. Subsequently, in the following subsections, we develop an in deep content analysis of the six clusters obtained (see fig. 5). The purpose is to shed light on our research question providing new insights into current literature streams while highlighting the most recent terms in this research field. Here, it is noted that in the following cluster analysis, the keywords can also be named as terms.

**Table 5. Keywords with the highest number of occurrences per cluster.** Source: Own elaboration through Web of Science (WoS) and VOSviewer

Keyword	Cluster	Links	Total Link Strength	Occurrences	Average publication year	Average citations
women entrepreneurs	1	309	4029	602	2019,52	17,46
impact	1	274	1765	239	2020,36	11,82
innovation	1	239	990	136	2020,35	12,51
self-efficacy	1	211	1027	125	2020,88	12,04
education	1	203	910	111	2020,3	12,56
gender	2	311	5643	829	2018,86	22,22
entrepreneurship	2	305	3007	481	2018,91	21,21
work	2	232	1119	149	2019,87	19,37
management	2	232	955	118	2020,14	16,58
family	2	219	932	115	2019,19	18,17
women	3	291	2174	342	2018,42	22,18
growth	3	271	1826	233	2019,14	2,13
female	3	234	953	124	2017,75	31,72
men	3	212	935	117	2017,53	43,07
success	3	208	810	106	2018,6	24,17
women entrepreneurship	4	233	1017	163	2020,49	0,82
challenges	4	209	849	109	2020,79	9,8
barriers	4	188	628	79	2020,65	9,42
empowerment	4	169	475	67	2020,25	1,22
strategies	4	175	474	61	2019,77	13,56
performance	5	293	2372	312	2018,59	28,74
business	5	298	2241	297	2019,67	19,58
female entrepreneurs	5	271	1266	186	2019,42	15,47
self-employment	5	244	1132	161	2018,62	32,94
motivations	5	178	607	76	2018,99	17,17
female entrepreneurship	6	295	2360	345	2019,99	17,19
determinants	6	218	804	105	2018,86	22,46
culture	6	163	508	62	2019,53	14,16
institutions	6	139	339	42	2020,26	13,55
inequality	6	106	221	27	2020,81	10,59

*This table reports Keywords ordered by the highest number of occurrences and segmented per cluster. Here Links and Total Link Strength = indicate respectively, the number of links of an item with other items and the total strength of the links of an item with other items; Average publication year = the average publication year of the documents in which a keyword occurs; Average citation = the average number of citations received by the documents in which a keyword occur.*



**Figure 5. Research topics on female entrepreneurship.** Source: Own elaboration through Web of Science (WoS) and VOSviewer

*Result of cooccurrence analysis. Fig. 5, reveals the cluster's structure, comprising 312 keywords.*

Although the order of the clusters has been established numerically, we note that clusters 2 and 5 relate to the broad concept of family from different perspectives.

**Cluster 1: The role of education and self-efficacy affecting women entrepreneurs: increasing impact of innovation and the complexity on opportunities perception.**

The existing research in cluster 1 discussed on whether self-efficacy and education affect women entrepreneurs, underlining the role of innovation. Self-efficacy leads women entrepreneurs to believe in their own abilities. Several papers point to creativity (Wilson et al., 2007), attitude (Ahl, 2006; Gódány & Mura, 2021) and proactive personality (Hussain & Imran-Malik, 2018) influencing female entrepreneurial intentions and self-efficacy. Conversely, from the contextual side, settled gender differences (Xie & Gu, 2021) are considered a barrier to the development of female entrepreneurial self-efficacy, causing discrimination (Vasileiou et al., 2023). Additionally, there are factors than can



infer differently depending on the context, such as business characteristics (Moreira et al., 2019) and role-models (Austin & Nauta, 2016; Veckalne & Tambovceva, 2023). So, better understanding about them may reduce ambiguity in how self-efficacy affects women entrepreneurs.

Meanwhile, educational programs directly aimed at women entrepreneur's self-efficacy (Wilson et al., 2007), attitude (Alreshoodi et al., 2022), and competences (Saiz-Santos et al., 2017), improve their knowledge and critical thinking (Murphy et al., 2021; Pimpa, 2021; Feng & Sumettikoon, 2022). However, this improvement can vary according to the level of education in the family environment. Thus, educational initiatives address to families could be especially beneficial for women entrepreneurs (Al-Qahtani et al., 2022). From a contextual perspective, socio-cultural barriers, and lack of institutional support may hinder women entrepreneurs' education (Mehtap et al., 2017). On the basis of average citations, scholars uncover digital technology as a factor that can help to lower such barrier (Murphy et al., 2021; Reyes & Neergaard, 2023), enabling women entrepreneurs to better perceive market opportunities.

The analysis conducted by previous research about opportunities perception is evidenced in this cluster through the presence of opportunity, *opportunity identification* and *opportunity recognition keywords*. Unfortunately, there are no linkages between these keywords and self-efficacy or education. Consequently, this fact suggests there is a lack of empirical research on how self-efficacy and education improve or impede the women entrepreneur's perception of opportunities; considering the impact of gender differences (Kusa et al., 2021).

Besides the detection of opportunities, the long-term maintenance of female entrepreneurial projects is crucial. Thus, innovation was introduced by Thébaud (2015) and nowadays it is considered a fundamental piece for businesses to survive and succeed (Nair, 2020; Ratten, 2022). Noteworthy, innovation links with the terms *network* and *growth*. Thus, social networks (Bastian et al., 2023) and innovation ecosystems (Jiménez, 2019) may act as essential levers in the performance of women entrepreneurs. Likewise, future research should consider how context and culture affect these ecosystems (Freund et al., 2023).

Given the above discussion, our study points of whether elements influence education and self-efficacy in women's entrepreneurship. Although cluster 1 shows a linkage between self-efficacy and education with growth, this does not enable us to justify that self-efficacy and education lead to women entrepreneurs' growth in all cases. While there is an evident heterogeneity of actors, the overall results suggest that positive attitude, creativity, and competencies may act as a promoter of self-efficacy and education (Saiz-Santos et al., 2017; Góday & Mura, 2021). At the same time, gender differences and established societal gender roles can have an adverse inference (Kusa et al., 2021). Moreover, the literature sets two sets of more ambiguous elements affecting self-efficacy and education. On the one hand, the type of businesses and sectors of activity; since many women work in informal and undefined sectors (Franzke et al., 2022). For instance, data shows a specific case study on how self-efficacy develops in the tourism sector (Hallak et al., 2015); however, it needs to spread to other sectors to provide practitioners a more holistic framework. And on the other hand, the level of innovation and technological development. Especially in education, it is crucial to analyze technological skills and technological context development (Feng & Sumettikoon, 2022; Reyes & Neergaard, 2023), reducing uncertainty on its impact on women entrepreneurs' literacy.

**Cluster 2: Family, work and their respective ties analyzed by scholars to further understand female entrepreneurs' performance.**

Family is a relevant concept in women entrepreneurship field exposed by the number of occurrences. One of the first studies exploring family was that of Parasuraman et al. (1996) in which the concepts of work, family, success, and the psychological well-being of women entrepreneurs were reviewed. The data of this second cluster highlights the link between family with motivations, work, empowerment, and education between other terms. Subsequently, the following in deep analysis of such linkage sheds light to our research question.

Recent fundings show ethnicity (Bonne & Michels, 2019; Shelton & Lugo, 2021) and gender identity (Cardella et al., 2020) as potential insights on women entrepreneurs' motivations. However, pointing to the family role, gender identity is shaped by an

ongoing family and socio-cognitive context (Radu-Lefebvre et al., 2021). Likewise, the research aimed at family environment needs to be constantly evolving.

Scholars create awareness about how work-life balance may act as a structural barrier for women entrepreneurs. In this vein, the concepts of mumpreneur (Deng et al., 2020) and motherhood (Hatoum et al., 2023), are used by researchers to further comprehend family inference on women's work. Furthermore, literature points the connection of gender differences within family as another possible obstacle (Xie & Gu, 2021; Vasileiou et al., 2023).

Some of the most remarkable studies consistently state that family environment affects the empowerment of women entrepreneurs (Santos et al., 2018; De Clercq et al., 2022; Al-Qahtani et al., 2022); being policies the tool to mitigate obstacles and incentivize such empowerment from a regulatory angle (Yadav et al., 2022). It is therefore desirable to conduct policies considering a broader framework (Brush et al., 2009), including the analysis of the family inference. Certainly, institutions and governments influencing women entrepreneurs play a crucial role (Bansal et al., 2019; Cardella et al., 2020; Deng et al., 2020; Kaciak & Welsh, 2020).

As suggested in cluster 1, a higher level of education in families can be a facilitator of family support. Additionally, from a digital perspective, the keyword of social media appears with only 20 occurrences. Although it does not have a link with family, the literature shows that social media infers on the growth of women entrepreneurs (Chakraborty & Biswal, 2023); where Facebook is presented as a social media platform that can foster the psychological empowerment (Ditta-Apichai et al., 2023). Thus, it would be interesting to include such digital approach related to family keywords for future research.

### **Cluster 3: Prior literature insights toward women entrepreneurs' growth and success.**

Cluster 3 remains underling the significance of taking a gender perspective on female entrepreneurship studies (Deng et al., 2020); while pointing to a holistic group of financial terms listed below: access, credit, finance, crowdfunding, investment, bank loan officer,

credit evidence and financial performance; ordered by the number of occurrences. This set of keywords evidence that prior studies have explored financial credit and its inference on women entrepreneurs (Marlow & Patton, 2005; Orser et al., 2006). Some of the issues discussed by scholars are the gender effect on bank-firm relationships (Belluci et al., 2010), the gender discrimination (Wellalage & Locke, 2017) and the bias on credit access (Ongena & Popov, 2016), especially in early-stage investors (Ewens & Townsend, 2020). Subsequently, the trust-transparency variable is believed as a key to promote competitive advantages for women entrepreneurs' investments while improving their relationship with stakeholders (Nair, 2020). Here, the results highlight the relevant role of banks, being bank loan officer the keyword with the highest number of citations in this cluster, scoring 67,28. Thus, past research is pointing to the inference of banks as an element which may impact women entrepreneurs' financial performance.

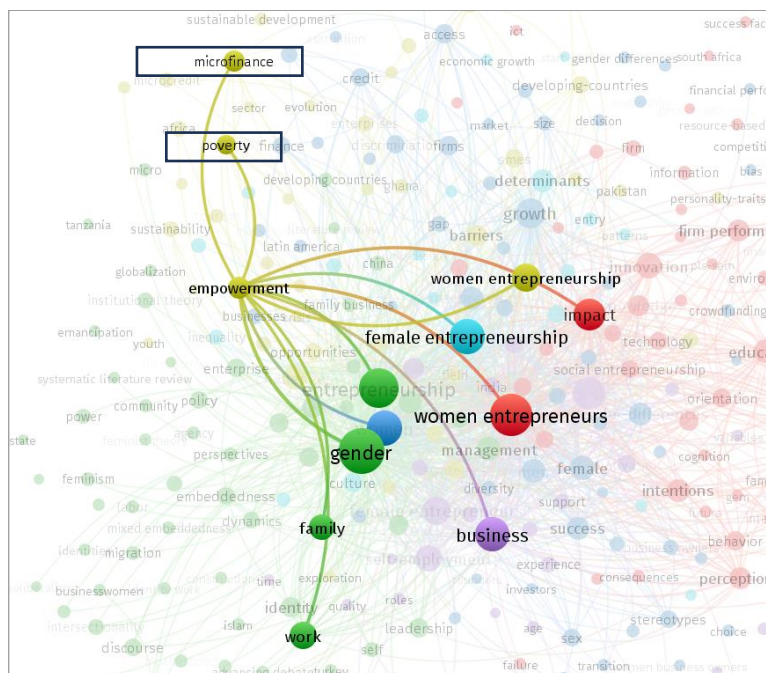
Moreover, scholars reflect on the one hand, about differences between countries with a stable economic and social structure and developing countries (Deng et al., 2020). And, on the other hand, about the importance of women's support in more unfavorable environments (Zhao et al., 2021). This shift of focus toward support introduces crowdfunding, presented by researchers as a tool to foster access to financial resources for women entrepreneurs (Cumming et al., 2021; Wang et al., 2022). Social networks can promote crowdfunding, while the literature review shows that women entrepreneurs feel more confident when they are part of a group. Conversely, the generation of exclusively female networks would not help to empower women (Harrison et al., 2020). In summary, scholars consider desirable for policies to focus on banks' inference and the awareness generation about financial tools, especially crowdfunding.

#### **Cluster 4: Theoretical background addressing empowerment policies, strategies, and challenges toward women entrepreneurs.**

Cluster 4 uncovers empowerment relevance and its following linkages ordered by the number of occurrences: microfinance and poverty (see Figure 6). The prior academic debate discussed the impact on the economic growth of fostering microenterprise loans for women entrepreneurs (Kevane & Wydick, 2001), leading to the consideration of

gender inference on empowerment policies (De Groot et al., 2017). Additionally, scholars analyze how policies facilitate women entrepreneurs' access to financial resources (Coleman et al., 2019). Based on such analysis, microcredit is introduced as a possible beneficial tool for empowerment initiatives (Karlan & Zinman, 2011); Thus, it would be helpful for empowerment policies to consider microfinance (Belwal et al., 2012; Attanasio et al., 2015) and financial inclusion (Aggarwal & Johal, 2021; Babajide et al., 2022; Asongu & Odhiambo, 2023) to foster sustained growth and in turn, reducing poverty. In addition, business environments (Kozubikova et al., 2017) and gender differences in financial inclusion (Kairiza et al., 2017) infer women entrepreneurs' perception of financial risk. Here, it is worth noting that empowerment policies may also mitigate such risk perceived by women entrepreneurs (Marlow & Swail, 2014) to lead better with new business projects.

Likewise, besides financial inclusion, cluster 4 comprises covid-19, financial literacy, and resilience terms, with the most recent average publication year. Such terms set interesting insights to desirable policies toward women entrepreneurs. Firstly, focusing on Covid-19, many studies have been addressed to understand the new paradigm created by Covid-19 (Manolova et al., 2020); During Covid-19-time, technology has been approached as a possible lever for females' entrepreneurs' contribution to family income (Ge et al., 2022). Secondly, the financial literacy is believed as an essential tool (Yoopetch 2020; Khan et al., 2022) leading to financial inclusion (Goel & Madan, 2019) considered a primary principle to encourage women entrepreneurs' financial performance. In third place, resilience was introduced as company characteristic in developing countries (Branzei & Abdelnour, 2010). However, as suggested by literature review, recent studies have changed the shift of the focus toward resilience; approaching resilience as an essential insight to comprehend women entrepreneurs. In addition, taking into consideration skills analysis may offer a greater scope for how women entrepreneurs deal with financial challenges. For instance, Digan et al. (2019) contributed that self-determination and management abilities should be also considered in empowerment policies.



**Figure 6. Empowerment keyword in cluster 4.** Source: Own elaboration through Web of Science (WoS) and VOSviewer

*Result of cooccurrence analysis. Fig. 6 shows empowerment keyword ties. Moreover, the figure demonstrates some of the linkages of empowerment keyword studied by scholars included in cluster 4: poverty and microfinance. Additionally, we note the link of empowerment with the keyword women entrepreneurship, also included in this cluster.*

**Cluster 5: Family and its respective ties analyzed by scholars to further understand female entrepreneurs’ motivations and performance.**

As suggested in our theoretical background, reducing ambiguity towards motivation leads to comprehend how arises women's entrepreneurial process (Jafari-Sadeghi, 2020; Shivam & Mohanty, 2020). In this sense, cluster 5 comprises women's motivations and performance terms, outlining several ties with family-related keywords. Such a set of family terms provide value to the proposed research question. Settled family linkages are noted as follows: work-life balance, work-family conflict, family support, roles, life balance, and family embeddedness (ordered from the top-down by the number of occurrences). Noteworthy work-family conflict has the highest citations average, scoring 44,29. This data evidence the increasing concern of researchers on possible family conflicts faced by women entrepreneurs. Therefore, to better understand such family

issues, scholars used the research on family embeddedness (Mari et al., 2016; Azmat & Fujimoto, 2016), work-family balance (Kirkwood & Tootell, 2008; Eddleston & Powell, 2012; Gherardi, 2015) and family ties (Essers et al., 2013).

Furthermore, family support can vary depending on settled domestic roles (McGowan, et al., 2012). Sometimes undertaking a venture can be complex due to work-family conflict (Poggesi et al., 2019) or lack of governmental support. Such barriers increase when not finding a family balance. As possible consequence of this unbalance along with personal background conduct women entrepreneurs to seek self-employment (Burke et al., 2002). Self-employment is the fourth term with the highest number of occurrences in this cluster, which reflects the importance given to it by researchers.

In terms of most recent average of publication year, cluster 5 shows family support, validation, and experience. Focus on the first two terms, scholars analyze on whether women seek validation from family support to increase their level of satisfaction (Bozoğlu & Armutlulu, 2020). Consequently, it would be favorable for women entrepreneurs to continue enriching this recent path of study. Furthermore, regarding the third term, past family situations and experiences are considered key insights affecting the access to entrepreneurial resources (Ogundana et al., 2021).

**Cluster 6: The determinants of cultural factors influencing women entrepreneurs, while the settled role of inequalities and institutions.**

Lastly, based on the number of occurrences, cluster 6 comprises determinants, culture, institutions, and inequality. Despite results outlined culture as a concept increasingly studied by prior studies, researchers could provide more value on the country characteristics (Pathak et al., 2013) differencing between developing countries (Bansal et al., 2019), and in the end, having a broader contextual scope (Kacar, 2023) to further understand how culture works. The study of Hechavarria et al. (2017) focused on the impact of culture and gender, analyzing how the perception of opportunities can vary depending on the context and culture.

Besides the context, cluster 4 shows barriers. Some of the obstacles detected by scholars are, first, hierarchical cultures affecting women's decision-making in becoming

entrepreneurs (Vasileiou et al., 2023). Secondly, unequal resource access in corporate teams due to cultural perceptions' role (Santos & Neumeyer, 2022). Thus, social support through collectivist empowerment policies is introduced as a promoter of the autonomy of women entrepreneurs (Bastian et al., 2023) while fostering social and cultural ties. According to the relevance of empowerment policies, results show the term institutions. The culture of institutions shapes norms and practices, affecting, in turn, the female entrepreneurial spirit (Elam & Terjesen, 2010). Institutions may play a discriminatory role in some countries where the regulatory framework does not favor women's venture creation (Estrin et al., 2011). This is why it would be advisable to continue delving into the inference of institutions and culture since they are fundamental tools for promoting entrepreneurship and economic growth (Urbano et al., 2019).

Here, the data point to economic growth and economic development keywords, being economic development the term with the highest citations average in cluster 6, scoring 38,5. Many papers highlight the women's entrepreneur's contribution to economic growth (Lock & Lawton Smith, 2016; Meyer, 2018) specifically in developing countries (Atarah et al., 2021). However, future studies should go beyond economic growth generalization and be more specific about women entrepreneurs' performance levels (Dean et al., 2019).

Finally, as suggested in our literature review, beyond the entrepreneurial context, culture is also affecting female leadership competencies (Freund et al., 2023). Therefore, pointing to our research question, to further explore linkages around the multidisciplinary cultural impact could enrich this research field.

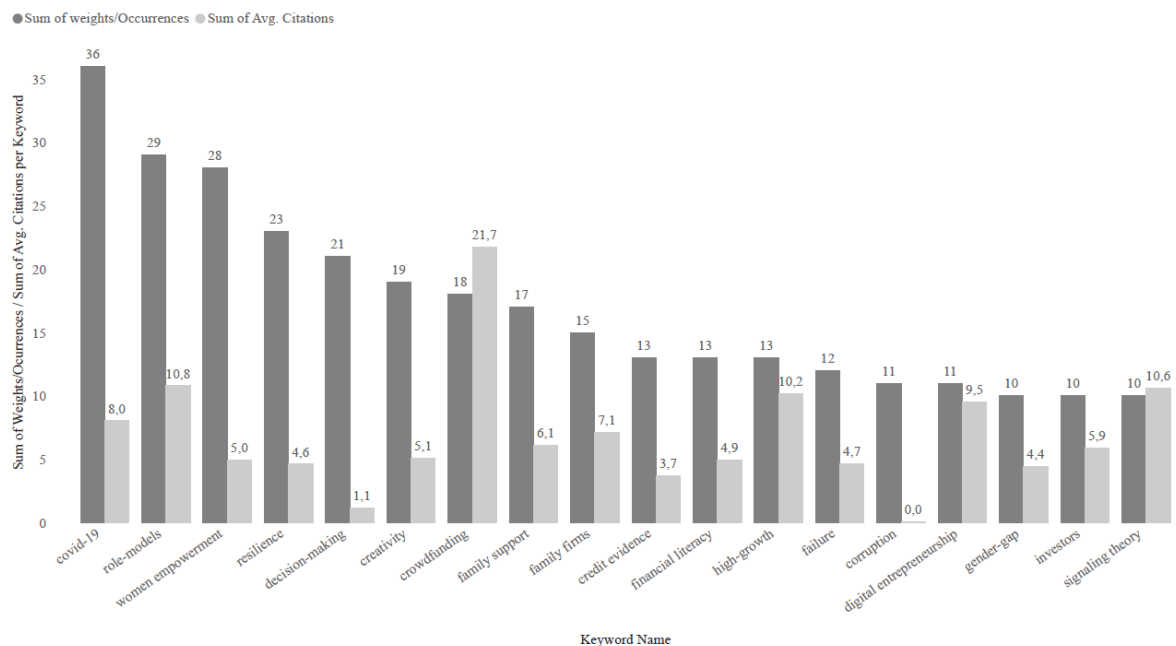
#### 2.4.3. Emerging keywords on female entrepreneurship

The results obtained in the cooccurrence analysis include the average year of publication associated with each Keyword. In turn, this information gives visibility of the most recent Keywords the field of women entrepreneurship, whose average year of publication is greater than 2021. Of the 312 keywords in our study, as underlined before, we excluded the ones with an average year of publication lower than 2021. Once applied, we obtained 18 terms shown in Figure 7. Subsequently, we performed an aggregate analysis through



Power BI, combining the number of occurrences and the total number of citations associated with each Keyword. To ameliorate our cluster analysis, on the one hand, we highlight the five Keywords with the highest number of occurrences: Covid-19, role models, women empowerment, resilience, and decision-making. Such Keywords, reinforce the importance given by researchers and institutions to the pandemic in this field (Ayatakshi-Endow & Steele, 2021; GEM 2022). Furthermore, scholars point to the empowerment and soft-skills relevance. Specially, resilience and decision-making abilities. Both may act as a facilitators of business opportunities detection and projects subsistence. On the other hand, concerning the number of citations, the importance given by the researchers to the crowdfunding tool mentioned above stands out. In this sense, although with fewer citations, results point out financial literacy and investors as growing themes that can enrich women entrepreneurs' field from a financial approach.

Sum of weights/Occurrences and Sum of Avg. Citations per Keyword



**Figure 7. Keywords according to the recent average publication year.** Source: Own elaboration using Web of Science (WoS), VOSviewer, and Power BI

*This figure reports the 18 most recent keywords on the basis on the average year of publications. The Keywords are ordered by number of occurrences. Moreover, the total number of citations associated to each term is included. On one hand, the keyword with the highest number of co-occurrences is covid-19. On the other hand, the keyword with the highest average number of citations is crowdfunding. The data of figure 7 has been extracted from the Web of Science (WoS), then a co-occurrence analysis was performed through VOSviewer and finally the most recent keywords were given visibility through power BI.*

## 2.5. Discussion and conclusion

This chapter provides a bibliometric analysis of 2,069 articles on female entrepreneurship since 1975. Building upon previous scholars' work, we derive several implications. On the one hand, nuancing the contributions on descriptive highlights of this field of study. On the other hand, our cooccurrence analysis uncovers new insights into the fragmented literature about personal and contextual factors affecting women's entrepreneurship.

Our findings reveal the recentness of the field of study due to more than 50% of the articles on women entrepreneurship indexed in the Web of Science (WoS) have been published since 2018; while outlining the need for progress of research in this field, providing new perspectives given the large gap between Economics/Business and other areas. This argument could also explain why, most of the journals with the highest number of publications are around business. However, the trend detected through the citation analysis is the gradual growth of other topics such as: sustainability, business ethics, culture, sociology, as well as social and business change. Subsequently, scholars might consider aligning their manuscripts to other areas and sectors, providing a wider scope.

Moreover, the cooccurrence analysis composed by six clusters logically titled, uncovers relevant insights about the following streams providing an answer to our first research question: (1) education and self-efficacy, (2) family support, (3) policy (4) culture and institutions. Focusing on education and self-efficacy, our study sheds light on the granularity of past research data. One unexpected finding is the gap in how education and self-efficacy influence the perception of opportunities. Meanwhile, technological skills (Feng & Sumettikoon, 2022; Reyes & Neergaard, 2023) and innovation (Nair, 2020; Ratten, 2022) affect the perception and maintenance of women's projects. Additionally, our results outline the family-oriented educational programs (Al-Qahtani et al., 2022), as well as the consideration of preestablished inequalities and gender roles when the study of education and self-efficacy.

Besides the focus on personal-family balance and family conflict, there is a gap around the role of digitalization and social media within family support (Chakraborty & Biswal,

2023). Furthermore, the results reflect that focusing on past experiences (Ogundana et al., 2021) and family validation (Bozoğlu & Armutlulu, 2020) can lead to a better comprehension of women entrepreneurs' motivations.

Concerning the development of the cultural factors, the results point to the lack of research about the cultural connotation of institutions (Elam & Terjesen, 2010; Urbano et al., 2019) since they delimit the framework in which women develop their entrepreneurial projects. Literature also introduces culture as a factor that affects the perception of market opportunities. Therefore, culture may also impact the economic and sustainable growth of the regions. Lastly, our study uncovers the power of soft skills and beliefs toward women entrepreneurs shaped by culture.

In summary, the paper provides a valuable guide to better understand female entrepreneurs' development. However, continuous improvement on the results obtained by future scholars is crucial.

## **2.6. Research agenda**

Based on the preceding discussion, our review reveals that future studies could seek the answer to following research streams:

1. Scholars might focus on how the perception of opportunities can vary depending on the level of education and self-efficacy, while considering the role of technological skills affecting both terms. Specifically, measuring the degree of development of Information and Communication Technologies (ICT) in the entrepreneurial context would be very useful because it would enable the in-depth analysis of how ICT skills correlate with education and self-efficacy.
2. Current research predominantly argues family conflict and life balance. Thus, oncoming studies need to further explore how to bring women entrepreneurs and their families closer to new technologies. Simultaneously, spreading the research scope to other sectors and pointing to the digitalization peculiarities of each environment. For instance, a better understanding of social media use

- (Chakraborty & Biswa,2023) measurement, and impact can be a first step in bringing women entrepreneurs closer to a more digital environment.
3. Empirical support is needed about how institutions and policymakers can mitigate the adverse conditions for female entrepreneurs. Therefore, it would be helpful to address such empirical studies on the impact of financial awareness and tools, such as microcredit or crowdfunding, on women entrepreneurs. Furthermore, exploring the inference of banks and gender bias in the phase of credit access is crucial to reduce the real-life uncertainty of female entrepreneurs.
  4. Cross-country and cross-database comparisons could provide a broader view and lend greater validity to studies considering differences between areas (Ertac & Tanova, 2020; López-Rubio et al., 2021) and highlighting cultural implications. In this sense, the solid impact of institutions on women entrepreneurs' performance is confirmed by literature. However, there is a lack of understanding of the cultural implications of such institutions. Therefore, enriching this gap would benefit women entrepreneurs' evolution.
  5. Finally, recent studies state that female entrepreneurs may foster sustainable development (Figuroa-Domenecq et al., 2020; Barrachina et al., 2021). Subsequently, we propose to delve deeper into the connection between female and sustainable entrepreneurship and the possible ties between the intersection.

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**Chapter 3. Approaching the role  
of innovation, education and  
multiplicity of context in  
female-sustainable  
entrepreneurship**

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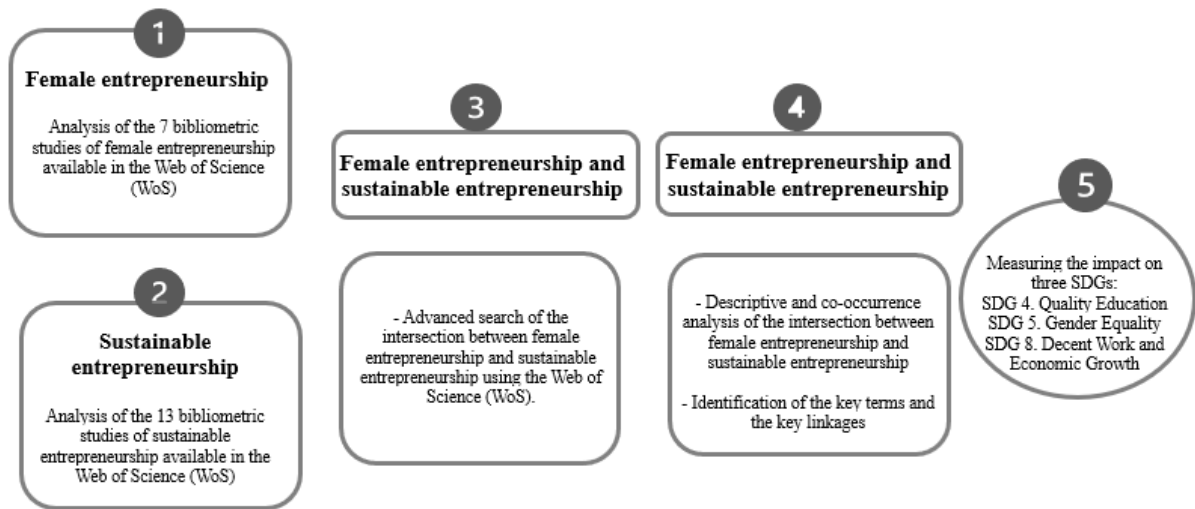


### **3.1. Female entrepreneurs and their contribution to societies**

Previous studies of female entrepreneurship have gradually unearthed a link between being a woman and showing an initiative to lead a sustainable venture. According to Vuorio et al. (2018), economic development and growth are fostered through sustainable entrepreneurship. Shepherd and Patzelt (2011) provided one of the first definitions of sustainable entrepreneurship, conceptualising it as the process of seizing opportunities and implementing ideas to create wealth for companies in a sustainable way, with a positive social and environmental impact. Sołtysik et al. (2019) and Tovmasyan (2022) have since validated this definition, highlighting the importance of further analysis of sustainable entrepreneurship practices. Aggarwal and Johal (2021) added that few researchers have considered sustainability and rural development in the study of female entrepreneurship. In this vein, there is a gap in the literature concerning the impact of gender on sustainable entrepreneurship development (Figueroa-Domenecq et al., 2020; Barrachina et al., 2021; Xie & Wu, 2021; Yuniati et al., 2021; Gu & Wang, 2022). Thus, this area offers an excellent opportunity for progress because it has thus far been addressed from a general viewpoint without sharply focusing on deeply exploring the challenges and elements that affect women entrepreneurs (Santos et al., 2018; Nair, 2020; Barrachina et al., 2021) and their sustainable entrepreneurial spirit.

To fill this gap, the present chapter offers separate detailed analyses of the theory on female entrepreneurship and the theory on sustainable entrepreneurship. It also examines the links between the two concepts. The structure of the study is shown in Figure 8. The first two steps (Steps 1 and 2) consist of separate reviews of the bibliometric studies within literature on female entrepreneurship and sustainable entrepreneurship. Then, we set the focus on the intersection between female entrepreneurship and sustainable entrepreneurship is examined (Step 3). Next, descriptive and co-occurrence analysis of this intersection is presented (Step 4). At this stage, key terms and links between female entrepreneurship and sustainable entrepreneurship are defined. Finally, (Step 5) the main trends of this research field are proposed. These trends refer to confirming the practical correlation between women entrepreneurs, sustainable entrepreneurship, and SDGs 4, 5 and 8. They also refer to extending the analysis of the

implications of sustainable entrepreneurship spirit for women entrepreneurs (Camargo et al., 2020; Nair, 2020; Barrachina et al., 2021).



**Figure 8. Structure of Chapter 3.** Source: Own elaboration

### 3.2. Exploring the origins and development of the female entrepreneur’s literature

Research on female entrepreneurship must address new topics (Dewitt et al., 2022). In the first phase of the present study, the aim is to explore female entrepreneurship, its evolution and the fundamental terms that influence it. Therefore, a search of bibliometric analyses of female entrepreneurship indexed in the Web of Science (WoS) was conducted by searching for the combination of the keywords “women entrepreneur\*” or “female entrepreneur\*” AND “bibliometric” in the *Topic* search field. Table 6 shows the seven studies returned by the search.

We begin by highlighting the main search concepts associated with bibliometric analyses within female entrepreneurship field over the last years. Firstly, the study by Deng et al. (2020) provides a bibliometric analysis of research on female entrepreneurship and the family from the period 1975 to 2018. As part of their research, they included the term

“mumpreneur”. This term demonstrates the inference of family on the female entrepreneur’s development.

Secondly, Moreira et al. (2019) investigated female entrepreneurs’ inclination towards internationalization. In contrast, female entrepreneurship was studied in the context of rural environments by Aggarwal and Johal (2021) and Madanaguli et al. (2021). Deng et al. (2020) introduced the concept of the small and medium-sized enterprise (SME) in their bibliometric study. Meanwhile, Madanaguli et al. (2021) examined female entrepreneurship in the context of SMEs in the tourism sector. Finally, Cardella et al. (2020) reinforced the importance of family support and its role in the female entrepreneurship process.

To further understand female entrepreneurship, scholars should analyse the key factors that influence it considering the differences between areas. For example, Yuniati et al. (2021) analysed women’s entrepreneurial motivation. In this vein, the creation of sustainable projects was found to be one of the most relevant elements of this motivation. Women view this objective as a positive change not only in business but also in society.

**Table 6. Bibliometric analyses of female entrepreneurship.** Source: Web of Science (WoS) Core Collection

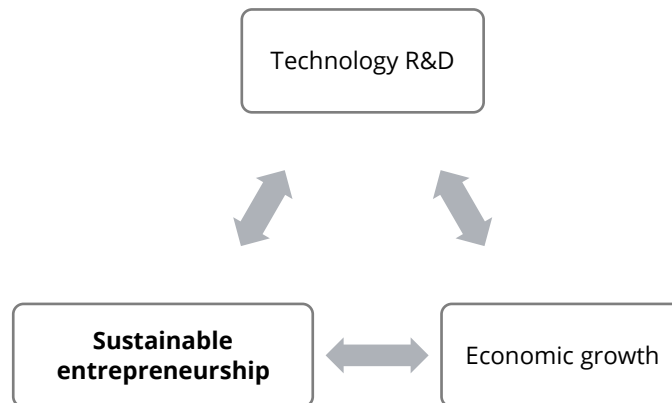
Title	Authors	YP	Journal	TC	TR	Keywords	Purpose	Future research lines
A look back over the past 40 years of female entrepreneurship: mapping knowledge networks	Gina Santos, Carla Susana Marques & Joao J. Ferreira	2018	Journal of Scientometrics	23	100	( <i>wom*in entrepreneurship</i> ) OR ( <i>female entrepreneur*</i> ) OR ( <i>gender entrepreneur*</i> )	The article aims to provide a solid theoretical basis for a fuller understanding of female entrepreneurship.	Future research should continue to study female entrepreneurship with a focus on innovation and sectors other than those studied so far.
A systematic review of women's entrepreneurship and internationalization literature	Joana Moreira, Carla Susana Marques, Alexandra Braga & Vanessa Ratten	2019	Thunderbird International Business Review	26	120	" <i>Women entrepreneur*</i> " OR " <i>female entrepreneur*</i> " OR " <i>gender entrepreneur*</i> " AND " <i>internationalist*</i> "	The article aims to review the literature on female entrepreneurship and its connection to the internationalisation process.	Future research should focus on the positive impact of women entrepreneurship on small and large enterprises.
Science mapping: a bibliometric analysis of female entrepreneurship studies	Wei Deng, Qiaozhuan Liang, Jie Li & Wei Wang	2020	Journal of Gender in Management	4	73	" <i>female entrepreneurship</i> " OR " <i>women entrepreneurship</i> " OR " <i>female entrepreneur*</i> " OR " <i>women entrepreneur*</i> " OR " <i>FIRST</i> " # (" <i>female-led start-up*</i> " OR " <i>women-led start-up*</i> " OR " <i>female-owned start-up*</i> " OR " <i>women-owned start-up*</i> " OR " <i>female-led enterprise*</i> " OR " <i>women-led enterprise*</i> " OR " <i>female-owned enterprise*</i> " OR " <i>women-owned enterprise*</i> " OR " <i>female-led small business*</i> " OR " <i>women-owned small business*</i> " OR " <i>female-led emerging business*</i> " OR " <i>women-owned emerging business*</i> " OR " <i>female-led new venture*</i> " OR " <i>women-owned new venture*</i> " OR " <i>female-led emerging venture*</i> " OR " <i>women-owned emerging venture*</i> " OR " <i>female-owned emerging venture*</i> " OR " <i>women-owned emerging venture*</i> " OR " <i>female-led SME*</i> " OR " <i>women-led SME*</i> " OR " <i>female-owned SME*</i> " OR " <i>women-owned SME*</i> " OR " <i>female-led high-growth*</i> " OR " <i>women-led high-growth*</i> " OR " <i>female-owned high-growth*</i> " OR " <i>women-owned high-growth*</i> "	The article aims to conduct an in-depth review of the literature within the field of female entrepreneurship over the period 1975 to 2018.	Future research lines should reinforce the importance of using databases other than WoS and adopting new research perspectives in this field.
Women Entrepreneurship: A Systematic Review to Outline the Boundaries of Scientific Literature	Giuseppina Maria Cardella, Brizeida Raquel Hernández-Sánchez & José Carlos Sánchez-García	2020	Journal of Frontiers in Psychology	16	128	" <i>entrepren*</i> " AND " <i>women*</i> "	The article aims to investigate the scientific literature on the relationship between entrepreneurship and women.	Future research lines are as follows: (a) The impact of context and cultural environment on women's business management; (b) Providing value to women's business strategies; (c) The best way to adopt an inclusive perspective and understand female entrepreneurship.
Entrepreneurship and Family Role: A Systematic Review of a Growing Research	Giuseppina Maria Cardella, Brizeida Raquel Hernández-Sánchez & José Carlos Sánchez-García	2020	Journal of Frontiers in Psychology	10	167	" <i>familif role*</i> ", " <i>familif support*</i> ", " <i>parent role*</i> ", " <i>parent support*</i> ", and " <i>entrepren*</i> "	The article aims to provide a systematic review of the literature in this field, focusing on the impact of the family on the entrepreneurial process.	Future lines of research should reinforce further analysis into the connection between family support and entrepreneurial development, in different fields and from other approaches.
Rural women entrepreneurship: a systematic literature review and beyond	Aggarwal, Monika, & Ramanit Kaur, Jyoti	2021	Journal of Science, Technology and Sustainable Development	3	42	" <i>Women Entrepreneurship</i> " OR " <i>Female Entrepreneur*</i> " OR " <i>Women Entrepreneurs</i> " OR " <i>Female Entrepreneurship</i> " AND " <i>rural</i> "	The article aims to analyse female entrepreneurship in rural areas through a systematic literature review and bibliometric analysis.	Future lines of research should evaluate the importance of focusing on other areas, such as business education, microfinance and information technologies.
Entrepreneurship in rural hospitality and tourism: A systematic literature review of past achievements and future	Arun Thirumalesh Madanaguli, Puneeth Kaur, Stefano Bresciani & Amandeep Dhir	2021	Journal of Contemporary Hospitality Management	6	178	" <i>farm tourism*</i> ", " <i>agro-tourism*</i> ", " <i>farm diversification*</i> ", " <i>Albergo Diffuso*</i> ", " <i>smallcommunity*</i> ", " <i>small hospitality*</i> ", " <i>self-employ*</i> ", " <i>entrepreneur*</i> ", " <i>new venture*</i> ", " <i>small firm*</i> " and " <i>SME*</i> "	The article aims to analyse the evolution of entrepreneurship in the hospitality and tourism sector from a gender perspective.	As a future line of research, it is vital to compare different countries and use reliable scales.

Note: Table 6 is available in PDF format below to improve its visibility. <https://acrobat.adobe.com/id/urn:aaid:sc:EU:fd158128-764b-48c3-89a3-29d6331d3852>

### **3.3. Exploring the bibliometric analysis on sustainable entrepreneurship through Web of Science (WoS)**

The concept of sustainable entrepreneurship is defined by its impact in three areas: environment, society and economy (Belz & Binder, 2017). Some potential and existing entrepreneurs opt for sustainable development (Ousios & Farooqi, 2017).). However, others set focus on social entrepreneurship that aims to generate a positive social impact (Mas-Tur, 2022). The difference is therefore that sustainable entrepreneurship has a much broader scope than social entrepreneurship.

To differentiate between entrepreneurs who are oriented towards sustainable entrepreneurship from those who are not, Gu and Wang (2022) highlighted the relevance of the political context on the sustainable entrepreneurship spirit. In their study, they sought to measure sustainable entrepreneurship using three indicators: innovative initiative, entrepreneurial initiative, and decision-making initiative. Innovative initiative refers to a desire to promote technological development and look for constant change. Entrepreneurial initiative reflects the motivation to create new ventures. Decision-making initiative relates to determination when taking practical actions. Specifically, by creating innovation and research platforms, among other measures, governments can foster sustainable initiatives in entrepreneurs and economic growth as shown in Figure 9. This conclusion highlights the importance of qualitatively studying entrepreneurs who seek to have a sustainable impact. Also, in reference to sustainable entrepreneurship, Ogutu and Kihonge (2016) and Gu and Wang (2022) noted that, by combining technology and research, this type of sustainable entrepreneurship is crucial to foster economic growth.



**Figure 9. Diagram of the effect of sustainable entrepreneurship.** Source: Own elaboration from Gu and Wang (2022)

In 2015, the United Nations (UN) Member States approved 17 Sustainable Development Goals (SDGs) and 169 targets to promote global sustainable development in the social, political, environmental and economic arenas. Universities, companies, and organisations all play a fundamental role in achieving the SDGs. University research and business education are particularly important to achieve the SDGs (Ortiz-de-Urbina-Criado et al., 2022). The goals apply to all perspectives of humanity and the planet. Hence, Brunet et al. (2022) argued that the goals are fully correlated and that pursuing any one of them directly and indirectly affects the others. Thanks to technological progress, society now has tools that can be used to achieve these goals more effectively.

To explore the origin, evolution and trends of sustainable entrepreneurship, a search of all bibliometric articles indexed in the Web of Science (WoS) was carried out. The keywords "sustainab\* entrepreneur\*" AND "bibliometric" were used in the *Topic* search field. The search returned 20 articles after filtering for Articles & Review Articles. These articles are summarised in Table 7. Therefore, the following table includes indicators such as the purpose and future directions defined by the studies included in the Web of Science addressing sustainable entrepreneurship. This information provides valuable insights to comprehend better the issues to which sustainable entrepreneurship has been linked. It should be noted that seven of the publications are included in the journal

Sustainability. In this sense, we comment on the growing number of publications where some researchers have focused on questioning the rigorousness of the topics and their actual contribution to sustainability (Repiso et al., 2021).

**Table 7. Bibliometric analyses of sustainable entrepreneurship.** Source: Web of Science (WoS) Core Collection (2018–2022)

Title	Authors	YP	Journal	TC	TR	Keywords	Purpose	Future research lines
The Development of Sustainable Entrepreneurship Research Field	Paul Sarango-Lalangui, Jane Lucia Santos & Esther Hormiga	2018	Sustainability	39	73	"sustainable entrepreneurship" (or "sustainability entrepreneurship"), "sustainable entrepreneurial opportunities", "sustainable opportunity (or 'sustainable opportunities')", among others, such as, "ecological sustainability entrepreneurship" - "green", "sustainable", "ecological", "environmental", "entrepreneur" (including entrepreneur, entrepreneurial, entrepreneurship), "ecopreneur" (ecopreneur, ecopreneurial, ecopreneurship), "enviropreneur" (social/environmental/economic entrepreneurship) (enviropreneur, enviropreneurial, enviropreneurship) (conventional entrepreneurship, economic goals, social goals, ecological goals)	The main purpose of the study is to generate a knowledge framework in relation to sustainable entrepreneurship.	Future research should focus on studying sustainable entrepreneurial spirit and exploring how it can be used to target innovation.
Sustainable entrepreneurship: an approach from bibliometric analysis	Ismael Moya-Clemente, Gabriela Ribes-Giner & Joana Carolina Chaves-Vargas	2021	Journal of Business Economics and Management	7	59	("sustainable entrepreneurship") or Topic: ("sustainability entrepreneurship") or Topic: ("sustainable venturing") or Topic: ("sustainable start-up") or Topic: ("sustainable innovation") or Topic: ("sustainable* entrepreneur")	The main objective is to show the relationship or linkage between the most relevant authors, journals and countries.	Proposed future lines of research include comparing sustainable entrepreneurship in different countries from a practical perspective.
Towards Sustainable Entrepreneurship Holistic Construct	Agnieszka Konyś	2019	Sustainability	2	100	"sustainable entrepreneurship" OR "sustainability entrepreneurship"	The primary purpose of this study is to highlight the connection between sustainable needs and entrepreneurial spirit.	Future research lines should include studying how to improve knowledge transfer from researchers to entrepreneurs and promote research, innovation and competitive advantage in sustainable enterprises.
Sustainable entrepreneurship: mapping of international scientific production between 2009 and 2019	Paloma Bezerra, Sandra Araújo de Souza & Geuda Gonçalves	2021	Journal of Management and Innovation and Secretarial Studies (GESEC)	0	73	Entrepreneurship, Green Entrepreneurship, Sustainable entrepreneurship, Ecopreneurship, Environmental Bottom Line, TBL, Social dimension, Economic dimension, Environmental dimension, Sustainability, Sustainable development, Corporate social responsibility, Corporate social-responsibility, Sustainable society.	This study aims to analyse international scientific production in sustainable entrepreneurship from 2009 to 2019.	Research should continue to investigate sustainable entrepreneurship using different methodologies and databases.
Approaches to Entrepreneurship: Bibliometric Study of Scientific Production at Scopus Base	Maria Emilia Camargo, Manha Bezerra da Silva, Angela Isabel dos Santos Dullius, Mariane Camargo Priesnitz, Uliam Hahn Biegelmeyer & Marta Elisete Ventura da Motta	2020	Journal of Innovation and Technology Management (GEINTEC)	0	38	"Sustainable Entrepreneurship" "Social Entrepreneurship" "Cultural Entrepreneurship" "Female Entrepreneurship" "Digital Entrepreneurship"	This study seeks to analyse the concept of entrepreneurship from different approaches from a quantitative perspective.	In future research, it is important to analyse government policies on entrepreneurship.



**Table 7. Continuation.**

Title	Authors	YP	Journal	TC	TR	Keywords	Purpose	Future research lines
Social Entrepreneurship Research: Intellectual Structures and Future Perspectives	Maria Giuseppina Cardella, Brizeida Raquel Hernandez-Sanchez, Alcides Almeida Monteiro & Jose Carlos Sanchez-Garcia	2021	Sustainability	2	115	"Social Entrepren <sup>ss</sup> "	The study aims to analyse and delve into social entrepreneurship through bibliometric analysis.	New research techniques should be applied, and a quantitative approach should be adopted.
Past Themes and Tracking Research Trends in Entrepreneurship: A Co-Word, Cites and Usage Count Analysis	Luis Javier Cabeza Ramirez, Sandra M. Sanchez-Canizares & Fernando J. Fuentes-Garúa	2019	Sustainability	7	117	"entrepr <sup>ss</sup> "	The purpose of the study is to improve knowledge of entrepreneurship and its evolution.	The use of other databases such as Google Scholar and Scopus is recommended.
Performance Analysis and Science Mapping of Institutional Entrepreneurship Research	Victor Tiberius, Melike Rietz & Ricarda B. Bouncken	2020	Journal of Administrative Sciences	8	121	"Institutional entrepreneurship"	The purpose of the study is to provide visibility of the mapping of Institutional Entrepreneurship Research.	In future research, other databases and techniques should be used to enrich this field of study.
Entrepreneurship for the public good: a review, critique, and path forward for social and environmental entrepreneurship research	Siddharth Vedula, Claudia Doblinger, Desiree Pacheco, Jeffrey G. York, Shopie Bacq, Michael V. Russo & Thomas J. Dean	2022	Academy of Management Annals	2	282	n/d	This study aims to review social and environmental entrepreneurship literature to analyse how it affects the public good.	Future research should continue to explore how entrepreneurial spirit affects the public good.
Bibliometric analysis of ecopreneurship using VOSviewer and RStudio Bibliometrix, 1989-2019	Deepa Guleria & Gurvinder Kaur	2021	Library Hi Tech	2	36	"Ecopreneurship" OR "Environment Entrepreneurship," OR "Green Entrepreneurship" OR "Sustainable Entrepreneurship."	The main objective is to highlight the relationship between different articles on ecopreneurship/green entrepreneurship/sustainable entrepreneurship.	Further research should aim to provide guidance and support in this new field of entrepreneurship.
Academic Collaboration in Entrepreneurship Research from 2009 to 2018: A Multilevel Collaboration Network Analysis	Rui Song, Hao Xu & Li Cai	2019	Sustainability	6	40	Entrepreneur, new venture, emerging venture, founder, spin-off, start-up, and venture capital	The study's main objective is to analyse trends over the last 10 years in the area of entrepreneurship.	Further research should investigate what the positive effects on business decisions are and how to improve them.

The search keywords used in the bibliometric analyses presented in Table 7 reveal key themes in this field. First, there is an association with crucial terms such as ecology and environment. Sustainable entrepreneurship is linked to the terms “ecopreneur”, “enviropreneur” and “ecological”. Such entrepreneurs are those whose main aim is to have a positive impact on the environment (Sarango-Lalangui et al., 2018; Bezerra et al., 2021; Piwowar-Sulej et al., 2021; Guleria & Kaur, 2021). The term “green” is also relevant, as well as the triple aim of social, environmental and economic impact (Sarango-Lalangui et al., 2018; González-Serrano et al., 2020; Bezerra et al., 2021). Second, these studies highlight the links with political institutions. The strong connection between political institutions and sustainable entrepreneurship affects the growth of sustainable initiatives (Tiberius et al., 2020; Oliveira et al., 2022).

Other relevant concepts include innovation and digitalisation. Moya-Clemente et al. (2021) cited innovation and sustainable innovation as crucial factors. González-Serrano et al. (2020) also developed the concept of innovation applied to entrepreneurship and sustainability. Entrepreneurial ecosystems can develop the innovation of new ventures (Theodoraki et al., 2022).

Along these lines, Camargo et al. (2020) introduced the term “digital entrepreneurship”, which focuses on the link between technological development and sustainable entrepreneurship. Zheng et al. (2022) indicated that new technologies and digitalisation help achieve the SDGs by enabling the emergence of techniques such as remotely sensing the state of the Earth’s surface and identifying the factors that negatively affect it.

Finally, another crucial factor is gender inequality. According to Islam and Sharma (2022), it is critical for achieving the SDGs. Islam and Sharma (2022) analysed the patriarchal structure in Bangladesh, where gender inequalities mean that there are differences in the development, initiatives, livelihoods and subsistence of men and women. Cardella et al. (2020) found that female entrepreneurship fosters social inclusion and reduces discrimination, especially in developing countries. The Global Entrepreneurship Monitor (GEM, 2022) has also confirmed the importance of analysing gender inequalities. The

following SDGs, linked to the area of female entrepreneurship, are cited as necessary: SDG 4: Quality Education, SDG 5: Gender Equality and SDG 8: Decent Work and Economic Growth.

### **3.4. Are women entrepreneurs developing ties to sustainable entrepreneurial spirit?**

The GEM 2021 report confirms that women are at the helm of organisations and companies that are committed to sustainability and think about more than just financial profitability in the short-to-medium term. These findings reinforce the importance of continuing to analyse the concepts of female entrepreneurship and sustainable entrepreneurship to understand the intersection between the two more fully. Ribes-Giner et al. (2019) highlighted the necessity of understanding female entrepreneurship in OECD countries from a gender perspective. They reported that countries with a high percentage of female entrepreneurs encourage a balance between people's professional and family life. The same is true of countries that offer a higher level of education. Therefore, research that investigates the causes of these trends and the influencing factors is crucial to understand and promote female entrepreneurship and thus sustainable political, social and economic development.

Recent studies shed light on the link between gender (i.e., being a woman) and the initiative to start sustainable ventures. First, according to Brush et al. (2009), encouraging research on entrepreneurship will provide policymakers with data and tools to support women entrepreneurs by better understanding their needs. The study highlights the importance of emphasising social and environmental impact projects and the differences between men and women. Secondly, Outsios and Farooqi (2017) showed that women have a stronger orientation towards sustainable entrepreneurship than men. In addition, women are better at managing their resources and networks to make their sustainable entrepreneurship initiatives a reality. Ruiz-Palomino (2019) established a link between being a woman and the initiative of creating a social and sustainable entrepreneurial venture supported by the economic, political, and social framework. According to Bansal et al. (2019), women entrepreneurs are better aligned with sustainability and sustainable

entrepreneurship than men. Hence, they generate greater value for society. Figueroa-Domecq et al. (2020) argued that further research into the influence of gender on sustainable entrepreneurship is essential because female entrepreneurship is a crucial factor in achieving the SDGs. The development of women entrepreneurship in tourism contributes to achieving SDG 5: Gender Equality and SDG 8: Decent Work and Economic Growth. Therefore, their study shows that sustainable entrepreneurship is linked to gender. Interestingly, Nair (2020) linked and developed the concepts of female entrepreneurship and sustainable entrepreneurship, also including the concept of innovation. They argued that innovation and collaboration between stakeholders should be explored by benchmarking and moving away from an institutional support focus. Kaciak and Welsh (2020) studied the economic and political country context to analyse how women entrepreneurs develop and understand their link to sustainable economies. Their research linked sustainable development initiatives with women entrepreneurship in 10 countries and analysed which factors affect this link.

According to Xie and Wu (2021), there is a relationship between responsible entrepreneurship and success in female entrepreneurship. They noted that when women entrepreneurs are subject to gender discrimination, this relationship is weaker. They concluded that responsible female entrepreneurship generates inclusive growth in both economic and social terms. Following Barrachina et al. (2021), women entrepreneurs have a greater capacity to lead sustainable business initiatives than men. Furthermore, the link between female entrepreneurship and sustainability requires further study to achieve sustainable development in society, companies and organisations.

Finally, Tovmasyan (2022) linked sustainable entrepreneurship with female entrepreneurial skills in the tourism sector. The study reinforces the importance of continuing to define the barriers to female sustainable entrepreneurship given that women encounter many obstacles in the implementation of their projects. In their conclusions and ideas for future lines of research, these cited papers highlight the importance of continuing to analyse sustainable entrepreneurship from a gender

perspective. Additionally, most authors have noted that female entrepreneurship is a crucial factor to achieve the SDGs.

### **3.5. Method**

Chapter 3 conducts an analysis of bibliometric indicators, comparisons and graphical representations within the intersection between female and sustainable entrepreneurship. This analysis considers the chronology of the data gathered from the WoS Core Collection. The Core Collection has become an important database in academia at the international level. It offers data on more than 15,000 journals (López-Rubio et al., 2021). VOSviewer was used to explore the relationships between different concepts and to observe the thematic proximity of the articles included in the analysis. VOSviewer was used to explore the relationships between different concepts and to observe the thematic proximity of the articles included in the analysis. VOSviewer enables data analysis at the aggregate level (Van Eck & Waltman, 2010). Its main functionalities include gaining visibility of information niches, detecting the evolution of keywords and identifying the year of publication of key articles (Mas-Verdú et al., 2021). VOSviewer produces visualisations where circles of the same colour form a cluster. Larger circles indicate more publications on that topic. Smaller distances between circles indicate stronger relationships. Linking lines show the interactions between papers (Panchenko et al., 2020). Given the existing gap in addressing female entrepreneurs and their sustainable entrepreneurial intentions, our study proposed the following research question. Moreover, Table 8 outlines the phases and steps taken to provide an answer to the question:

**RQ:** *What are the key terms that define the crossroads of female-sustainable entrepreneurship?*

**Table 8. Phases of chapter 3.** Source: Own elaboration

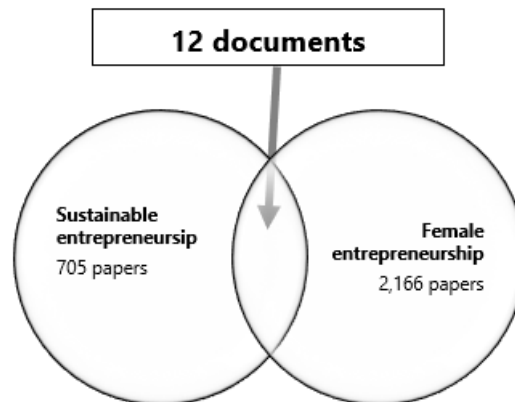
PHASE 1: THEORETICAL FRAMEWORK	PHASE 2: ADVANCED SEARCH AND DATA ANALYSIS		
STEP 1	STEP 2	STEP 3	STEP 4
<p><b>Review of the bibliometric studies</b> already conducted on female entrepreneurship and sustainable entrepreneurship:</p> <p>1. Bibliometric studies of female entrepreneurship (7 research articles shown in Table 5)</p> <p>2. Bibliometric studies of sustainable entrepreneurship (20 research articles shown in Table 6)</p>	<p><b>Advanced search of the intersection</b> between female and sustainable entrepreneurship using WoS</p> <p>(12 research articles)</p>	<p><b>Descriptive technique</b></p> <p>Research into publications, countries, research areas, WoS categories and keywords</p>	<p><b>Analytical technique</b></p> <p>Most relevant terms and grouping of items into 9 clusters using VOSviewer</p>

As shown in Table 7, in the first phase, all bibliometric studies indexed in the WoS Core Collection were searched for the term “female entrepreneurship”. In total, 13 articles published up to May 2022 were reviewed. These studies are detailed in Table 5. The first article was published in March 2018. The most recent article was published in August 2021. All bibliometric studies of sustainable entrepreneurship were then reviewed, also using the WoS. In total, 20 articles published before May 2022 were reviewed. These studies are shown in Table 6. The first bibliometric article was published in April 2018. The most recent article was published in March 2022.

The second phase (step 2) consisted of an advanced search between the main concepts analyzed in the step 1, obtaining 12 documents indexed in the WoS Core Collection database. Two separate searches were conducted. The first search focused on female entrepreneurship. Drawing on the research of Santos et al. (2018), Moreira et al. (2019) and Deng et al. (2020) shown in Table 5, the following keywords (in all search fields) were used in the search: “female entrepreneur\*” or “women entrepreneur\*” or “gender entrepreneur\*”. This search returned 2,166 results after filtering for Articles, Review Articles, Notes, Books and Book Chapters. The second search focused on the concept of sustainable entrepreneurship. Drawing on the studies of Thananusak (2019), Bezerra et al. (2021) and Terán-Yépez et al. (2020) shown in Table 6, the following keywords (in all search fields) were used in the search: “sustainab\* entrepreneur\*” or “sustainopreneurship” or “sustainab\* start-up”. This search returned 705 results after filtering for Articles, Review Articles, Notes, Books and Book Chapters. As introduced

before, using the advanced search option offered by the WoS, both searches were combined. This combined search focused on the intersection between these two areas. The search returned 12 articles for the period 1999 to 2022.

In the step 3, different descriptive indicators were analysed. Finally, in the step 4, co-occurrence analysis was carried out in VOSviewer using these 12 articles. This procedure revealed nine clusters of factors capable of accelerating or slowing down the female and sustainable entrepreneurial process. It also highlighted correlations between the clusters, shedding light to our research question.



**Figure 10. Advanced search with a focus on the intersection between research fields.** Source: Own elaboration through Web of Science (WoS)

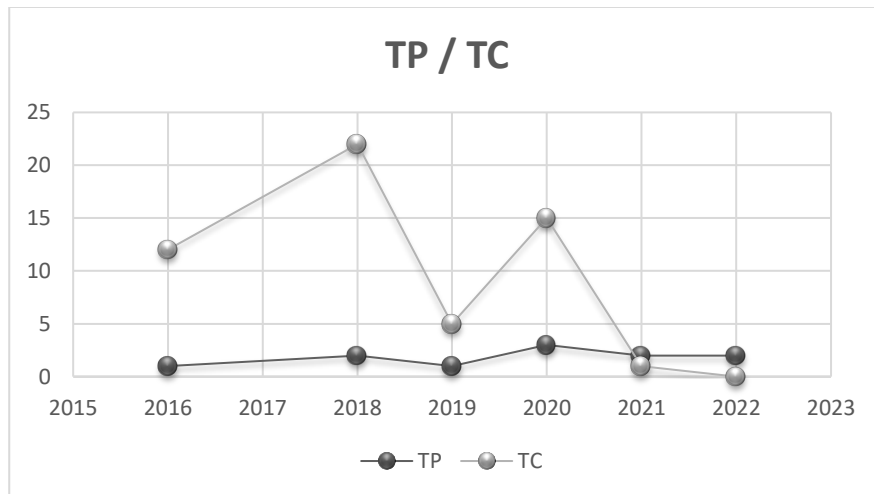
### 3.6. Data analysis

3.6.1. Descriptive exploration within the tie between female and sustainable entrepreneurship

#### 3.6.1.1. Evolution of the number of publications and citations within the intersection

The first of the 12 documents that deal with the intersection between female entrepreneurship and sustainable entrepreneurship was published in 2015 (Figure 10). The number of publications per year has remained relatively stable since. Accordingly, this topic is a recent research niche. However, according to Meyer (2018), the study of female entrepreneurship and sustainable entrepreneurial spirit is a growing area and has considerable potential for progress and improvement. Studies of the factors shaping the

evolution of female entrepreneurship are recent. Further analysis of this topic is essential (Pathak et al., 2013; Aggarwal & Johal, 2021). Finally, another research avenue that could enrich the existing literature is the analysis of sustainable entrepreneurship and the motivations of entrepreneurs who engage in this form of entrepreneurship. The existing literature in this field is limited (Gu & Wang, 2022).



**Figure 11. Evolution of the number of publications on female entrepreneurship and sustainable entrepreneurship.** Source: Own elaboration through Web of Science (WoS)

### 3.6.1.2. Countries with the most publications

The body of research exploring the development of women entrepreneurs is growing, as reflected by the data presented in the previous section. Nevertheless, it is important to understand the direction of this trend and to identify the countries where this research is taking place. The United States and the United Kingdom are leaders in terms of the number of publications and citations of research on the intersection between female entrepreneurship and sustainable entrepreneurship. Santos et al. (2018) showed that scholars in these two countries have published the most on female entrepreneurship. Furthermore, according to Deng et al. (2020), the United Kingdom and the United States have the highest number of publications on and sustainable female entrepreneurship. This finding highlights the need for coordination between researchers and countries, including those outside the OECD, to advance this field.

In this context, Table 9 illustrates that India and the UK have the highest number of publications. According to the study by Aggarwal and Johal (2021), female



entrepreneurship in India is identified as a mechanism for societal growth. Furthermore, the research outlines that the United Kingdom is a primary focus for investigating the role of women entrepreneurship and its development in rural environments. There has also been a generalized substantial increase in the number of researchers focusing on developing countries.

**Table 9. Countries with the most publications.** Source: Own elaboration through Web of Science (WoS)

Country	TP	TC	H-Index
INDIA	3	22	2
UK	2	5	1
PAKISTAN	2	1	1
ARMENIA	1	0	0
AUSTRIA	1	0	0
BANGLADESH	1	5	1
DENMARK	1	1	1
GERMANY	1	10	1
CHINA	1	0	0
SCOTLAND	1	5	1
SPAIN	1	0	0
TUNISIA	1	1	1
USA	1	12	1

### 3.6.1.3. Total publications by research area

Table 9 indicates that the two most relevant areas of research on the intersection between women's entrepreneurship and sustainable entrepreneurship are business entrepreneurship and the environment. The importance of these two areas shows that the intersection between these two forms of entrepreneurship is relevant not only at the business level but also at the environmental level. The leading journal in this area is *Business Economics*, which focuses on business. Santos et al. (2018) noted that most studies of female entrepreneurship (74.9%) focus on business, economics and firms. However, this trend is changing in other areas related to sustainability and gender inequalities. For example, Cardella et al. (2020) reported growth in the number of publications on female entrepreneurship in recent years, highlighting a shift in the focus on the business sector towards other areas that drive the gap between men and women. Finally, Barrachina et al. (2021) cited tourism as an incipient sector for women entrepreneurs. Figueroa-Domecq et al. (2020) also highlighted the importance of the

tourism sector, describing it as a tool for achieving the SDGs. Table 10 also shows that *Hospitality Leisure Sport Tourism* is the seventh most relevant topic within this area of research, according to the categories established by the Web of Science (WoS).

**Table 10. Research areas and main categories using the classification of the Web of Science (WoS).**  
Source: Own elaboration through Web of Science (WoS)

Research Areas	TP	TC	H-Index	Average per year
Business Economics	7	49	5	9,8
Science Technology Other Topics	4	5	1	3
Environmental Sciences Ecology	3	1	1	1
Social Sciences Other Topics	1	5	1	1,7
Web of Science Categories	TP	TC	H-Index	Average per year
Business	5	39	4	7,8
Green Sustainable Science Technology	4	6	1	3
Environmental Sciences	3	1	1	1
Environmental Studies	3	1	1	1
Management	2	10	1	2,5
Hospitality Leisure Sport Tourism	1	5	1	1,7

### 3.6.2. Analytical exploration: cooccurrence analysis and cluster identification

Co-occurrence analysis of all keywords was carried out to show the most influential terms at the intersection between female entrepreneurship and sustainable entrepreneurship. Co-occurrence reveals the most relevant concepts in a given area and highlights limitations and possible future lines of research (Deng et al., 2020). Callon et al. (1983) described co-occurrence as the form of analysis that makes it possible to define the context of each investigation. The co-occurrence analysis in this study used all keywords as the unit of analysis. The minimum number of co-occurrences was 1. In total, 117 words met this threshold, and nine clusters were identified. Because co-occurrence analysis uses a complete counting method, the minimum number of co-occurrences indicates the total number of occurrences of a term in the 12 documents studied. The characteristics are presented in Table 11.

**Table 11. Characteristics of co-occurrence analysis.** Source: Own elaboration through Web of Science (WoS) and VOSviewer

Type of analysis	CO-OCCURRENCE
Counting method	Full counting
Unit of analysis	All keywords and references cited
Minimum number of occurrences of keywords	1
Items meeting the threshold	117
Number of clusters	9
Total number of links	938
Total link strength (TLS)	965

The following Table 12 shows the main keywords with a minimum of two occurrences. Considering the number of occurrences and the total link strength (TLS) enables more in-depth co-occurrence analysis (Cardella et al., 2020).

**Table 12. Top keywords with a minimum of two cooccurrences.** Source: Own elaboration through Web of Science (WoS) and VOSviewer

Cluster number	Keywords	Links	Ocurrences	TLS
1	Competitive advantage	27	2	28
1	Opportunity recognition	34	2	34
1	Self-efficacy	30	2	30
1	SMEs	38	3	40
2	Entrepreneurship	23	3	24
2	Sustainable entrepreneurship	71	7	81
2	Knowledge	16	2	16
3	Women entrepreneur	60	5	68
4	Empowerment	32	3	34
4	Gender	27	2	28
4	Sustainable Development Goals	20	2	21
5	Business	40	4	47
5	Challenges	23	2	24
5	Female entrepreneurship	39	4	46
6	Gender differences	29	3	34
7	Social entrepreneurship	23	2	23
7	Women entrepreneurship	38	4	39
9	Education	17	2	18
9	Sustainability	29	3	35

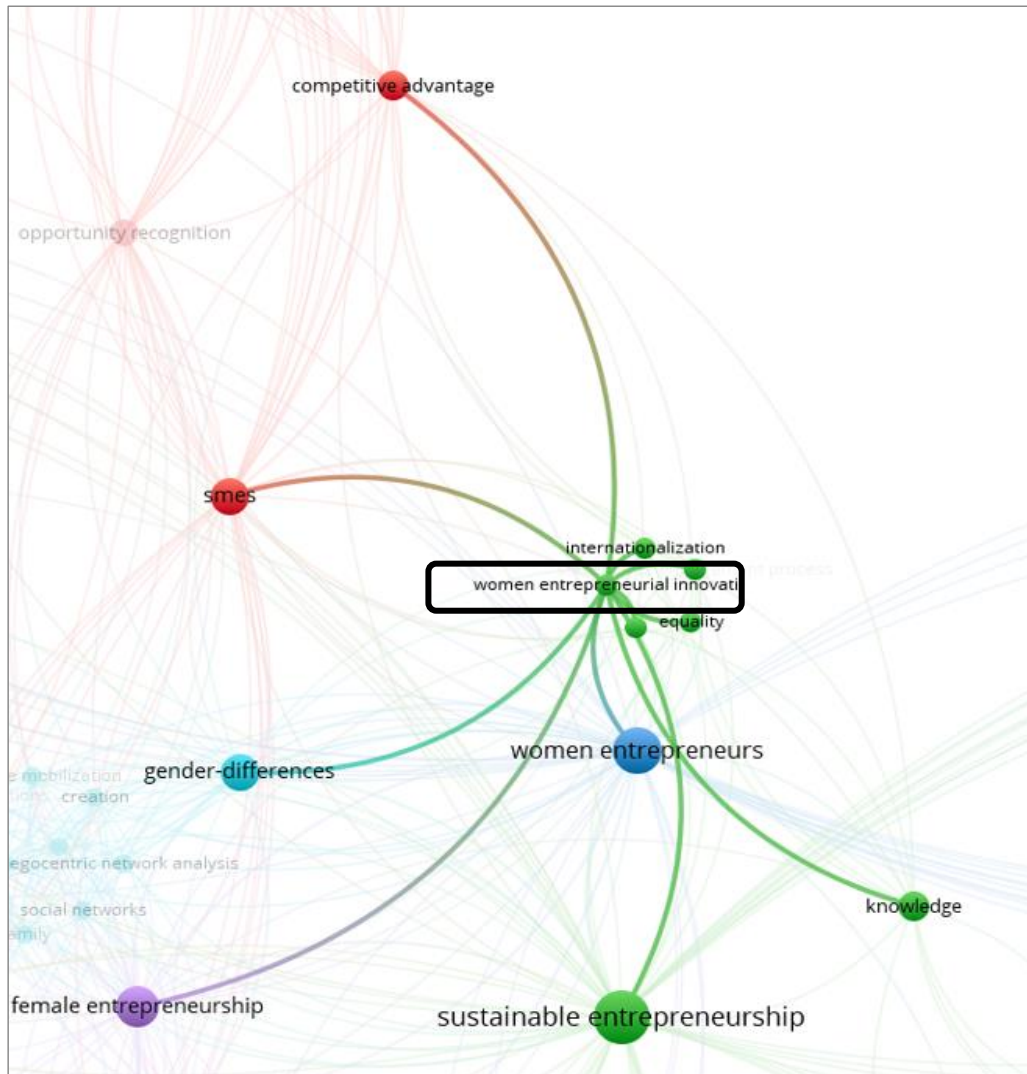
### Cluster 1: Self-efficacy and self-sufficiency

First, the main keywords in Cluster 1 are opportunity recognition, self-efficacy, self-sufficiency and innovative capacity. Innovative capacity is explored further in Clusters 2

and 5. Concerning opportunity recognition, it is important to understand whether the context of women entrepreneurs limits their entrepreneurial initiatives (Lindberg & Johansson, 2017; Harrison et al., 2020). This recognition of opportunities is weaker when there are gender inequalities affecting women entrepreneurs engaging in sustainable entrepreneurship (Xie & Wu, 2021). Women entrepreneurs look for tools that allow them to be self-efficient in their surroundings, seeking the self-sufficiency and autonomy that comes from starting their own venture. Studies should focus on empowerment. They should consider self-employment, entrepreneurship and the social differences that affect sustainable women entrepreneurs (Ousios & Farooqi, 2017; Aggarwal & Johal, 2021).

### **Cluster 2: Knowledge and female entrepreneurial innovation**

In addition to the concepts of entrepreneurship and female entrepreneurship, Cluster 2 contains the concepts of knowledge and female entrepreneurial innovation, which are also relevant to this study. The close link between female entrepreneurial innovation and competitive advantage, knowledge and internationalisation show that innovation capacity can help sustainable women entrepreneurs start ventures with a greater chance of success and scale them up through internationalisation strategies. To understand the internationalisation process and the reasons why it evolves differently from country to country, cross-country comparisons and studies of collaborations are important (Moreira et al., 2019; Deng et al., 2020). Such collaborations create synergies with innovation and a willingness to take risks to generate competitive advantages (Kagbu, 2018; Santos et al., 2018; Nair, 2020). Kagbu (2018) studied the situation of women farmers in Nasarawa (Nigeria), finding that women face many barriers in this sector because they cannot generate networks or optimise collaborations with each other. Other scholars point out the role of networks as a tool to foster female entrepreneurship and reinforce a sustainable community (Minimol, 2020) while improving the perception of market opportunities (Spiegler & Halberstadt, 2018).



**Figure 12. The impact of women entrepreneurial innovation.** Source: Own elaboration through Web of Science (WoS) and VOSviewer

### **Cluster 3: Multiplicity of context, origins and gender stereotypes**

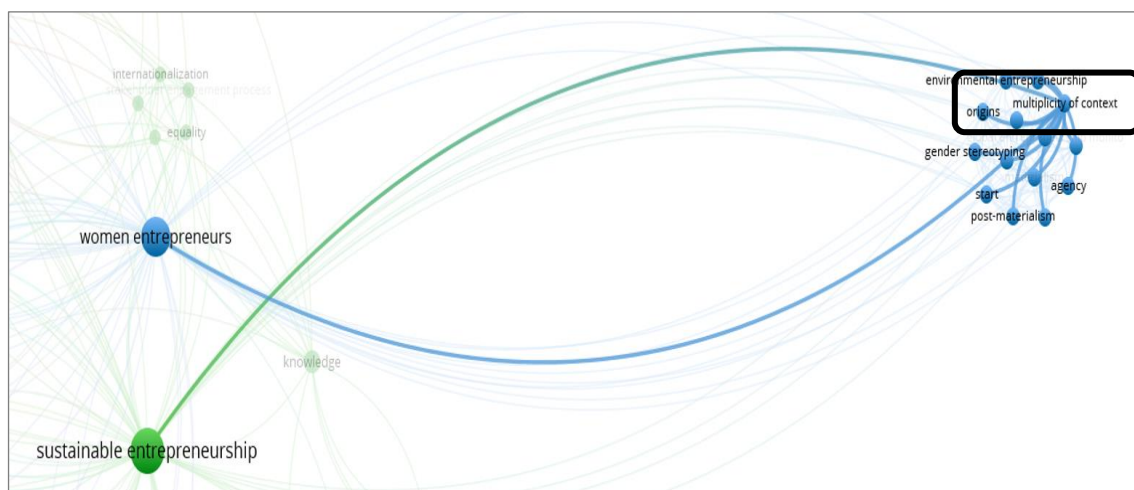
In Cluster 3, the concept of women entrepreneurs has the most co-occurrences. However, the multiplicity of context, origins, gender stereotypes and rural credit programmes are also important.

The multiplicity of context is defined as the set of characteristics of the environment that influence the entrepreneurial process. This is why considering local contextual characteristics and how they differ from preestablished international generalisations is

vital (Kemppainen, 2019) to further comprehend female and sustainable entrepreneurship development.

Geographical areas, socioeconomic, religious, and political variables, and cultural backgrounds are contextual elements that can determine the development of female entrepreneurship (Santos et al., 2018; Mozumdar, 2020). Bonne and Michels (2019) also considered context, examining geographical location and intersectionality as a delimiter of female entrepreneurship. For programmes in rural areas, Shuvam and Mohanty (2020) noted that establishing differences between urban and rural areas is a crucial aspect of the analysis of women entrepreneurship performance. To understand the growth of women entrepreneurship, Aggarwal and Johal (2021) also highlighted the need to differentiate between rural and urban environments. They showed that the multiplicity of context affects women entrepreneurs and sustainable entrepreneurship.

Therefore, it is important to consider this concept in analyses of women entrepreneurship and sustainable entrepreneurship. Policymakers should also look for possible solutions considering contextual idiosyncrasies (Harrison et al., 2020; Madanaguli et al., 2021). Meyer (2022) reported that women entrepreneurs seek to improve on a continuous basis and achieve business success, despite encountering obstacles in their environment.

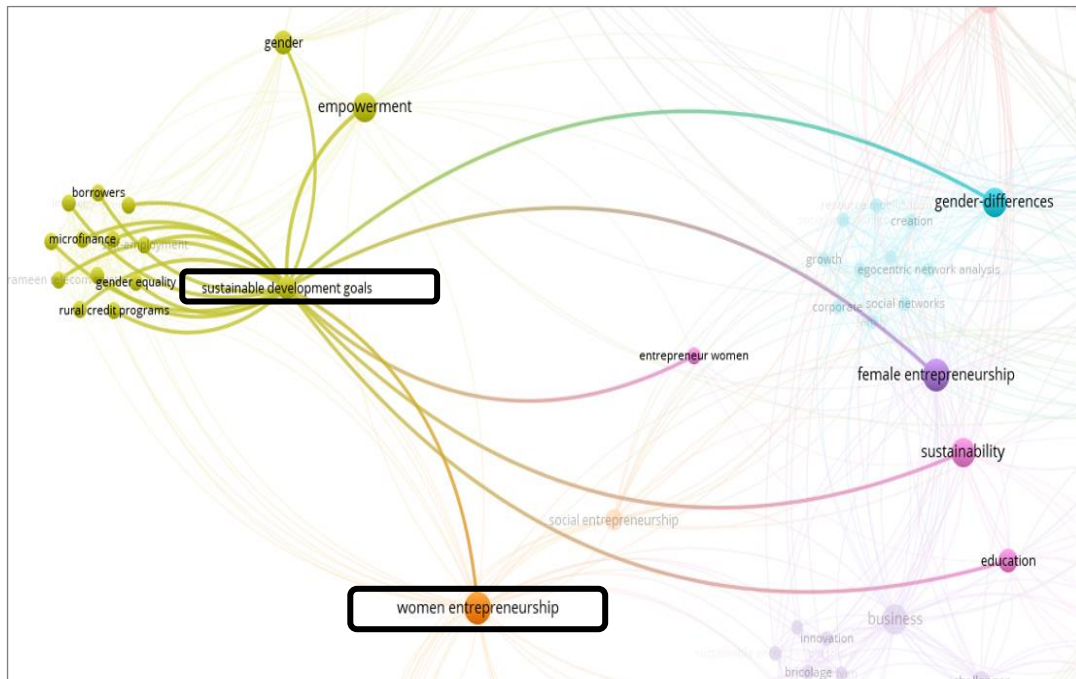


**Figure 13. Multiplicity of context.** Source: Own elaboration through Web of Science (WoS) and VOSviewer

#### **Cluster 4: Sustainable development, gender equality, women's empowerment, and Sustainable Development Goals (SDG`s)**

Cluster 4 comprises the following terms: sustainable development, gender equality, developed countries, small businesses, women's empowerment, women entrepreneurship, corporate social responsibility and Sustainable Development Goals (SDGs). Figure 14 shows a strong link between Sustainable Development Goals (SDGs), sustainable entrepreneurship and female entrepreneurship. This strong link reinforces the premise of this study that links female entrepreneurship with sustainable development. Within the cluster, in addition to Sustainable Development Goals, gender equality is a key term, which is captured by SDG 5. In this sense, it is pointed out that female entrepreneurship favours the practical achievement of the Sustainable Development Goals (SDGs), specifically goals 5 (Gender equality) and 8 (Employment, decent work for all and social protection) (Mas-Tur, 2022). Moreover, women entrepreneurship is presented as a tool for poverty reduction, improved perception of job opportunities and more equitable wealth distribution (Salim & Anis, 2021).

Therefore, in support of the 2021 GEM Global Report, in order to achieve organic and sustainable economic growth, while meeting the practical goals of the 2030 Agenda, the development of women entrepreneurs must be analysed. According to research by Islam and Sharma (2022), focusing on the analysis of gender inequalities in entrepreneurship is necessary to achieve the SDGs. For small businesses, focusing on researching the role of innovation and female entrepreneurship is important (Madanaguli et al., 2021). Finally, corporate social responsibility is an enabler of organisations' sustainable development (Bezerra et al., 2021).



**Figure 14. Links between SDGs and women entrepreneurship.** Source: Own elaboration through Web of Science (WoS) and VOSviewer

### **Cluster 5: Challenges, sustainable entrepreneurship, and innovation**

Cluster 5 includes the following terms: challenges, enterprise, female entrepreneurship, sustainable entrepreneurship and innovation. Innovation and risk-taking skills positively influence entrepreneurship among women entrepreneurs in rural areas (Mandongwe & Jaravaza, 2020). There is a strong relationship between innovation, innovation policy, R&D and business performance, which leads to competitive advantages (López-Rubio et al., 2021). Innovation can be fostered by innovation policies. Lindberg and Johansson (2017) reported that innovation policies lead to changes in the gender perspective of entrepreneurship. According to López-Rubio et al. (2021), innovation policy is itself an important concept because of the widespread belief that it influences innovation. Sustainable and female entrepreneurship requires innovation to ensure growth and impact (Nair, 2020). Innovation policies can therefore generate competitive advantages for female entrepreneurship and sustainable entrepreneurship.



### **Cluster 6: Gender differences**

In Cluster 6, the concept of gender differences has three occurrences and 34 total links. This concept appears in three of the 12 documents studied. Currently, efforts are being made to study gender differences because they affect economic progress and competitiveness. These differences develop differently in each country (Barrachina et al., 2021). Figueroa-Domecq et al. (2020) confirmed the existence of gender differences and reported on how they affect entrepreneurs differently, focusing specifically on sustainable entrepreneurship and risk-taking capacity. Concerning to the risk taken by women in the entrepreneurial process, initial financing is a key step in which gender differences play a crucial role (Xie & Wu, 2021). Finally, Kemppainen (2019) adds that gender and contextual differences need to be analyzed for a better comprehension of female entrepreneurship and the degree of innovation of the entrepreneurial process.

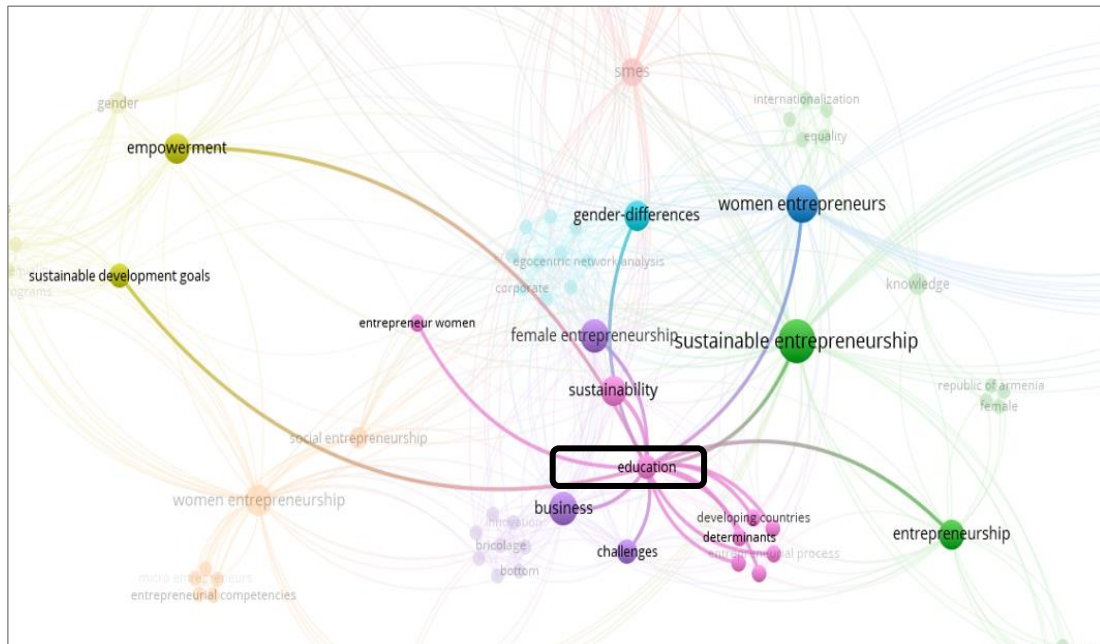
### **Cluster 7: Social Entrepreneurship**

In cluster 7, we found the keyword of social entrepreneurship whose main mission is to generate a positive impact on society (Spiegler & Halberstadt, 2018),, whether through job creation, access to essential services or the resolution of social problems (Klimas & Wronka-Pośpiech, 2022). In this sense, the difference between social entrepreneurship and sustainable entrepreneurship is emphasized, the latter being the one that includes not only the social perspective, but also the environmental one in the entrepreneurial process (Shepherd & Patzelt, 2011). Likewise, this keyword reinforces those female entrepreneurs, in addition to pursuing a profit motive, also seek a social purpose in their entrepreneurial projects, as introduced at the beginning of our paper.

### **Cluster 9: Education and sustainability**

Finally, the most prominent terms in Cluster 9 are education and sustainability. As shown in Figure 15, education affects the growth of female entrepreneurship. An example of how education affects female entrepreneurship was provided by Aggarwal and Johal (2021) in India, where entrepreneurship education is a key element to understand the

development of female entrepreneurship and add value to the local context. There is also a relationship between education and culture in each region. A comprehensive analysis of educational and cultural factors is necessary to determine the role of women entrepreneurs in national and international markets (Moreira et al., 2019). According to Cabrera and Mauricio (2017), education is indispensable for the growth of female entrepreneurship.



**Figure 15. Education.** Source: Own elaboration through Web of Science (WoS) and VOSviewer

### 3.7. Conclusions

Answering the second question posed in our research, this study highlights relevant terms such as multiplicity of context, innovation and education. These items are necessary to understand the evolution of female and sustainable entrepreneurship and to drive growth at the economic, political and social levels. To achieve such growth organically and sustainably, the United Nations (n.d) has cited a need to meet the practical goals (SDGs) set out in the 2030 Agenda. This study helps in this regard through analysis of the development and impact of women entrepreneurship. Along these lines, Islam and Sharma (2022) have confirmed that a focus on gender studies in entrepreneurship is fundamental for achieving the SDGs. The key terms identified in the analysis are multiplicity of context, innovation and education. Multiplicity of context

refers to the idea that context is crucial to understand the development of female and sustainable entrepreneurship (Barrachina et al., 2021; Aggarwal & Johal, 2021; Meyer, 2022). Innovation is important because both sustainable entrepreneurship and female entrepreneurship require innovation to ensure growth and a practical impact (Nair, 2020; López-Rubio et al., 2021). Moreover, innovation fosters the creation and development of sustainable entrepreneurial spirit (Sarango-Lalangui et al., 2018; Konys, 2019; González-Serrano et al., 2020). Innovation may also lead to the search for solutions to optimally cope with possible obstacles in the entrepreneurial process for women entrepreneurs. Concerning the recent open innovation approach, the impact of context needs to be further explored (Modaffari et al., 2023). Within such context, infrastructure and the degree of digitalisation (Ongo & Song, 2023), as well as soft skills (Karlsson et al., 2021), play a fundamental role.

Finally, education is crucial for female entrepreneurship and sustainable entrepreneurship and directly influences the entrepreneurial process (Cabrera & Mauricio, 2017; Cardella et al., 2020; Aggarwal & Johal, 2021; Brunet et al., 2022; Ortiz-de-Urbina-Criado et al., 2022). Education can take different formats (Latchem, 2018) and this education heterogeneity is necessary to foster economic growth, especially in developing countries. In this sense, recent literature confirms female entrepreneurship as a promoter of economic and social and educational development (Salim & Anis, 2021).

About worldwide development, any other elements still need to be investigated. Examples include the growth of female entrepreneurship in rural areas and the effectiveness of policies. Furthermore, given the relationship between female entrepreneurship and sustainable entrepreneurship and the SDGs, education and innovation, the following questions arise: Are SDGs 4, 5 and 8 the most closely linked? Moreover, do education and innovation lead to greater development and stronger linkages between women and sustainable entrepreneurship?

### 3.8. Future research lines

To complement this study, further analysis of the most relevant terms is required to continue to fill the gap in the literature. Several paths should be explored to add value to the existing research. First, scholars should continue to analyse sustainability policies and to examine how they affect female entrepreneurship. According to Barrachina et al. (2021), this line of research is essential. The recommendation is not to use a micro approach, instead establishing comparisons and conducting case studies. Second, the relationship that female entrepreneurship and sustainable entrepreneurship share with SDGs 4, 5 and 8 in the literature published by Elsevier should be analysed. Elsevier is the world's largest scientific publisher. Using an advanced search, scholars can perform specific searches of the 17 SDGs in the Scopus database. Such an approach could reveal whether the subject matter of existing studies correlates with these SDGs. The analysis could also determine their status and where improvements can be made. It would be of interest to measure the alignment between women entrepreneurship, sustainable entrepreneurship, and SDGs 4, 5 and 8. Third, it would be of interest to explore the concept of sustainable education further in the context of the female entrepreneurial process (Tillmar et al., 2022). Finally, it is important to differentiate between rural and urban environments (Aggarwal & Johal., 2021). There is still a gap in the research regarding the practical implications of sustainable entrepreneurship and the way in which it can influence women entrepreneurs (Nair, 2020; Camargo et al., 2020; Barrachina et al., 2021; Gu & Wang., 2022).

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**Chapter 4. Assessing the  
development of female  
entrepreneurial intention from  
an empirical angle**

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## 4.1. Introduction

The sustainable development of the planet is a top priority in today's society (Bassin et al., 2021). To achieve this prime concern, in 2015, the United Nations (UN) proposed 17 goals to promote the sustainable growth of the planet from a practical perspective. In this regard, scholars state that female entrepreneurship acts as a facilitator to achieve Sustainable Development Goals (SDGs) (Tovmasyan, 2022; Birsan et al., 2022; Chaparro-Banegas et al., 2023), specifically gender equality and decent economic growth (Figueroa-Domencq et al., 2022; Ge et al., 2022; Mas-Tur, 2022).

Recent literature has emphasised the significance of investing in financial inclusion (Saviano & Caputo, 2017) and female entrepreneurial education (Ortiz-de-Urbina-Criado et al., 2022; Klapper & Fayolle, 2023) to achieve the sustainable targets outlined by the UN. Consequently, research on the intentions and motivations of female entrepreneurs brings nations closer to practical implications for sustainable development (Harrison et al., 2020; Rahaman et al., 2020; Elshaer & Sobaih, 2023). In light of this, policymakers must prioritise enhancing financial inclusion (Kumar et al., 2022) while promoting technological integration (Agyekum et al., 2022) within small and medium-sized enterprises, thus encouraging their access to external credit. Notably, facilitating access to credit can significantly improve the performance of women-led enterprises, thereby fostering an overall impact on global value chains (Reddy & Golapan, 2023).

Female Entrepreneurial Intention (EI) is defined as the objective to start a business while exploring the process of detecting and expanding market opportunities (Wilson et al., 2009; Truong et al., 2022). To delve deeper into this entrepreneurial process, Ali et al. (2023) emphasise the importance of the economic cluster, which comprises the following concepts: opportunity perception, career choice, and ease of starting. Concerning these economic factors, to improve the identification of entrepreneurial market opportunities, Education for Sustainable Entrepreneurship (ESE) (Del Vecchio et al., 2021) and financial literacy (Yoopetch, 2020) must be encouraged.

Over the past few years, women, among other minority groups, have faced a high risk of unemployment and severe income loss, reflecting an obstacle to financial access to their operating sectors (OECD, 2022; Reddy & Gopalan, 2023). This can have an adverse effect

on the economic and social growth of female entrepreneurs, which varies depending on culture (Lily et al., 2022; Sarhan & Aziz, 2023), and differences between countries (Camargo et al., 2020; Sajjad et al., 2020). For instance, a significant financial gap has been found in Indonesia's small businesses and entrepreneurial projects, with 38% of women facing financial literacy problems and 76% facing inclusion problems (Mardhiyaturositaningsih & Hakim, 2022). Another example is the Middle East and North Africa region, where women represent one of the groups with the highest unemployment; therefore, it is necessary to generate inclusion policies to stimulate entrepreneurial initiatives (Al-Qahtani et al., 2022).

Female entrepreneurship literature needs to reach out to new topics and sectors of activity (Dewitt et al., 2022; Naguib, 2022). In this sense, understanding female entrepreneurship characteristics (Xie & Wu, 2021), intentions (Soomro et al., 2022), and contexts (Krichen & Chaabouni, 2022; Romero-Colmenares & Reyes-Rodríguez, 2022) brings us closer to their motivation (Khoi et al., 2021; Corrêa et al., 2022). Researchers must also distinguish between internal and external factors affecting EI (Alomar, 2023) and dissect women's entrepreneurial processes into different phases (Gódány & Mura, 2021). Motivation, identification of opportunities, obtaining financial resources, development, and the final steps are essential stages (Cabrera et al., 2017; Huarng et al., 2012). In addition to entrepreneurial process segregation, academic studies must focus on the elements that significantly affect female EI (Díaz-García & Jiménez-Moreno, 2010; Miranda et al., 2017; Hassan et al., 2022; Qazi et al., 2022; Bouarir et al., 2023).

In this context, this chapter sheds light on the main factors that influence EI from a gender perspective to provide new insights into the existing gap in the theoretical background of female entrepreneurship. Consequently, we conducted an in-depth literature review, followed by an empirical analysis of the answers from a questionnaire of 203 professionals from six different countries. Therefore, the Qualitative Comparative Analysis (QCA) was used to determine the consistency between pre-established propositions. We highlighted the sample's heterogeneity and professional profiles of the respondents.

Overall, our major findings develop in this chapter reveal emerging topics and the need for new approaches to identify the factors influencing female EI growth. One of the most outstanding outcomes was the link between female EI, attitude, and sustainable commitment. Furthermore, our contributions shed light on the concept of ESE (Agu, 2021; Del Vecchio et al., 2021; Sharma et al., 2021) and the relevance of financial literacy within it (Yoopetch, 2020).

The remainder of our chapter is organised as follows. Section 4.2 provides a theoretical framework around Entrepreneurial Intention (EI). Moreover section 4.3, conducts an in-depth literature review while formulating our research propositions. Subsequently, section 4.4 presents the model. Then section 4.5 describes the sample and data. Section 4.6 explains the methodology. Section 4.7 discusses the results and presents a rigorous robustness check. Finally, Section 4.8 presents a nuanced discussion and concludes the paper.

## **4.2. Entrepreneurial Intention and its environment**

Entrepreneurial Intention is a process of critical thinking and decision making that is financially, socially, economically, and ecologically appropriate for environmental opportunities (Wilson et al., 2009; Truong et al., 2022). The implementation of a gender perspective is essential when conducting a deeper examination of EI (Díaz-García & Jiménez-Moreno, 2010; Miranda et al., 2017). Therefore, empirical research on female EI should be conducted from various perspectives (Ali et al., 2023), considering gender differences and access to financial resources (Urban & Ratsimanetrimanana, 2019; Lladós-Masllorens & Ruiz-Dotras, 2021).

This theory shows that the environment highly influences EI (Figueroa-Domecq et al., 2020; Rahaman et al., 2020; Khoi et al., 2020); however, scholars have not clarified the role of perceived behavioural control and access to finance in each context (Nguyen et al., 2020). Thus, Romero-Colmenares and Reyes-Rodríguez (2022) suggest delving deeper into the regulations and financial organisations in entrepreneurial ecosystems. Moreover, the Global Entrepreneurship Monitor (GEM) report (2022) emphasised significant variations in the patterns of entrepreneurial project creation by country. For

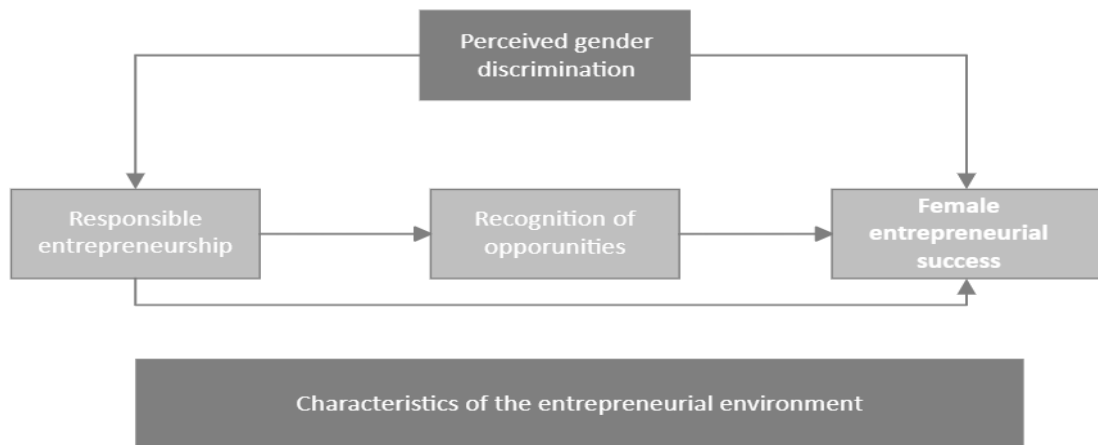
this reason, the consideration of the idiosyncrasies and multiplicity of each environment is vital in the analysis of female EI (Harrison et al., 2020), since there are strong differences between countries, as well as rural and urban areas (Aggarwal et al., 2021). The impact of the environment is decisive and is accentuated in areas with a traditional culture (Setti, 2017).

Culture plays a fundamental role in entrepreneurial environments (Lily et al., 2022). To improve our understanding of the cultural impact of female IE, it is necessary to distinguish between the two groups of factors (Cabrera et al., 2017). The first includes social and cultural dimensions, such as the degree of power distance or aversion to uncertainty; the second includes gender roles, expectations, and identities (Bullough et al., 2022). Regarding the social and cultural dimensions, women have a high degree of cultural femininity that addresses their entrepreneurial projects in most countries (Hofstede's Insights, 2023). This means that the focus of female entrepreneurs is not strictly materialistic; rather, it is value-based. Furthermore, within contextual factors, there is evidence that gender inequalities affect EI (Rahaman et al., 2020). These inequalities affect economic progress and competitiveness, generating significant differences in female entrepreneurial success depending on the country (Sajjad et al., 2020; Barrachina et al., 2021).

Entrepreneurial success is a complex process. To comprehend this, we first need to know what success means to female entrepreneurs (Margaça et al., 2022). Female entrepreneurs do not necessarily relate success to an economic goal, giving more importance to spending time with the family, a positive work-life balance, financial security, and self-efficacy (Gódány & Mura, 2021). Figure 16 shows the impact of perceived gender discrimination on female entrepreneurial success, highlighting the significance of considering the characteristics of the entrepreneurial environment (Xie & Wu, 2021). Furthermore, Figure 16 also includes the concept of responsible entrepreneurship as a phase before recognising opportunities. Although we would like to point out that responsible entrepreneurship and sustainable entrepreneurship are terms with different scopes, it should be noted that responsible entrepreneurship seeks

to optimise resources consciously and prudently, thus generating more sustainable projects.

Prior research reinforces the idea that perceived gender discrimination negatively affects female EI and, consequently, value creation (Bagheri et al., 2022). Within the environmental pre-established conditions, the OECD (2020) believes it is crucial to contemplate the sector of activity, country, gender, and financial data of the entrepreneurial initiatives.



**Figure 16. Characteristics of the entrepreneurial environment.** Source: Own elaboration from Xie & Wu (2021)

### 4.3. Variables development and propositions definition

#### 4.3.1. Perceived attitude towards entrepreneurship

Inspiration and previous learning shape attitude (Shanin et al., 2021). A perceived attitude towards entrepreneurship directly infers EI (Figuerola et al., 2020; Agu, 2021), and applying a gender perspective to its study is beneficial (Diaz-Garcia & Jimenez-Moreno, 2010). Moreover, researchers should consider why female entrepreneurs find starting entrepreneurial ventures attractive (Alam et al., 2019). Positive attitudes towards entrepreneurship allow female entrepreneurs to detect and take advantage of business opportunities in the market (Bouarir et al., 2023).

Furthermore, attitude is significantly correlated with subjective norms (Qazi et al., 2022), understanding of subjective norms as one's own beliefs or values (Truong et al., 2022). Therefore, attitude plays an important role in enabling female entrepreneurs to thrive and generate social and economic growth (Sarhan & Aziz, 2023). As part of this approach,

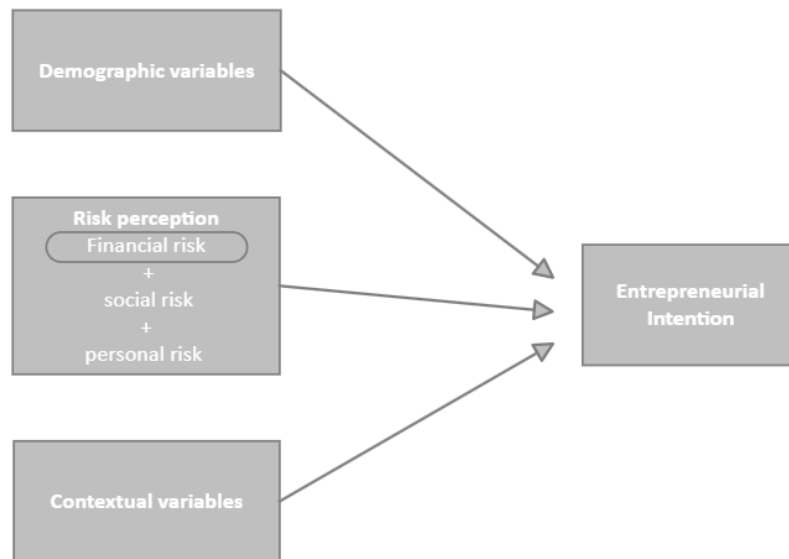
Misoska et al. (2016) linked the attitude of female entrepreneurs to the search for sustainability in their projects. Vuorio et al. (2018) noted that education influences attitudes towards sustainable entrepreneurship, and this attitude towards generating sustainable projects is shaped by altruistic values and the search for self-sufficiency (Romero-Colmenares and Reyes-Rodríguez, 2022). A more flexible attitude adapted to each culture through specific educational programs is a fundamental factor in facilitating EI (Sarhan & Aziz, 2023). Consequently, positive attitudes and personality characteristics, such as extroversion or openness to new experiences, play a key role in female EI (Elshaer & Sobaih, 2023). Merino and Duchemin (2022) added to the importance of psychological elements concerning the personality associated with EI. Thus, a positive attitude leads to a greater acceptance of entrepreneurial processes (Zhang et al., 2020). Theory offers visibility on the connection between attitudes towards risk perception, which is presented as a blended concept that also influences EI (Yoopetch,2020).

***Proposition 1:*** *Female entrepreneurs with positive perceived attitude towards entrepreneurship favour EI.*

#### 4.3.2. Risk Perception. How does risk perception affect financial risk to EI?

Prior research has determined how risk perception influences female EI (Westhead & Solesvik, 2016; Figueroa-domenech et al., 2020; Krichen & Chaabouni, 2022). Additionally, Figueroa et al. (2022) emphasised sustainable commitment as a beneficial factor for the perceived risk towards entrepreneurship. The level of perceived risk varies depending on interpersonal variables, such as family support (Merino & Duchemin, 2022); it can differ based on the country and environment in which the project is developed (Rahaman et al., 2020). Risk perception affecting EI can adopt two perspectives depending on the context: risk as an opportunity or a threat (Khoi et al., 2021). As shown in Figure 17, one of the components of risk perception is financial risk, which is seen as a threat to female entrepreneurs and negatively influences their EI (Krichen & Chaabouni, 2022). Pham et al. (2023) reinforced the idea that perceived financial risk generates an adverse inference towards EI and pointed to innovation as an

element that could moderate or reduce this effect. In addition to innovation, creativity and proactivity also have a favourable impact on EI (Hendratmi et al., 2022). Sobaih and Elshaer (2022) introduced combinations of Risk-Taking and Proactiveness and Risk-Taking and Innovativeness, demonstrating the positive significance of an optimistic and disruptive attitude towards female entrepreneurs' perceived risk.



**Figure 17. Risk perception.** Source: Own elaboration from Krichen & Chaabouni (2022)

**Proposition 2:** *Female entrepreneurs with a positive risk perception favour EI.*

#### 4.3.3. Sustainable Commitment and equal access to finance

Nowadays, it is crucial for society to conduct empirical research on sustainable EI and decision-making (Cantele et al., 2020). Sustainable commitment is defined as the intrinsic objective that has a positive impact on the planet during the development of entrepreneurial projects (Figueroa-Domecq et al., 2020). Recent studies have highlighted the close connection between sustainable commitment and female EI (Shepherd & Patzelt, 2011; Sołtysik et al., 2019; Romero-Colmenares & Reyes-Rodríguez, 2022; Tovmasyan, 2022). The theory also shows a link between responsible leadership and female entrepreneurs (Jaén et al., 2021). However, some studies indicate that sustainable business initiatives need to be better explored (Xie & Wu, 2021; Klapper & Fayolle, 2023);



given the complexity of the entrepreneurial process, they must be further examined to improve understanding, efficiency, and growth (Donaldson et al., 2023).

Attitude and sustainable commitment are fundamental levers of female EI (Agu, 2021; Figueroa-Domenecq et al., 2022). Values and attitudes towards sustainability modulate EI, where altruism is a key feature and extrinsic rewards have an adverse effect (Vuorio et al., 2018). The literature shows a correlation between female leadership and the pursuit of positive financial and social outcomes (Bennouri et al., 2023).

In addition, the OECD (2020) highlights the need to facilitate financial access for women, minorities, and small businesses to expand sustainable entrepreneurial initiatives. Furthermore, encouraging sustainable growth in some regions is essential for incentivising women's financial inclusion to optimise their EI and competitiveness in the market (Saviano & Caputo, 2017). Environmental, social, and governance (ESG) factors are decisive in financial decision-making. In management committees, women positively influence the development of ESG terms (Wasiuzzaman & Subramaniam, 2023). Business projects that comply with ESG principles are more financially competent (Koroleva et al., 2020). Thus, the growth of female entrepreneurs improves the achievement of a more sustainable world from a holistic perspective and develops the economy (Sajjad et al., 2020).

Concerning national regulations and programs affecting sustainable EI, the GEM (2022) report '*Women's Entrepreneurship Report: From Crisis to Opportunity*,' introduces the indicator of how local conditions affect female entrepreneurs by asking national experts from more than 50 countries about the variables underlined below. Scores have been set from negative five ('completely false') to positive five ('completely true'), with the subsequent averaging of experts across all countries.

1. Equal cultural support
2. Favourable regulations for women
3. Equal access to procurement
4. Equal access to finance
5. Sufficient family support services
6. Telework helps women manage family

From a broad perspective, Table 13 shows that the most negative scores were found in groups with the lowest income levels in practically all categories. Focusing on favourable regulations for women, the overall score was negative (-1.7), which was the average for all countries surveyed. This figure reflects the importance of governments and institutions in terms of practical implications and programs. Current studies have highlighted the promotional role of governance, universities, policies, and educational tools (Nguyen et al., 2021; Sobaih & Elshaer, 2022; Ali et al., 2023). Other researchers have focused on national regulations to stimulate innovation (Gazi et al., 2020; Torres-Mancera et al., 2023) and create women's ecosystems (Merino & Duchemin, 2022), looking for self-efficiency among female entrepreneurs. The GEM (2022) report also revealed that experts who rated the regulations most favourably came from Lithuania, the United Arab Emirates, and Saudi Arabia. The literature exposes the study of Hassan et al. (2020) in Saudi Arabia, where they confirm that to ameliorate gender inequalities, empowerment policies at the national decision-maker level are crucial.

**Table 13. National conditions supportive of female entrepreneurs by national income level.** Source: Own elaboration through GEM (2021/2022)

Income level	Equal Cultural Support	Favourable regulations for women	Equal access to finance	Equal access to procurement	Sufficient family support services	Telework helps women manage family
Low & lower middle income	-1,7	-2,1	0,3	-0,5	-1,9	0,5
	-0,8	-2	1,1	0,8	-1,4	0
Upper middle income	-0,2	-1,5	1,3	1,4	-0,5	0,6
	11,1	6,6	11,1	36,6	35,9	9,8
High income	5,9	2,7	5,9	28,2	49	14,2
	7,1	2,3	7,1	25,5	50,8	14,3

Equal access to finance is another crucial factor understood as a worldwide challenge for many female entrepreneurs (Nguyen et al., 2020). To address this challenge, financial institutions must foster entrepreneurs' financial inclusion (Urban & Ratsimanetrimanana,

2019). Furthermore, financial organisations must improve the usability, adaptability, and customisation of their financial tools (Saviano et al., 2017). Martínez-Rodríguez et al. (2022) point to interest subsidies and improved financial literacy as incentives for female entrepreneurs. In this case, the middle- and high-income groups had the most favourable scores. One unexpected finding was that at the middle-income level, the average was higher than that at the high-income level.

Researchers have defined sufficient *family support* as a vital element in female EI (Manolova et al., 2019; De Clercq et al., 2022). Additionally, the impact of family support on EI is more influential in countries with greater power distances (Maleki et al., 2023). Expert scoring in this category shows that collectives with lower income levels and resources are not provided with sufficient family support and services. This negatively affects female entrepreneurs' project generation.

As the Introduction suggests, understanding what female entrepreneurs mean by success is essential (Margaça et al., 2022). Flexibility and family time are priorities for female entrepreneurs (Adisa et al., 2021). *Table 12* shows that the evaluations of teleworking were moderately positive. The highest scores were clearly associated with the high-income groups. Telework should be viewed as a tool that can improve the balance of female entrepreneurs at low income levels (Martínez-Rodríguez et al., 2022). As well as aiming for a sustainable impact (Tovmasyan, 2022), the literature highlights that female entrepreneurs seek healthy financial performance, financial security, and flexibility between family and job (Gódány & Mura, 2021). Thus, remote working can improve female entrepreneurs' work-life balance.

***Proposition 3: Female entrepreneurs with Sustainable Commitment favour EI.***

#### 4.3.4. Education for Sustainable Entrepreneurship and financial literacy

Education applied to the entrepreneurial process promotes the achievement of SDGs (Brunet et al., 2022; Ortiz-de-Urbina-Criado et al., 2022). Education directly affects the growth of female entrepreneurial projects (Westhead & Solesvik, 2016; Cabrera et al., 2017; Cardella et al., 2020; Elliott et al., 2021; Ogundana et al., 2021; Aggarwal & Johal,

2021; Al-Qahtani et al., 2022; De Clercq et al., 2022; Ali et al., 2023). This study highlights a more recent approach to the education concept, ESE, described as guidance for inclusive and responsible entrepreneurship (Truong et al., 2022); which improves the understanding of gender differences and the dangers that could be promoted by entrepreneurial projects (Agu, 2021). This term is relatively new and has been studied from an institutional perspective (Sharma et al., 2020), analysing how ESE leads to a better consideration of the impact of sustainable entrepreneurship (Romero-Colmenares and Reyes-Rodríguez, 2022). From another approach, ESE is also seen as a fundamental tool for improving the comprehension of the circular economy and, thus, positively impacting the process (Del Vecchio et al., 2021). Truong et al. (2022) found a positive ESE correlation between attitude and sustainable entrepreneurship initiatives, reinforcing the importance of future analyses. Thus, we highlight a gap in the literature regarding the link between ESE and knowledge of gender inequalities and its practical implications (Sharma et al., 2021).

In addition to guiding the educational process towards the quest for a more sustainable EI, theory uncovers another interesting concept: financial education (Yoopetch, 2020; Metu & Nwogwugwu, 2022). Concerning financial education and its link to sustainability, policy and decision-makers should promote financial literacy to empower female EI (Kazemikhasragh & Buoni-Pineda, 2022; Anshika & Singla, 2022). Currently, society faces an exclusionary financial system (Kazemikhasragh & Buoni-Pineda, 2022). As a remedial measure, promoting an inclusive and sustainable model of female entrepreneurs' livelihoods can improve their effectiveness (Hendratmi et al. 2022; Tur-Porcar et al. 2017). It is also important to change the mindset of financial institutions to foster women's access to financial resources (Qazi et al., 2022). This study considers education and ESE to be enablers of this change.

In the learning process, the Head, Hands, and Heart correspond to theoretical knowledge, practices, and emotions (Tan et al., 2021). From a conceptual perspective, ESE should include an understanding of how to finance an entrepreneurial project according to current sustainable global needs (Klapper & Fayolle, 2023). Financial knowledge must consider digitalisation to improve female EI progress (Mardhiyaturrositaningsih & Hakim,

2022). Thus, we highlight the significance of ESE in considering financial learning to improve female entrepreneurship and sustainability.

**Proposition 4:** *Female entrepreneurs with ESE favour EI.*

#### 4.3.5. Family Support and networks creation

Most obstacles and psychological insecurities faced by female entrepreneurs come from the family environment and directly impact their EI (Merino & Duchemin, 2022). Family environment has a strong influence on the growth and success of women's EI (Manolova et al., 2019; De Clercq et al., 2022).

Family support influences attitudes, identification of opportunities, and female IE (Qazi et al., 2022). Women who believe that their family members provide them with flexible and optimal conditions are more likely to become entrepreneurs (Maleki et al., 2021; Romero-Colmenares & Reyes-Rodríguez, 2022). Moreover, female entrepreneurs feel more confident and secure when they work in groups and generate networks that allow them to strengthen productive ties (Santos et al., 2018). The possibilities for women to become entrepreneurs are related to social and cognitive factors and their established family and personal relationships (Ali et al., 2023).

Concerning economic factors, Babajide et al. (2022) proposed analysing microcredit in greater detail as a tool capable of improving family support for female entrepreneurs. In terms of external help, the roles of institutions, governments, and decision makers are crucial in strengthening the practical implications of family support and EI (Elshaer & Sobaih, 2023); for instance, by encouraging the use of new technologies (Chaudhuri et al., 2022). Additionally, we should not underestimate the fact that female EI success requires healthy personal and family balance within the family environment (Gódány & Mura, 2021). We must prevent environmental homogenisation and try to offer a plurality of opportunities, especially for women entrepreneurial minorities (Donaldson et al., 2023). As suggested above, the creation and expansion of networks increase female entrepreneurs' capacities and creativity, optimising their identification of opportunities and making them more competitive (Hendratmi et al., 2022). Educating women about

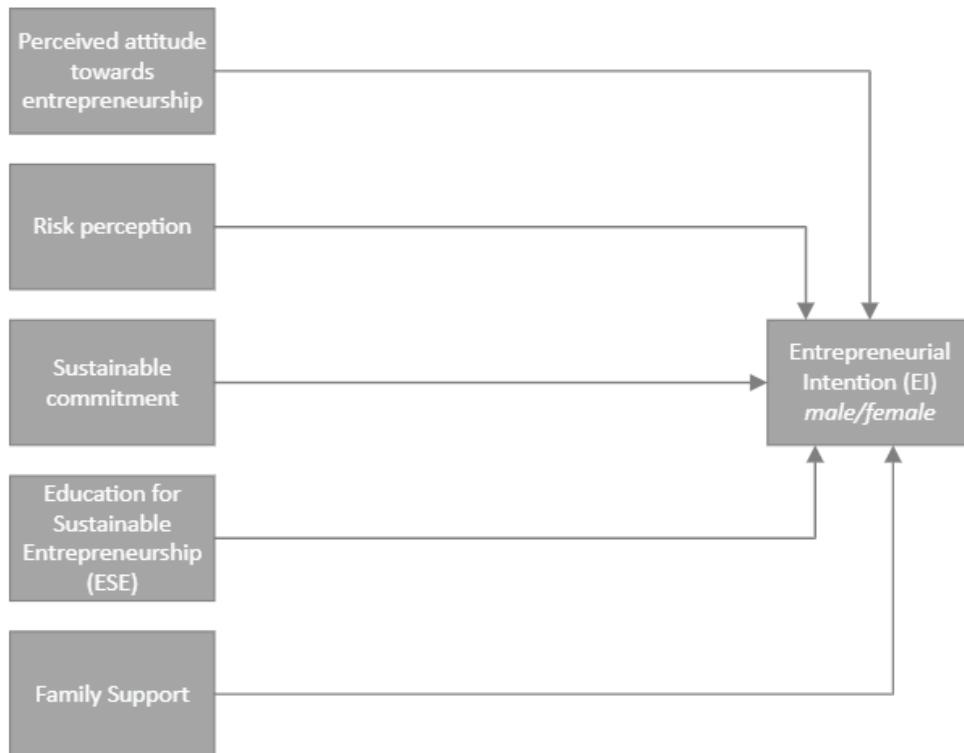
the differences in the roles established in families, creating spaces for co-creation through networks, and including practical courses positively impact female entrepreneurs (Al-Qahtani et al., 2022)

**Proposition 5:** *Female entrepreneurs with family support favour EI.*

#### **4.4. Model presentation**

The causal model presented in Figure 18 synthesises the theoretical framework. Given the nature of the methodology employed, we analysed the variables validated by solid studies: Perceived Attitude towards Entrepreneurship (Anwar et al., 2020; Figueroa-Domecq et al., 2021; Bouair et al., 2023), Risk Perception (Westhead & Solesvik, 2016; Figueroa-Domecq et al., 2020), Sustainable Commitment (Kuckertz & Wagner, 2010; Figueroa-Domecq et al., 2020; Agu, 2021), Education for Sustainable Entrepreneurship (Misoska et al., 2016; Elliot et al., 2021; Agu, 2021) and Family support (Manolova et al., 2019; Maleki et al., 2021) and their relationship with Entrepreneurial Intention (EI) (Anwar et al., 2020; Figueroa et al., 2020; Shanin et al., 2021); from a gender perspective through the five propositions indicated. In this vein, the objective in the present chapter 5, is to approach the following research question:

**RQ:** *Under which conditions is **Entrepreneurial Intention (EI)** promoted?*



**Figure 18. Proposed model.** Source: Own elaboration

Although the following studies do not measure the same variables, several noteworthy aspects are detailed below. Concerning the first variable, Attitude towards Entrepreneurship, other researchers choose to measure solely the impact of attitude (Agu et al., 2021; Shahin et al., 2021; Qazi et al., 2022). In relation with Risk Perception, in Yoopetch's study (2020), the combined variable of Attitude towards Risk-taking is employed, and its effect on Entrepreneurial Intention is analyzed. Continuing with Family Support, the study of De Clerq et al. (2022) includes the variable Family-induced work happiness and its correlation with entrepreneurial orientation. On the other hand, Noor et al. (2021) relate various variables encompassing familial aspects to the main variable, women empowerment, and consequently, women's success. These approaches may be interesting to enrich further research address to the Entrepreneurial Intention.

## **4.5. Data description**

### 4.5.1. Survey Design

The paper adopts a survey-based methodology, following established scales previously used by researchers. Our questionnaire consists of two sections. The first section comprises eight closed-ended questions related to the backgrounds and professional development of the participants. The second section requires respondents to assess the significance of 28 factors in shaping their Entrepreneurial Intention, while considering a gender perspective. A seven-point scale was utilised, with 1 indicating 'Strongly Disagree' and 7 indicating 'Strongly Agree.' The examined factors encompass Perceived Attitude towards entrepreneurship, Risk perception, Sustainable Commitment, Education for Sustainable Entrepreneurship, and Family Support.

### 4.5.2. Sample Description

We analysed data from 203 professionals originating from six different countries. This data was collected during a summit attended by 537 practitioners, with the primary objective of addressing a challenge concerning Sustainable Finance within the framework of the Global Financial Group BBVA in May 2022. BBVA sponsored this challenge, which aimed to explore innovative solutions for reducing carbon footprints and improving financial well-being for individuals, in alignment with SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 10 (Reduced Inequalities). The response rate, at 37.8%, was relatively high when compared to rates obtained in similar studies, such as Hibbert et al. (2013) (33%) and Baker et al. (2020) (11.08%).

## **4.6. Method**

The QCA was developed by Charles C. Ragin in the 1980s as an alternative to traditional statistical methods (Ragin, 1987). The QCA is a research approach used in social sciences to analyse qualitative data and identify causal patterns or configurations in complex contexts. The QCA combines elements of Boolean logic, set theory, and causality theory to examine how different combinations of conditions relate to specific outcomes (Ragin,



2006, 2008). Unlike statistical approaches that focus on average relationships, the QCA focuses on the variation and heterogeneity of causal configurations (Fiss, 2007; 2011; Woodside, 2014).

The QCA seeks to identify recurring patterns and causal configurations that explain the presence or absence of a particular outcome (Fiss, 2007; Ragin, 1987, 2000, 2008; Ragin & Fiss, 2008). This was accomplished by identifying specific combinations of conditions associated with a specific outcome in question. These combinations are called 'causal configurations'. Thus, in the QCA, sets of cases classified as present or absent for each of these characteristics or conditions are used. Subsequently, a truth table is created, in which the combinations of conditions associated with the observed results are identified. As discussed, the truth table in the QCA involves the use of techniques such as Boolean algebra and minimisation of logical terms to identify causal configurations.

The QCA is used in a variety of disciplines, including sociology, political science, organisational studies, and management sciences (Roig-Tierno, Gonzalez-Cruz, & Llopis-Martinez, 2017). This is especially useful when working with small-to-medium samples and seeking a deep understanding of causal mechanisms in complex and heterogeneous contexts (Fiss, 2007, Woodside and Zhang, 2012).

## 4.7. Results

**Table 14. Tables 14 (a) and (b).** Source: Own elaboration

(a) Logistic Regression

Model Summary - EI										
Model Deviance	AIC	BIC	df	$\chi^2$	p	McFadden R <sup>2</sup>	Nagelkerke R <sup>2</sup>	Tjur R <sup>2</sup>	Cox & Snell R <sup>2</sup>	
H <sub>0</sub>	241.041	243.041	246.354	202						
H <sub>1</sub>	165.328	177.328	197.207	197	75.712	< .001	0.314	0.448	0.363	0.311

(b) Coefficients

	Estimate	Standard Error	z	Wald Test		
				Wald Statistic	df	p
<b>(Intercept)</b>	-4.797	1.537	-3.121	9.741	1	0.002
<b>ATT</b>	1.380	0.232	5.955	35.466	1	< .001
<b>RISK</b>	0.149	0.217	0.686	0.470	1	0.493
<b>SC</b>	-0.304	0.256	-1.185	1.405	1	0.236
<b>EDU</b>	-0.216	0.165	-1.313	1.725	1	0.189
<b>AF</b>	0.160	0.166	0.966	0.933	1	0.334

Note. EI level '1' coded as class 1.

Logistic regression showed a positive and significant relationship between attitude and EI.

**Regarding the reliability and validity test,** Cronbach's alpha was 0.876 for AAT, 0.844 for RISK, 0.856 for CS, 0.821 for EDU, and 0.797 for AF. All of these are higher than the threshold value of 0.7 (Nunnally, 1978). This indicated that the instrument was reliable and internally consistent.

**Table 15. Analysis of necessary conditions for Entrepreneurial Intention.** Source: Own elaboration

Conditions tested	Consistency	Coverage
<b><u>Presence of</u></b>		
Perceived Attitude towards entrepreneurship (ATT)	0,8272	0,7965
Risk perception (RISK)	0,7571	0,7454
Sustainable Commitment (SC)	0,8594	0,7366
Education for Sustainable Entrepreneurship (ESE)	0,6243	0,7306
Family Support (FS)	0,6789	0,7516
<b><u>Absence of</u></b>		
Perceived Attitude towards entrepreneurship (ATT)	0,1727	0,4911
Risk perception (RISK)	0,2429	0,6483
Sustainable Commitment (SC)	0,1406	0,6284
Education for Sustainable Entrepreneurship (ESE)	0,3757	0,7011
Family Support (FS)	0,3210	0,6591

The presence and absence of the conditions analysed for the EI outcomes were considered. The analysis shows that there is no strictly necessary condition for EI, as the consistency threshold does not exceed 0.9 in any condition (Ragin, 2009). Therefore, a Perceived Attitude towards entrepreneurship, risk perception, sustainable commitment, ESE, and Family Support are not necessary aspects of EI. However, the variables of perceived attitude and environmental commitment were significant, with consistencies of 0.8272 and 0.8594, respectively. Moreover, they covered 80% of the cases (Perceived Attitude towards entrepreneurship) and 74% (Sustainable Commitment). The implication of the necessity analysis results is that in order to obtain an EI, a combination of several conditions will be required to obtain an EI. The remaining conditions: Risk perception, ESE, and Family Support obtain a consistency of 0.7571, 0.6243, and 0.6789, respectively. The results of the fs/QCA of the model in which EI is present are presented below.

$$fs\_EI=f(fs\_ATT, fs\_RISK, fs\_SC, fs\_ESE, fs\_FS)$$

The truth table is created in which all possible combinations of conditions or structural configurations are presented (Fiss, 2011) and, using Boolean logic to identify different possible combinations associated with learning commitment, the sufficiency table is obtained, as can be seen in Table 16, in which the three causal configurations that lead to the outcome are presented and represent 79% of the empirical cases of the study.

**Table 16. Recipes for Entrepreneurial Intention.** Source: Own elaboratio

CONTIDIONS	MODEL
Attitude	•
Risk	•
Sustainable Commitment	•
Education for Sustainable Entrepreneurship (ESE)	
Family Support	•
RAW COVERAGE	0,6043
UNIQUE COVERAGE	0,6043
CONSISTENCY	0,7937
SOLUTION COVERAGE:	0,6043
SOLUTION CONSISTENCY	0,7937

*Note: Based on Fiss's (2011) notation, the symbol '•' means presence of the condition. The blank cells indicated that the presence or absence of is condition was irrelevant. These are 'don't care' conditions.*

Based on the sufficiency analysis shown in Table 15, the research model is acceptable as its consistency score is 0.794, which exceeds the limit of 0.75 (Ragin, 2009). The case coverage was 60.4%.

The results revealed a single configuration (Table 16) that led to this outcome. This configuration shows that for EI to be obtained, all the factors mentioned except ESE must be present. In other words, perceived attitude towards entrepreneurship, risk perception, sustainable commitment, and family support must be present. Therefore, the configuration shows that for a female entrepreneur to have EI, she must have a positive attitude towards entrepreneurship, together with a positive attitude to financial risk, sustainable commitment, and family support. If a female entrepreneur does not have a desire or positive attitude towards entrepreneurship, she will not have EI. In addition, attitudes towards entrepreneurship lead to a willingness to stay in business, grow, and take risks (Zhang et al., 2020). Proposition 1 asserted that female entrepreneurs with a positive perceived attitude towards entrepreneurship tend to support entrepreneurial intentions (EI). The connection between a positive perceived attitude towards entrepreneurship and entrepreneurial intention is a well-documented aspect within the domain of entrepreneurship research (Dinc & Budic, 2016). A positive perceived attitude towards entrepreneurship frequently mirrors a strong intrinsic motivation to participate in entrepreneurial activities, which can be a vital catalyst for the development of entrepreneurial intentions.

Proposition 2 posited that female entrepreneurs who hold a positive risk perception tend to support entrepreneurial intentions (EI). Risk is another component that must be present for EI to be achieved. Following traditional entrepreneurial theories, such as Knight (1921), entrepreneurship entails both economic risk that must be invested and technical risk. An entrepreneur must have a relatively high-risk propensity, as she wants to take advantage of the opportunities; she has seen and will not be opposed to the idea of exposing herself to an environment with an uncertain outcome (Cui et. Al, 2016). This risk-prone attitude would enable better organisational performance across value creation in the sustainable business practices, being a crucial element of entrepreneurial orientation (Rey-Martí et. al, 2021). Positive perceived attitudes can also influence an

individual's propensity for risk-taking, encouraging them to be more receptive to the risks and uncertainties associated with entrepreneurial activities. This willingness to take risks can contribute to the development of entrepreneurial intentions (Gu et al., 2018).

The sustainability of an entrepreneurial project promotes to EI. However, it is not only for EI, but also for the present and future of society. Proposition 3 delineated that female entrepreneurs who demonstrate Sustainable Commitment tend to favour entrepreneurial intentions (EI). Female entrepreneurs increase their EI if their projects have a positive impact on society and the planet (Figueroa-Domecq et al., 2020). As Sajjad et al. (2020) noted, the growth of female entrepreneurs enhances the achievement of a more sustainable world from a holistic perspective and develops the economy. Therefore, from a practical perspective, public policies should favour female entrepreneurship with financial aid or levers that push them to become entrepreneurs. Entrepreneurs who prioritize sustainability often exhibit a deep sense of purpose and values that align with social and environmental responsibility (Markman et al., 2016; Biggeri et al., 2022; Rezaee, 2023). This alignment can exert a positive influence on their intent to conceive and execute sustainable business projects aimed at enhancing societal and environmental well-being, particularly in the long run.

Finally, Proposition 5 suggests that female entrepreneurs who receive support from their families are more inclined toward entrepreneurial intentions. Thus, female entrepreneurs must have family support to develop their EI. As has been explained in the literature, for female entrepreneurs, family support is key as it influences the attitude and confidence of the entrepreneurial woman. If a woman entrepreneur does not have this family support, it becomes an obstacle and negatively affects women's intention to be entrepreneurs (Manolova et al., 2019; De Clercq et al., 2022; Merino and Duchemin, 2022; Ali et al., 2023). Family support, encompassing emotional encouragement and a belief in an individual's capabilities, as well as financial assistance, can significantly enhance self-confidence and self-efficacy (Rey-Martí et al., 2016). This psychological reinforcement can exert a positive influence on entrepreneurial intentions, as women gain a heightened sense of empowerment and increased confidence in their ability to overcome the challenges inherent in launching a new venture.

Although ESE is not a condition for the outcome, EI can also be observed as a result. It may not be considered a condition for the outcome because it is a new and little-studied concept since it started to be analysed in recent years by Sharma et al. (2020). Proposition 4 remains unverified. Various factors may underpin these findings. Entrepreneurs may enroll in ESE programs without a genuine intent to establish their own businesses, resulting in a misalignment between their educational backgrounds and their intended entrepreneurial objectives. Notwithstanding their exposure to sustainable entrepreneurship, entrepreneurs may prioritize alternative career trajectories or industries. Nonetheless, even within the framework of a comprehensive ESE program, the lack of supportive ecosystems, encompassing aspects like funding access, mentorship, or networking opportunities, may impede individuals in the realization of their entrepreneurial aspirations. Moreover, as previously indicated, the field of ESE may be in its nascent developmental phase, which contributes to the scarcity of robust data and comprehensive case studies necessary for the establishment of a definitive relationship.

#### **4.8. Conclusions**

The main purpose of this chapter is to identify, based on an in-depth literature review, the main factors influencing EI from a gender perspective to provide new insights into the existing gap in female entrepreneurship. After the literature review, a QCA was undertaken to analyse which configuration of the established conditions (perceived attitude towards entrepreneurship, risk perception, sustainable commitment, ESE, and family support) lead to EI in female entrepreneurs.

The findings reveal the importance of new approaches to educational tools (Brunet et al., 2022; Ortiz-de-Urbina-Criado et al., 2022) and the relevance of the recent concept of ESE (Agu, 2021; Del Vecchio et al., 2021; Sharma et al., 2021; Aggarwal & Johal, 2021; Tovmasyan, 2022; Romero-Colmenares & Reyes-Rodríguez, 2022; Truong et al., 2022; Klapper & Fayolle, 2023). The analysis finds a gap in the literature regarding the term ESE, however, about the knowledge of gender inequalities and its practical implications. Financial literacy also had an effect. Thus, this study's findings highlight the significance of ESE in considering financial learning to better understand EI.

This study's findings also detect the correlation shown in the literature on sustainability commitment and attitude (Nair, 2020; López-Rubio et al., 2021). Regarding positive attitudes towards entrepreneurship, the results are also in line with previous studies, which have shown that the most successful female entrepreneurs are those with positive attitudes (Zhang et al., 2020; Elshaer & Sobaih, 2023). Risk-taking is also a key factor, as women are more likely to be entrepreneurs (Sobaih & Elshaer, 2022).

One of the most relevant contributions is that women seek sustainable commitment to their projects. This, as have been seen throughout the paper, is closely related to the purpose of female entrepreneurs and the intrinsic motivation of sustainable commitment. Therefore, female entrepreneurs aim not only to obtain economic benefits, but also social benefits to ensure sustainability and consider the needs of future generations (Vuorio et al., 2018; Figueroa-Domecq et al., 2020).

Interestingly, the study highlights the negative influence of perceived financial risk on women (Krichen & Chaabouni, 2022) and asserts that financial inclusion for female entrepreneurs needs to be promoted to reduce such risk. In addition, financial tools, such as crowdfunding, can minimise the negative effects of entrepreneurship (Martínez-Climent et al., 2021).

Concerning the importance of differentiating between contexts (Barrachina et al., 2021; Aggarwal et al., 2021) and cultures (Lily et al., 2022), prior studies have underlined the relevance of implementing and developing new policies on female EI. However, very few are specific about how this should be carried out. Therefore, we firmly detect the need to facilitate an explicit management program for institutions and organisations in charge of encouraging entrepreneurial initiatives, considering the idiosyncrasies of each environment. Given the multiplicity and differences among contexts, areas should be parameterised at the contextual level to improve program adaptability and effectiveness. This study also underlines the role of family support and how family environment stimulates female entrepreneurial development. Additionally, it can help mitigate gender inequalities (Saviano & Caputo, 2017). The results show that family support is crucial for women to take a leap into entrepreneurship, which has been validated by previous studies (Manolova et al., 2019; Maleki et al., 2021; Merino & Duchemin, 2022; Qazi et al.,

2022). Otherwise, it is difficult for women to become entrepreneurs as their family responsibilities are very high (Gódány & Mura, 2021). Until society becomes more egalitarian and there is a balance between task sharing and emotional support in the family, women will not have the same access to resources as men to run their businesses. Among the practical implications of this study, it is worth mentioning that ESE should be integrated into entrepreneurship programs as a subject or in universities, since this type of entrepreneurship promotes the creation of sustainable companies, a type of company which aim to combine economic, social, and ecological benefits. Furthermore, the adaptation of subjects to sustainability is linked to the achievement of SDGs, which have been implemented in the educational programs of many schools and universities.

Finally, this study has several limitations and offers suggestions for future research and policymakers. Regarding the gap in the ESE concept, we propose two avenues: first, we measure financial literacy on ESE (Ali et al., 2023) and its impact on female EI. For instance, studying the knowledge of financial tools, such as microcredit or crowdfunding, in greater detail can improve the environment and options for female entrepreneurs (Babajide et al., 2022). The objective is to seek a less exclusionary financial system for female entrepreneurs and to promote financial inclusion (Kazemikhasragh & Pineda, 2022). Second, we point to further analysis of how ESE can improve perceived risk, perceived financial risk, and its impact on EI (Krichen & Chaabouni, 2022).

Moreover, the literature shows the relevance of considering perceived behavioural control (PBC) and its impact on female EI (Nguyen et al., 2020; Anwar et al., 2020; Agu et al., 2022; Qazi et al., 2022; Bouarir et al., 2023; Romero-Colmenares & Reyes-Rodríguez, 2022). Therefore, including the PBC variable in our model, which refers to a person's belief in their ability to achieve their goals successfully, will provide significant value and new insights.

In the current digital age, deepening the role of inclusive innovation and technology in female EI is crucial (Ojong et al., 2021; Ali et al., 2023; Sarhan & Aziz, 2023). Thus, this study needs to be complemented by a search for entrepreneurial tools that support inclusion and sustainability through digitalisation (Elshaer & Sobaih, 2023). Furthermore,



future scholars should focus on practical implications for governments and financial institutions (Truong et al., 2022; Elshaer & Sobaih, 2023).

Additionally, our findings are more specific with alignment towards SDGs. For this reason, we measured linkages to SDGs through the new functionality offered by Scopus (Elsevier).

Finally, another area for improvement is the sample size and elaboration of a deeper cross-country analysis. For this multi-country comparison, future research should consider in a transversal way the differences between countries and contexts (Sajjad et al., 2020; Camargo et al., 2020), considering the variety of opportunity identifications (Qazi et al., 2022). Therefore, it is necessary to approach EI models by considering the heterogeneity of entrepreneurial opportunities (Vuorio et al., 2018).

#### **4.9. References**

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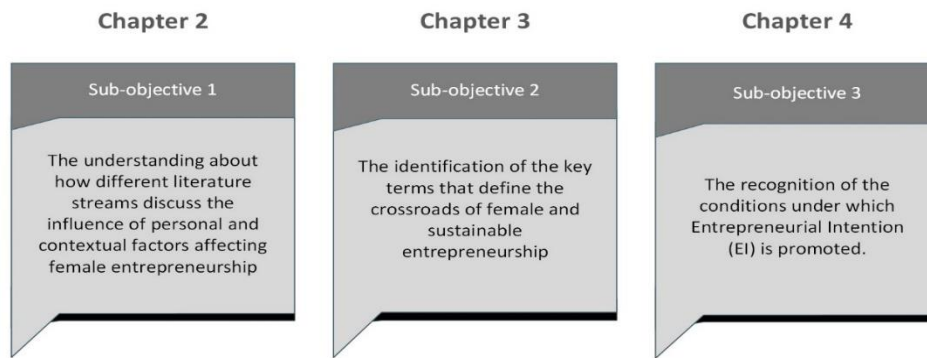
# **Chapter 5. Conclusions**

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## 5.1. Conclusions

Firstly, to improve the visibility of our conclusions we outline in Figure 19 which chapter contains the answer that the doctoral thesis offers for each sub-objective:



**Figure 19. Sub-objectives segmentation by chapter.** Source: Own elaboration

In this vein, the following Table 17 shows the synthesis of the most relevant contributions that respond to these sub-objectives, specifying to which chapter number they belong.

**Table 17. Synthesis of the main contributions.** Source: Own elaboration

CHAPTER 2
<ul style="list-style-type: none"> <li>• The bibliometric indicator about the <b>most prolific sources</b> shows a substantial growth of journals of Enterprising Communities-people and Places in the Global Economy (34 documents), Business Ethics (20 documents), World Development (13 documents), and Sustainability Issues (8 documents).</li> <li>• Following the number of cooccurrences, the analysis points <b>innovation</b> (136), <b>education</b> (111), <b>self-efficacy</b> (125), <b>family</b> (115), <b>culture</b> (62) and <b>institutions</b> (42) as crucial terms within female entrepreneurship</li> <li>• Noteworthy <b>work-family conflict</b> has the highest citations average in cluster 5, scoring 44,29. This data evidence the increasing concern of researchers on possible family conflicts faced by women entrepreneurs.</li> <li>• Although, the keyword of <b>social media</b> appears with only 20 occurrences, recent studies show that would be interesting for female entrepreneurs to better understand the role of digitalization and social media (Wang et al., 2022; Chakraborty &amp; Biswal, 2023; Ditta-Apichai et al., 2023).</li> <li>• According to the number of occurrences, culture (62) and institutions (42) are two relevant keywords. In this vein, the need of further understanding about <b>cultural connotation of institutions</b> and their different impact according to region (Elam &amp; Terjesen, 2010; Urbano et al., 2019) arises in the literature.</li> <li>• <b>Crowdfunding</b> emerges as a relevant concept, according to the highest average number of citations (21,7) of the most recent keywords (considered the papers published between 2021-2023). Thus, further analysis of financial tools, such as microfinance and crowdfunding could foster female entrepreneurship (Cumming et al., 2021; Wang et al., 2022; Asongu &amp; Odhiambo, 2023).</li> </ul>



Table 17.Continuation.

CHAPTER 3
<ul style="list-style-type: none"><li>• According to the Total Link Strength (TLS) indicator of the cooccurrence analysis <b>competitive advantage</b> (28) and <b>opportunity recognition</b> (34) are two relevant keywords within the intersection of female and sustainable entrepreneurship.</li><li>• The keyword <b>Sustainable Development Goals</b> (SDG's) scores 21 of Total Link Strength (TLS). The focus on gender studies in entrepreneurship is fundamental for achieving the SDGs (Figueroa-Domecq et al. 2020; Nair, 2020; Slam &amp; Sharma, 2022) set by United Nations (UN).</li><li>• The literature between the intersection outlines <b>multiplicity of context</b> (Barrachina et al., 2021; Aggarwal &amp; Johal, 2021; Meyer, 2022), <b>innovation</b> (Sarango-Lalangui et al., 2018; Konys, 2019; González-Serrano et al., 2020;Nair, 2020; López-Rubio et al., 2021) and <b>education</b> (Cabrera &amp; Mauricio, 2017; Cardella et al., 2020; Aggarwal &amp; Johal, 2021; Brunet et al., 2022; Ortiz-de-Urbina-Criado et al., 2022). Being interesting the concept of <b>sustainable education</b> for the female entrepreneurial process (Tillmar et al., 2022).</li></ul>
CHAPTER 4
<ul style="list-style-type: none"><li>• Recent literature shows that empowerment actions should bring women closer to understanding and use of financial tools, reinforcing <b>financial literacy</b> (Yoopetch, 2020; Khan et al., 2022), thus fostering women entrepreneurial intentions.</li><li>• The Qualitative Comparative Analysis (QCA) uncovers that <b>Perceived Attitude towards Entrepreneurship, Risk perception, Sustainable Commitment, and Family Support</b> must be present to lead Entrepreneurial Intention (EI) outcome.</li><li>• Qualitative Comparative Analysis (QCA) states that <b>Sustainable Commitment</b> must be present to lead female EI. Increasingly, women seek sustainable commitment to their projects (Figueroa-Domecq et al., 2020; Sajjad et al. 2020).</li><li>• The Qualitative Comparative Analysis (QCA) uncovers <b>Perceived Attitude towards Entrepreneurship and Sustainable Commitment</b> as significant variables,due to their level of consistency.</li><li>• Literature states that <b>Family support</b> is key as it influences the attitude, confidence and autonomy of women entrepreneurs (Manolova et al., 2019; De Clercq et al., 2022; Merino and Duchemin, 2022; Ali et al., 2023).</li><li>• <b>Education for Sustainable Entrepreneurship (ESE)</b> is not a condition for the outcome. However, it can also be observed as a result due to its recentness. It started to be analysed by Sharma et al. (2020) and from that moment on it has aroused the interest of researchers (Agu, 2021; Del Vecchio et al., 2021; Sharma et al., 2021; Aggarwal &amp; Johal, 2021; Tovmasyan, 2022; Romero-Colmenares &amp; Reyes-Rodríguez, 2022; Truong et al., 2022; Klapper &amp; Fayolle, 2023).</li></ul>

Beyond the summary of the main contributions mentioned above, we elaborate on relevant aspects related to them below:

## Chapter 2

### Sub-objective 1

The understanding about how different literature streams discuss the influence of personal and contextual factors affecting female entrepreneurship

Focusing on the first subobjective, the results reinforce the need of providing **new perspectives** on previously studied terms. Regarding education and self-efficacy, it would be useful to analyze how both terms influence the perception of opportunities among women entrepreneurs (Al-Qahtani et al., 2022) considering also the role of technology (Kusa et al., 2021). In terms of education, cluster 4 uncovers, **financial literacy** as a relevant term that could improve the understanding of tools mentioned in Table 17, such as crowdfunding and microfinance. Regarding the education another relevant factor is the level of education in families, combined with the need of new angles for the understanding of family support. Moreover, the consideration of gender roles in the study of education towards the entrepreneurial process will enrich this field of study. Lastly, past research shows a lack of knowledge regarding **female entrepreneurs' skills**. For instance, our results set resilience and decision-making as emerging topics.

## Chapter 3

### Sub-objective 2

The identification of the key terms that define the crossroads of female and sustainable entrepreneurship

In relation to the second subobjective, the idiosyncrasy of each **context, education** and women entrepreneurs' **capacity for innovation** emerge from recent research, as key elements within the intersection between female and sustainable entrepreneurship. These terms are presented as essential tools for generating competitive advantages. Interestingly, within this intersection the role of SDGs and the following question arise: Are SDGs 4, 5 and 8 the most closely linked with female entrepreneurship? Moreover, do education and innovation lead to greater development and stronger linkages between women and sustainable entrepreneurship? These questions are provided by the literature as ways that may improve the practical achievement of the **Sustainable Development Goals (SDGs)** proposed by the United Nations.

Thirdly, focusing on the third subobjective, in addition to the mentioned conditions that lead to female EI, the literature reinforces the impact of **positive attitude**. In this sense, positive attitude can also influence an individual's propensity to take risks associated with entrepreneurial activities.

Female Entrepreneurial Intention (EI) is stated as a driver of organic and **sustainable-economic growth**. Thus, to promote such growth, the inference of financial institutions is crucial (Truong et al., 2022; Elshaer & Sobaih, 2023). Furthermore, the literature also shows the negative influence of perceived financial risk on female entrepreneurs (Krichen & Chaabouni, 2022) and the inference of financial inclusion reducing such risk.

**Overall**, the thesis points out key aspects that influence the analysis and practices directed towards the field of female entrepreneurship. In addition to further understanding on concepts such as education, family support or self-efficacy, we point out the role of **technology**, capacity of **innovation** and **digitalisation** as levers that can bring new approaches to the terms already studied. In this regard, we highlight a recent concept, **soft skills**. The development of soft skills can help women in decision-making, managing potential obstacles and perceiving market opportunities.

On the other hand, understanding the peculiarities of the **context** where entrepreneurial projects are developed, considering the differences between countries, is crucial for women entrepreneurs. Furthermore, the study of female entrepreneurial intention must include the degree of knowledge of **financial tools** within the education umbrella and continue to deepen the **sustainable commitment**.

Finally, the role of the institutions in each region and the **inclusion of financial systems** are vital elements in the origin and growth of female entrepreneurial projects.

## 5.2. Managerial implications

As outlined in the first chapter, the principal objective of the thesis is to identify the factors and conditions that influence female entrepreneurship deepening the ties to their sustainable entrepreneurial spirit, while enhancing the comprehension of the managerial implications addressed to them. Although the synthesis of the contributions discussed sheds light to the first part of this primary objective, does not cover precisely the managerial implications. Then, we develop a more in deep discussion around the managerial implications. Such implications provide visibility to scholars and decision-makers to better analyze and adapt their actions aim to female entrepreneurs' performance.

From a qualitative approach, research lacks conceptual foundations of **female entrepreneurs' soft skills**. For instance, our study uncovers resilience and decision-making in emerging topics. Observing how such competencies are affecting women's entrepreneurial spirit can lead to a better comprehension of female entrepreneurs' performance. From a practical angle, initiatives could be promoted in companies and educational institutions to enhance these soft skills. To provide better visibility on the type of initiative, we include the example of Acciona, a Spanish multinational, that last year carried out an expedition of 183 women to the Antarctic where the creation of synergies and the development of soft skills such as leadership, resilience and teamwork were encouraged (Acciona Corporate, 2023). This initiative destined for female entrepreneurs may help them recognise and deal better with the obstacles of the entrepreneurial process.

We underlined the **power of digitalisation** (Elshaer & Sobaih, 2023) inferring female EI within societies. From a managerial approach, the participation and development of women entrepreneurs in digital environments where they can learn about new platforms and systems should be promoted. In the report "*El emprendimiento digital femenino en España: Situación y prospección*" coordinated by the Women's Institute in Spain, it is stated that women digital entrepreneurs cope better with possible barriers in the environment and are able to be less affected by established gender roles (Alarcos, 2021). Therefore, promoting women's participation in workshops that foster knowledge of

digital environments could improve the management of their entrepreneurial projects. For instance, a better understanding of social media use (Chakraborty & Biswa, 2023) measurement, and impact can be a first step in bringing women entrepreneurs closer to a more digital context.

Through inclusive innovation gender inequalities can be reduced. Therefore, we point to the concept of **inclusive innovation** (Ojong et al., 2021; Ali et al., 2023; Sarhan & Aziz, 2023). This is why creating spaces where innovation is generated and promoted is fundamental for the optimal development of entrepreneurship. From a practical angle, we outline the space created by the Polytechnic University of Valencia (UPV) in 2022, known as "Aula STARTUPV València Emprende", where citizens are given a better understanding of the global ecosystem in which we move, understanding new trends and improving the degree of innovation of entrepreneurs (Universidad Politécnica de Valencia, 2022). Moreover, another initiative that can promote innovation among women entrepreneurs is the Hackathon format. This is a teaching innovation methodology in which a challenge is set that has to be solved in a limited time. In this case, we point out the Hackathon organised by the University of Valencia last year, 2023, known as the Ingenia Women's Entrepreneurship Programme, whose main objective was to promote innovative and sustainable entrepreneurship (UV Noticias, 2023).

The **Education for Sustainable Entrepreneurship (ESE)** concept should be integrated into entrepreneurship programs as a subject or in universities since this type of education may promote the creation of sustainable projects. These projects can become companies with social and environmental benefits. Such projects may improve the achievement of SDGs' practical targets. These programs must consider the regions' idiosyncrasy and the variety of opportunity identifications (Qazi et al., 2022). In this regard, in addition to implementing the ESE concept, the differences between environments should be considered. (Ertac & Tanova, 2020; Aggarwal & Johal, 2021). This distinction is possible by selecting, classifying, and weighing the key environmental variables that directly and indirectly influence the entire entrepreneurship process. At this stage, we point to our Chapter 2 that outlines several external and internal variables affecting women entrepreneurs, which may be helpful. For instance, on a practical level, education for

sustainable entrepreneurship in rural areas in developing countries should have a different focus than in an urban area in a developed country.

Around the holistic concept of family, we outline the usefulness of **family-oriented educational programs** (Al-Qahtani et al., 2022) of women entrepreneurs, especially in developing countries. Given that family support is crucial for women entrepreneurs, developing training programmes for their families can be very positive for their growth, especially in developing countries.

It is worth noting that there is a need to facilitate **access to financial resources** for women entrepreneurs while eliminating gender bias on such access (Ongena & Popov, 2016; Kleinert & Mochkabadi, 2021). Thus, government actions can reinforce financial literacy to improve this first step of the entrepreneurial process (Yoopetch, 2020; Khan et al., 2022). Consequently, such policies can mitigate gender differences (Elshaer & Sobaih, 2023) while promoting diversity (Kamuhuza et al., 2022) and reducing poverty. Here, we point out the role of public institutions in trying to eliminate established biases and inequalities in obtaining funding.

In summary the doctoral thesis highlights essential factors and conditions to better understand female entrepreneurs' development and intentions. However, continuous improvement on the conclusions obtained is crucial to enrich this research field.

### **5.3. Limitations**

This section points out the main limitations associated with the doctoral thesis.

In **Chapter 2**, although our study maps the current theory surrounding female entrepreneurship, it does not offer all possible trajectories. Here, we reflect on methodological and database limitations. Firstly, the selection process may have excluded some documents with relevant contributions. In the second place, this study focuses on the Web of Science (WoS). Thus, expanding the scope to other databases, such as Scopus, could further enrich it. Finally, cross-database comparisons may provide a broader view and lend greater validity to studies (López-Rubio et al., 2021) considering differences between areas (Ertac & Tanova, 2020).

In connection with **Chapter 3**, our findings could be more specific with alignment towards SDGs. For instance, it is possible to measure the linkages to SDGs through the new functionality offered by Scopus (Elsevier). Another limitation could be the search keywords used, since using other terms could expand the sample of articles included in the intersection. As indicated in the previous chapter, it is also considered a limitation not to have used any different database than the Web of Science (WoS).

Regarding **Chapter 4**, another area for improvement is the sample size. It would be advisable to expand the sample size by including a greater number of professionals to strengthen the consistency and robustness of the obtained results. Such increase would assist us in the elaboration of a deeper cross-country analysis. Furthermore, it would have been interesting to extend the temporal perspective of our research to capture more insightful behaviors of women entrepreneurs. For instance, Bouarir et al. (2023) emphasize that longitudinal studies enhance the analysis of female entrepreneurship.

In addition, other variables could have been included that would have added value to our model, such as the Perceived Behavioural Control (PBC) variable, and its impact on female EI (Nguyen et al., 2020; Anwar et al., 2020; Agu et al., 2022; Qazi et al., 2022; Bouarir et al., 2023; Romero-Colmenares & Reyes-Rodríguez, 2022).

Continuing with the variables that would have been convenient to analyze in greater depth, the strong inference Family support in the Perception of Risk positively stimulating female EI, could enrich our model.

From a general perspective, the main limitations encountered are, firstly, that Web of Science is used as the principal database, so it would be interesting to add other sources of information. Secondly, the sample size should be increased to improve the robustness of the results obtained. And, in this sense, once the sample has been enlarged, it would be convenient to make comparisons between countries, in order to analyze the development of women entrepreneurs according to the idiosyncrasies of each context. These insights will shed light to the existing knowledge about contextual factors affecting the development of female entrepreneurs. In this vein, another limitation lies in delving

more deeply into the role of technology and digitalization on entrepreneurial projects led by women.

Finally, it would be valuable to differentiate between sectors of activity to broaden the scope and identify the areas with a higher level of success of female entrepreneurial projects and the reasons for such fact.

#### **5.4. Future research lines**

From a global angle, this section uncovers several general avenues for scholars to increase the optimization and effectiveness of further research around female entrepreneurs. These future research avenues are oriented into two main factors: context and sustainable motivation. Additionally, in the following section (5.4) we set a research agenda to delineate a comprehensive framework of strategic initiatives aimed at fostering the growth of women entrepreneurs.

Under the terms of context, as highlighted in a transversal way among our study, future research should consider the differences between countries and scenarios (Sajjad et al., 2020; Camargo et al., 2020) as well as the heterogeneity of entrepreneurial opportunities (Vuorio et al., 2018).

In relation to the difference between countries, it would be necessary to focus on what are the real obstacles that affect female entrepreneurs in developing countries (Bansal et al., 2019; Camargo et al., 2020). Therefore, as mentioned before, multi-country comparisons would favor a more integrated perspective (López-Rubio et al., 2021), while giving more solidity to this field of research.

By talking about motivation, there is research gap regarding the origins and practical implications of sustainable entrepreneurship and the way in which it can influence women entrepreneurs (Figueroa-Domenecq et al., 2020; Nair, 2020; Camargo et al., 2020; Barrachina et al., 2021; Gu & Wang., 2022). Thus, further analysis should address the sustainable motivation of female entrepreneurs. Such research could expand the limited existing literature in this area (Gu & Wang, 2022). On the one hand, scholars should further analyze sustainability policies and examine how they affect female



entrepreneurship. On the other hand, the recommendation is not to use a micro approach, to recognize similarities and differences between entrepreneurial processes accurately. As a solution, we propose to delve deeper into how the sustainable impact caused by women entrepreneurs changes according to personal and contextual factors, maintaining a wide approach.

Furthermore, to positively infer the motivation of women entrepreneur's societies need to seek a less exclusionary financial system. In this vein, future scholars may focus on the tools that may promote financial inclusion (Kazemikhasragh & Pineda, 2022).

### **5.5. Research agenda**

As introduced in the previous section, based on the preceding discussion, our doctoral thesis sets the following research agenda to foster the practical conduction of desirable research avenues for oncoming studies:

1. Regarding the gap highlighted in the contributions around the Education for Sustainable Entrepreneurship (ESE) concept, we propose two specific avenues to enrich this concept: first, **the measurement of financial literacy on ESE** (Ali et al., 2023) and its impact on female EI. For instance, studying the knowledge of financial tools, such as microcredit or crowdfunding, in greater detail can improve the environment and options for female entrepreneurs (Babajide et al., 2022). Second, we point to further analysis of how ESE can improve perceived risk, perceived financial risk, and its impact on EI (Krichen & Chaabouni, 2022).
2. The analysis of the impact of banks and gender bias in the **credit access** phase is crucial to reduce the real uncertainty of women entrepreneurs through empirical studies. Thus, scholars need to focus on exclusionary financial systems for women entrepreneurs and the practical consequences.
3. Fulfilling the lack of understanding of the **cultural connotations of institutions** and the impact on female entrepreneurs. If institutions do not consider the cultural connotation, they may perpetuate some of the obstacles women entrepreneurs face and establish policies that do not correctly understand their needs.

4. To investigate how **soft skills** are affecting women entrepreneurial spirit. Could the soft skills lead to the growth of female entrepreneurs' performance? Which ones are the most important ones?
5. Measurement of the sustainable impact caused by female entrepreneurs deepening their **sustainable motivation**. Using the advanced search by Elsevier, scholars can perform specific searches of the 17 SDGs in the Scopus database. Such an approach could reveal whether the subject matter of existing studies correlates with these SDGs. We reinforce the importance of continuing to build towards the Sustainable Development Goals (SDGs) practically, not only under theoretical and generic lens. We point out the importance of research-oriented towards goal 5, *gender equality*, specifically with target **5. b**. This point focuses on improving technology and Information and Communication Technologies (ICT) to promote women's empowerment and opportunities.

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# Appendix

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All appendices belong to Chapter 2.



**Appendix A.** Average motivations in early-stage entrepreneurship

	To make a difference in the world		To build great wealth or a very high income		To continue a family tradition		To earn a living because jobs are scarce	
	Women	Men	Women	Men	Women	Men	Women	Men
Central & East Asia	23.6	32.8	71.2	72.9	22.3	28.3	50.2	48.6
Europe & North America	41.1	38.6	40.0	49.5	23.2	25.0	63.8	59.8
Latin America & Caribbean	62.1	60.6	52.2	56.1	37.5	38.3	85.4	79.9
Middle East & Africa	44.0	43.5	73.7	75.6	35.4	36.1	80.0	73.6

**Appendix B:** Most prolific authors according to the number of publications

Author	TP	TC	Latest Report Affiliation	Country	H-Index	Average
<i>Kaciak E</i>	20	286	Kozminski University	Poland	11	14.3
<i>Welsh DHB</i>	19	349	The University of North Carolina	USA	12	18.37
<i>Marlow S</i>	18	1471	University of Nottingham	England	15	81.72
<i>Ramadani V</i>	14	209	South-East European University	North Macedonia	7	14.93
<i>Ahl H</i>	12	1609	Jonkoping University	Sweden	9	134.08
<i>Henry C</i>	12	491	Dundalk Institute of Technology	Ireland	8	40.92
<i>Ratten V</i>	12	209	La Trobe University	Australia	7	17.42
<i>Welter F</i>	12	613	University of Siegen	Germany	8	51.08

Here TP = total publications; TC = total cites; Average = total cites divided by total publications. The h-index for an author indicates the number of his/her publications cited at least h times.

**Appendix C:** Main research areas with more than 100 publications within female entrepreneurship

<b>Research area</b>	<b>TP</b>	<b>TC</b>	<b>H-Index</b>	<b>Average</b>
<i>Business Economics</i>	1727	30925	85	17.9
<i>Social Issues</i>	352	5822	37	16.8
<i>Women Studies</i> S	291	2472	25	8.5
<i>Social Sciences Other Topics</i>	260	3326	30	12.8
<i>Engineering</i>	257	4226	32	16.4
<i>Computer Science</i>	238	3481	29	14.6
<i>Sociology</i>	181	1893	23	10.5
<i>Environmental Sciences Ecology</i>	173	2510	27	14.6
<i>Psychology</i>	145	2156	21	14.9
<i>Geography</i>	140	2290	27	16.4
<i>Public Administration</i>	109	1283	20	11.8

Here TP = total publications; TC = total cites; Average = total cites divided by total publications. The h-index for an author indicates the number of his/her publications cited at least h times.

**Appendix D:** Most relevant sources according to the number of documents

Journal	Cluster	Links	TLS	Number of docs.	TC	Average Publication Year
Small business economics	5	59	940	81	3678	2020,1
International journal of gender and entrepreneurship	2	60	781	69	606	2020
Sustainability	1	46	262	51	361	2009,9
International journal of entrepreneurial behavior & research	1	46	552	49	617	2019,4
Gender in management	1	53	431	44	527	2019,5
Entrepreneurship and regional development	4	55	653	39	1561	2019,2
Journal of small business management	4	52	549	37	1377	2019,8
International small business journal-researching entrepreneurship	4	57	639	36	1539	2015,5
International entrepreneurship and management journal	10	55	652	35	916	2021,4
Journal of enterprising communities-people and places in the global economy	2	42	204	34	175	2022
Journal of entrepreneurship in emerging economies	7	52	335	34	337	2020,7
Journal of business venturing	5	58	710	32	3718	2018,1
Entrepreneurship theory and practice	8	64	1200	31	4424	2019,8
Journal of business research	3	51	428	31	626	2020,5
Gender work and organization	4	37	229	24	630	2015,2
Journal of developmental entrepreneurship	3	34	143	24	61	2021,6
Frontiers in psychology	1	42	169	23	232	2014,6
Journal of business ethics	6	48	250	20	767	2021,2
Journal of small business and enterprise development	3	33	148	15	173	2019,5

*Links and Total Link Strength = indicate respectively, the number of links of an item with other items and the total strength of the links of an item with other item; Docs= total number of documents per source; TC = total number of citations received by all documents published by each source; Average publication year = corresponds to the average publication year of the all the documents published by each source.*



## Appendix D: Continuation

Journal	Cluster	Links	TLS	Number of docs.	TC	Average Publication Year
Journal of asian finance economics and business	2	18	38	14	56	2017,7
Journal of global entrepreneurship research	2	32	65	14	94	2016,5
Entrepreneurship research journal	5	34	153	13	89	2021,6
World development	6	28	65	13	407	2021,6
Journal of sustainable tourism	4	24	68	12	32	2019,8
Management decision	2	36	144	12	245	2018,7
Journal of african business	3	20	41	11	10	2022
Pacific business review international	2	10	12	11	3	2021,3
Womens studies international forum	1	34	81	11	291	2019,8
Business history	9	3	4	10	29	2019,3
International journal of entrepreneurship and innovation	4	21	43	10	50	2020,4
Journal of family business management	9	27	79	10	24	2020,5
Administrative sciences	3	29	90	9	70	2020
European journal of development research	2	43	193	9	534	2019,2
Sage open	7	25	72	9	42	2009
Advances in developing human resources	2	18	24	8	39	2017,9
African journal of business management	1	26	47	8	144	2019
Entrepreneurship and sustainability issues	3	15	25	8	35	2022,1
International journal of emerging markets	1	24	84	8	78	2018,4
Polish journal of management studies	3	17	31	8	31	2020,9
Strategic change-briefings in entrepreneurial finance	6	23	74	8	35	2012,9
Gender place and culture	5	11	21	7	84	2019,8
International journal of early childhood special education	1	12	15	7	0	2008,9

## Appendix D: Continuation

Journal	Cluster	Links	TLS	Number of docs.	TC	Average Publication Year
Asia pacific journal of innovation and entrepreneurship	1	15	25	6	83	2020
Asian business & management	2	20	43	6	31	2021,1
Economics & sociology	3	14	26	6	30	2021,7
International journal of entrepreneurial venturing	6	20	43	6	27	2020,6
International journal of social economics	2	21	55	6	62	2022
International small business journal	4	22	48	6	107	2019,8
Journal for international business and entrepreneurship development	1	12	28	6	26	2013,2
Journal of enterprising culture	3	17	31	6	5	2021,8
Journal of research in marketing and entrepreneurship	1	25	48	6	30	2020,1
Service business	1	25	43	6	30	2016,6
Applied economics	6	9	15	5	44	2022,4
Asian women	2	14	30	5	6	2017,7
Cogent business & management	3	14	26	5	13	2021
Cogent social sciences	7	18	26	5	6	2020,1
European business review	1	21	34	5	18	2020
Global business review	2	8	12	5	14	2020,6
Heliyon	3	14	16	5	9	2021,6
Indian journal of economics and development	7	2	2	5	1	2021,1
International journal of sociology and social policy	7	31	75	5	65	2021,8
Journal of agricultural extension	8	1	1	5	6	2018,3
Journal of organizational change management	1	31	88	5	394	2021,1
Organization science	5	13	34	5	114	2021,2
Review of development economics	6	11	12	5	27	2021,1
Revue internationale pme	4	9	19	5	0	2020,4
Strategic entrepreneurship journal	5	12	32	5	16	2019,2
Technological forecasting and social change	3	23	67	5	128	2013,9
Venture capital	5	15	44	5	103	2012



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