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SUSTAINABILITY AND EMPLOYABILITY: THE CASE OF SUSTAINABLE FOOD PACKAGING

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Summary
At a time when companies are increasingly being encouraged to rethink their consumption models, the adoption of innovative packaging solutions is a promising way of stimulating creativity and competitiveness. Although interesting, this innovation has a social, environmental and economic impact throughout its life cycle, from production to end-of-life. This article highlights how this social impact affects employability and job creation. Using a Social Life Cycle Assessment (SLCA) combined with a mixed approach, the results will shed light on how this innovation impacts job creation and what differences can be identified between the countries studied. This research lays the foundations for the study by examining the link between sustainability and employability. By focusing on the points of convergence between these two concepts, it aims to shed light on how each influences the other. The aim is then to gain a better understanding of the potential synergies that may emerge and to identify the practical implications for industry players. This research stands out for its approach and its ability, firstly, to offer an analysis of the existing synergies between the two concepts and, secondly, to prepare the ground for the current study.

Key words: *Sustainability, Employability, Sustainable packaging, Social life cycle*

Abstract
In a context where companies are increasingly encouraged to rethink their consumption models, the adoption of innovative packaging solutions emerges as a promising avenue to stimulate creativity and competitiveness. While this innovation is indeed intriguing, it carries social, environmental, and economic impacts throughout its life cycle, from production to end-of-life. This article highlights how these social impacts manifest in terms of employability and job creation within this evolving industry. Through a Social Life Cycle Analysis (S-LCA) and a mixed-methods approach that combines quantitative and qualitative data, the findings will illuminate the emergence of sustainable jobs and significant disparities between positions across the studied countries.
This research lays the groundwork for the study by first examining the link between sustainability and employability. Thus, by focusing on the converging points between these two concepts, it aims to clarify how each influences the other. The goal is to gain a deeper understanding of the potential synergies that may arise and to identify practical implications for industry stakeholders. This research is distinguished by its innovative approach and its ability to provide, first and foremost, an analysis of the existing synergies between the two concepts, while also paving the way for the ongoing study.

Key words : *Durability, Employability, Sustainable Packaging, Social Life Cycle.*

1. Introduction

In a global context marked by a growing awareness of environmental issues, sustainability is becoming a strategic priority for many economic sectors, influencing every link in the value chain. This quest for sustainability responds to the need to limit environmental impacts while rethinking production and consumption patterns.
Among the industries at the heart of this transition, packaging is playing a key role in the research and development of sustainable packaging solutions, particularly in the food sector. These sustainable solutions help to reduce the ecological footprint and meet the growing expectations of consumers and regulators for environmentally-friendly products.
At the same time, this transformation of the sustainable food packaging sector is leading to profound changes in the professions, opening the way to new career opportunities. However, with these opportunities comes an increased demand for specialist skills, from mastering innovative technologies to understanding the imperatives of sustainability.
This raises the following question: How can the growth of the sustainable food packaging industry both support sustainability goals and boost employability by creating new career opportunities?

First, the key concepts of sustainability and employability will be defined in order to establish a conceptual framework and situate the research within the existing scientific landscape. Next, the links between sustainability and employability will be explored in the context of sustainable food packaging. Finally, the methodology adopted for the current study will be detailed, in order to explain how the qualitative and quantitative approaches employed respond to the issues raised.

2. Conceptual Framework: Exploring the concepts of Employability and Sustainability

Discussions around sustainability and employability are becoming increasingly important in the current context, and the interaction between the two concepts is based on profound reflections on their definition and practical implementation. It is therefore relevant to clarify the initial perspectives on sustainability and employability by identifying relevant pioneering work.

2.1. Initial thoughts on the concept of sustainability and employability

The concept of sustainability, as it is widely understood today, has its origins in the context of the 1960s and 1970s, marked by a growing awareness of the ecological limits of our planet and the need for balanced development. Indeed, Boulding points out in his 1966 essay "*The Economics of the Coming Spaceship Earth*", "*The closed economy of the future might similarly be called the 'spaceman' economy, in which the earth has become a single spaceship, without unlimited reservoirs of anything, either for extraction.*" (Boulding, K.1966, p.08). In other words, land and sea resources are limited, just like those of a "spaceship". This reality calls for an urgent awakening to the fact that the idea of the Earth as a finite system is beginning to emerge. He goes on to say that the expression "cyclical ecological system" seems to echo the concept of the circular economy as we know it today, and provides a concrete solution for improving the environment in the interests of sustainable development. In this way, Boulding's vision of a limited Earth integrated into a cyclical ecological system anticipates the fundamental principles of the circular economy, which today are key levers for a sustainable future. In short, through his essay, Boulding laid the foundations for the concept of sustainability and resource limitation, a concept that would later be taken up and formalised in several major reports.

The 1970s and 1980s, often regarded as the starting point for modern thinking on sustainability, were also marked by the publication of numerous reports and studies, including the famous "*Limits to Growth"* report by the Club of Rome[1] in 1972. In 1972, the Club of Rome produced a report whose main objective was to use a computer model, called *World3*, to simulate the impact of continued growth on a limited planetary system. According to the authors of the report, *"If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years" (*Meadows, D. H., Meadows, D. L., Randers, J., & Behrens III, W. W., 1972, p. 23*)*. In other words, it points out that the Earth has finite resources that are crucial to preserve and if industrialisation continues on its current trajectory, these resources could be exhausted within a hundred years, with irreversible consequences. In terms of impact, the report and the concept of limited resources mark a break with the then dominant idea of unlimited economic growth, making political decision-makers, researchers and the public aware of the urgency of preserving the environment.

In the same vein, the thinking was taken up and formalised in the famous Brundtland Report "*Our Common Future*", published in 1987 by the World Commission on Environment and Development[2] . This document introduced the founding concept of "sustainable development", defined as development that meets the needs of the present without compromising the ability of future

[1] Founded in April 1968 by a team from M.I.T., the club's mandate is to put unlimited growth on trial and denounce its harmful effects, in order to give a chance to a perspective of cultural change necessary to avoid compromising the future of humanity on planet Earth.

[2] Commission created in 1983 by the United Nations, also known as the Brundtland Commission.

generations to meet their own needs. The authors point out that: *"Today, many regions face risks of irreversible damage to the human environment that threaten the basis for human progress"*. (World Commission on Environment and Development, 1987, p. 26). In other words, today's actions determine tomorrow's results, and without collective awareness, the risks could become irreversible, posing a serious threat to the future of humanity. In the same report, the concept of sustainable development is structured around two fundamental axes: on the one hand, meeting the essential needs of the most deprived populations, considered an absolute priority, and on the other, the limits imposed by technology and social organisation on the environment's capacity to meet current and future needs. This body of work marked a turning point in terms of awareness, becoming a real driving force for change. Indeed, at the Rio Earth Summit in 1992, the Bruntland report was a real catalyst for the adoption of **Agenda 21**, an action plan for sustainable development at global, national and local level. In addition, a number of international conventions and agreements have been signed, such as the United Nations Framework Convention on Climate Change (UNFCCC, 1994) and the Kyoto Protocol (1997).

2.2 Triple Bottom Line: The 3 pillars of sustainability

As part of the process of defining and framing the concept of sustainability, it is worth exploring the theory of the Triple Bottom Line (TBL), developed by John Elkington in his 1997 book *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*. In this book, Elkington broadens the notion of organisational performance beyond simple financial criteria and develops the TBL theory, which is based on three key dimensions: economic, environmental and social, commonly known as the '3Ps': Profit, People, Planet.

The economic dimension (Profit)

Firstly, the economic dimension of TBL emphasises the importance of long-term value creation, as well as the financial viability of organisations and their ability to generate profits by meeting the needs of their stakeholders. In contrast to a purely capitalist vision, this approach advocates value creation based on principles of ethics and responsibility. Ethically responsible leaders adopt sustainable business practices, promote stakeholder engagement and opt for prudent resource management.

The environmental dimension (Planet)

Secondly, the environmental dimension focuses on preserving ecosystems and reducing the negative impact of human activities on the planet. It recognises that economic growth cannot be sustainable without responsible management of natural resources and a reduction in greenhouse gas emissions ( ). This is why it is important to raise awareness among companies of the importance of integrating environmentally-friendly practices, such as the use of renewable energy, sustainable management of water resources and recycling of materials.

The social dimension (People)

Finally, the social dimension of TBL highlights the importance of ensuring fair working conditions, respecting human rights and promoting inclusion and diversity within communities and organisations. In the context of sustainability, encouraging the introduction of employee training programmes, investment in local infrastructure and support for marginalised communities all help to significantly reduce inequalities. In addition, particular attention is paid to the social impact of products and services, since a company that develops solutions that are accessible and adapted to the needs of vulnerable populations can both respond to major social issues and strengthen its social acceptability.

To sum up, these 3 pillars can be summarised by a relationship represented graphically, in the figure below, by the intersection of three circles where stability can only be achieved when the three factors are considered simultaneously, their central intersection symbolising this balance.

Fig. 1: The interconnection of the elements of the Triple Bottom Line concept.[3]

In short, this reflection on the foundations of the concept of sustainability and employability shows the evolution of ideas related to sustainable development. The work of the Club of Rome and the Brundtland Report in the 1960s established the principles of sustainable development, emphasising the interconnection between the needs of the present and those of future generations. These initiatives have catalysed a worldwide awareness , reinforced by international conventions such as the Rio Earth Summit and the Kyoto Protocol.
So, having explored these ideas, it is worth looking at how the concept of employability is adapting to the constant changes brought about by the sustainability of processes.

2.3 Employability: a multifaceted concept in constant evolution
The concept of employability has evolved over time, adapting to economic, technological and social changes, and emerged in the 1990s as a response to the transformation of labour markets, particularly the rise in unemployment, economic instability and the rapid evolution of the skills needed on the market. For this reason, theorists began to introduce the concept of individual employability, emphasising the autonomy of the employee in his or her career path.
One of these theorists is Alain Dubar, who in 1991 proposed a sociological analysis of employability in his book *"La socialisation: Construction des identités sociales et professionnelles*". He defined employability as a dynamic and evolving capacity, dependent on both individual skills and structural conditions. He also highlighted the individualisation of career paths, where employees can no longer rely on linear trajectories guaranteed by stable organisational structures, but must continually adapt to a changing environment.
Dubar also develops a number of major concepts, including that of ***occupational transitions,*** which he defines as the key moments when individuals move from one situation to another, such as employment to unemployment or retraining. He then examines the relationship between ***flexibility and precariousness***, pointing out that while flexibility has become an increasing requirement for companies, it often leads to instability for workers. This tension highlights the emerging challenges of employability, requiring individuals to reconcile personal and professional balance while simultaneously adapting to fluctuating market demands. Finally, he stresses the central role of ***public policy and training*** in enhancing employability. It considers that the rapid obsolescence of skills, accelerated by technological change, means that knowledge and know-how must be constantly renewed if we are to remain competitive on the labour market.

[3] Source: Dalibozhko, A., & Krakovetskaya, I. (2018). Youth entrepreneurial projects for sustainable development of the global community: Evidence from the Enactus programme. *Tomsk State National Research University, Institute of Economics and Management*.

Like Dubar, Zarifian, P. contributed to the understanding of the transformations of work and skills in a context of modernisation and globalisation through his book "*Objectif Compétence: Pour une nouvelle logique*" published in 2001. He explains that skills are not limited to diplomas or fixed qualifications, but should rather be thought of as capabilities that can be improved and adapted in a variety of professional situations. Unlike qualifications, which are defined by formal knowledge, skills refer to the dynamic mobilisation of knowledge, know-how and interpersonal skills, integrating both theoretical knowledge and its practical application. In addition, Zarifian includes the collective dimension in the construction of skills, emphasising that skills are often developed within a cooperative framework. This is promoted through exchange and collaboration with other workers, who then become essential drivers in the construction of knowledge. In his view, the collective should not be seen as a mere adjunct, but rather as a central vector in professional learning, particularly in complex and collaborative work environments. Finally, he emphasises the impact of new technologies on skills, pointing out that technological advances not only transform tasks but also require constant adaptation of know-how and skills. Faced with this phenomenon, it is important to advocate continuous, lifelong training, in which individuals must support their professional development by developing transferable skills.
Thus, sustainability, rooted in an awareness of ecological limits, has developed through historical thinking, such as that of Boulding and the Club of Rome, emphasising the interconnection between present and future needs. On the other hand, the constantly evolving concept of employability incorporates not only individual skills but also collective dynamics and the demands of an unstable labour market, with a particular emphasis on adaptability and continuous training. Together, these two axes underline the importance of aligning with responsible and flexible practices to meet contemporary challenges, favouring a sustainable balance between work and the environment.

3. Employability in sustainable industry: the case of sustainable food packaging

The global economic landscape has been redefined in recent decades by growing environmental challenges, which have led to the expansion of sustainable industry and created opportunities for employability. However, to operate effectively in this new environment, it is important to adopt a holistic approach that incorporates aspects such as ethics, innovation and sustainable practices as well as technical skills and sector knowledge.

3.1 Employability and sustainability: between industry change and challenges

Today, the sustainable industry is emerging as a dynamic and rapidly expanding sector, offering exciting new avenues for employability. This evolution is creating a multitude of opportunities for individuals wishing to contribute to a more environmentally-friendly future, but it also presents a number of challenges.
This so-called expansion of the sustainable industry has opened up new avenues and opportunities for employment as indicated in the International Renewable Energy Agency's (IRENA) annual report, *"Renewable Energy and Jobs - Annual Review 2021"* published in October 2021. The report revealed that in 2020, around 12 million people were employed in the renewable energy sector. In addition, the same study projected that, by 2030, the total number of jobs in renewable energy could reach 24 million under robust growth scenarios, highlighting the sector's considerable potential to contribute to global employment while supporting climate goals. This same forecast was announced earlier in 2018 by the International Labour Organization (ILO) in their report "*World Employment Social Outlook 2018: Greening with Jobs*". Indeed, according to the report, the transition to a green economy could generate up to 24 million additional jobs worldwide by 2030. It also adds that this growth extends to various sectors, including renewable energy, waste management and energy efficiency technologies, underlining the importance of an integrated approach that takes account of environmental challenges.

These statistics show that the move towards a sustainable economy is not just a moral or environmental imperative, but also a genuine opportunity to renew and diversify the labour market. Sustainable industry undeniably paves the way for a diverse range of jobs, from emerging occupations to specialist training, while supporting collective efforts towards more responsible and sustainable development.

In addition, in response to growing needs, we are now talking about "Green careers", as described by Rush, A. & Cassio, J. in 2010 in "*Green Careers: Choosing Work for a Sustainable Future*". According to them*, "Green careers involve working in green jobs that are focused on sustainability and/or environmental protection and preservation."* (Rush, A. & Cassio, J., 2010, p.01). In other words, this type of career encompasses occupations that contribute directly to environmental protection and also extend to various fields such as renewable energy and the circular economy. This creates a wide range of opportunities for individuals wishing to embark on a path that is both ethical and strategic. Rush, A. and Cassio, J. also add that *"These jobs can be defined either by the nature and purpose of the job or by nature and purpose of the employer"* (Rush, A. & Cassio, J., 2010, p. 01) or in other words, these "green jobs" can be characterised by the specific tasks and objectives they pursue in terms of sustainability and by the overall commitment of the company offering them. This means that a green career can be determined both by the individual tasks aimed at improving environmental conditions - such as waste management - and by the type of organisation, whether it is a company dedicated to sustainability or one that integrates environmentally-friendly practices.

This two-pronged approach provides a clearer picture of the diversity of green careers and encourages professionals to think about how their work choices can be aligned with their ecological and ethical values.

3.2 Sustainable food packaging: a new horizon for employability

As consumers, businesses and governments support innovative, environmentally-friendly solutions, the food packaging sector is evolving rapidly, bringing with it a growing demand for specific skills. In this context, employability becomes a key notion, offering professionals looking for a green career a fertile ground where expertise and social responsibility come together.

Far from being just a trend, the sustainable packaging industry has become a real driver of innovation that on the one hand significantly reduces environmental impact and on the other hand stimulates job creation in various fields.

Firstly, it is important to note that the food packaging sector is the largest user of plastics (around 40%). Similarly, plastic packaging is responsible for around 60% of post-consumer plastic waste in the European Union, most of which is used only once before being thrown away.[4] However, although consumers are increasingly aware of the environmental damage caused by this packaging, they are less aware of the ecological impact caused by microbial contamination. This is driving the food industry to explore innovative, biodegradable and recyclable food packaging materials with the right functionality to prevent food spoilage without causing environmental damage.

In addition, the research and development of eco-friendly innovations such as biomaterials has proven to be an excellent matrix for the development of functional packaging materials by incorporating various additives such as antimicrobial agents, antioxidants, nutrients etc. This has been shown to improve both food quality and product shelf life by limiting microbial proliferation and avoiding microbial contamination of the environment. This has been shown to improve both food quality and product shelf life by limiting microbial proliferation and avoiding microbial contamination of the environment. [5]

In this context, job opportunities are multiplying due to the growing demand for positions, as companies operating in this industry are increasingly looking for specialised profiles with skills in

[4] PlasticsEurope (2019). *Plastic - The Facts 2019*.

[5] Yushkova, E. A., Reshetilov, A. N., Shumakovich, G. P., Bayramov, T. D., & Yaropolov, A. I. (2019). *Application of immobilized enzymes in food industry*.

biotechnology, materials chemistry and environmental engineering. This development has a direct impact on the employability of individuals, opening up new training and career paths and presenting specific challenges. In terms of forecasts, according to a Mordor Intelligence report published in 2021, the sustainable packaging market is expected to reach USD 412 billion by 2027, with a compound annual growth rate (CAGR) of 7.7% between 2021 and 2026[6] . This forecast points to a promising future for employability, as the rise of green initiatives means that many companies are looking to integrate sustainable practices into their business models. This transition is leading to new job openings in a variety of fields, from environmental engineering and resource management to green product innovation. For example, companies committed to achieving high environmental standards will need skilled professionals to develop cleaner production methods and design sustainable products. In addition, the development of green technologies will also stimulate demand for a specialised workforce. Skills in data analysis, software engineering for waste management systems, and the marketing of sustainable products will be increasingly in demand.
In short, the sustainable packaging industry as a whole is a driving force for innovation and job creation, responding to today's environmental challenges. Growth forecasts for the sector point to a growing demand for specialist skills, promising a future where sustainability and employment opportunities come together. This path towards a greener economy is an ecological imperative and a lever for sustainable prosperity for generations to come.

4. Discussion and analysis

Sustainability, both environmental and social, relies on a deep understanding of the interactions between economic practices, business opportunities and impacts on communities. Furthermore, tools such as Social Life Cycle Assessment (SLCCA) are proving to be essential for assessing these impacts, particularly in the sustainable packaging sector. By focusing on employability, this methodology makes it possible to decipher the relationships between the various players throughout the process, providing an overview of the opportunities and challenges associated with this industry.

4.1 ACVS: An effective tool for identifying the social impact on employability

In order to gain a better understanding of the social impact of sustainable food packaging on employability, the study will be based on EVOLVEPACK, a project forming part of the PRIMA programme supported by the European Union, which focuses on sustainable and innovative strategies for combating food waste in the Mediterranean region. Within the project, new antimicrobial, compostable and/or recyclable food packaging materials will be developed by integrating the environmental, economic and social impacts of packaging systems throughout the product life cycle. By integrating the LCA method, the survey will cover the entire process, from the collection of raw materials to the end of the product's life, in order to draw conclusions about their impact on employability. It is important to note first of all that there is currently no standardised methodology for measuring and assessing social impacts, due to the complexity of the social issues involved. Consequently, it is essential to adjust this method according to the available input data and the context in which it is applied. This is why one of the main objectives of this analysis is to develop a more or less standardised methodology for measuring and assessing the social impacts of eco-food packaging. At the same time, we want to identify the most effective strategies for promoting gender-equitable job creation. In fact, this breakdown by gender will make it possible to highlight gender gaps and identify opportunities for improving employability in this industry.
First of all, six main categories of data will be taken into account in this analysis, including the number of employees and the distribution of jobs within companies, as well as the qualifications required and the training of employees. The duration and stability of jobs will also be assessed, as will the working

[6] Mordor Intelligence. (2021). *Sustainable Packaging Market Growth - Industry Analysis, Size & Forecast* Report (2025 - 2030)

conditions that prevail in this sector. In addition, the issue of employee remuneration will be examined, as well as the professional development opportunities offered. These data will provide a complete picture of the social impact of eco-packaging and identify significant areas for improvement. In addition, the data will be broken down into four sub-categories of positions: strategic, expert, intermediate and operational, in order to obtain more relevant data. Strategic positions include roles such as managing director or operations director, while expert positions include jobs such as biochemists and scientific analysts. Intermediate positions include functions such as production manager and finally operational positions include maintenance roles such as production operator or machine driver.

This breakdown will help us to obtain more precise data. For example, by analysing the minimum level required for expert positions, we will be able to identify trends and the levels generally expected for this type of position, which will then enable us to assess their impact on employability. Similarly, examining the training required for a specific type of position will enable us to determine the minimum level expected by companies in this sector. As a result, the analysis could yield interesting and useful results for individuals wishing to continue or begin a professional career in this industry.

Secondly, the gender breakdown at each stage of the process plays an essential role in identifying gender gaps in this industry. If we take the remuneration of expert positions as an example, we will be able to identify existing or potential pay gaps between men and women. This assessment will then enable us to identify opportunities for improvement to reduce these gaps and also explore the possible underlying causes. In this way, we will be able to formulate relevant and strategic recommendations aimed at rectifying these disparities and promoting fairer pay within the industry. Furthermore, within EVOLVEPACK, one of the aims of this social life cycle analysis is to promote female entrepreneurship in fields related to eco-packaging by providing them with funding, technologies and innovative tools. In this way, the employability of women can be enhanced and the shortcomings identified can be mitigated thanks to the recommendations resulting from the analysis.

In addition, the analysis will be carried out on three distinct Mediterranean countries, namely Morocco, Portugal and Turkey, in order to produce a relevant comparative study. By integrating data from different countries, we will be able to optimise a triangulation of the information gathered, which will provide more concrete information on the social impact of this industry. It is essential to emphasise that we will be using the same categories of data, while incorporating a few distinctions, such as the standard of living in the country in question. This will ensure greater relevance, particularly in terms of salary ranges, and provide a more complete overview of the situation.

Finally, once the data has been collected, it will be incorporated into an econometric model that will enable an in-depth analysis of the information gathered. The aim of this model is to identify significant trends, establish averages and produce quantifiable results that will then be interpreted and explained. In this way, we will be able to understand the underlying patterns and identify potential relationships between the different variables studied. Alongside this primarily quantitative analysis, we will adopt a complementary qualitative approach, which will involve conducting interviews and distributing questionnaires. This approach will enable us to explore the perceptions, motivations and experiences of the participants, which will enrich our understanding of the dynamics involved. Consequently, by comparing the qualitative results with the quantitative data, we will be able to verify the validity of the initial hypotheses and make enlightening comparisons between the two sets of data.

The aim of this mixed approach is, on the one hand, to strengthen the robustness of the conclusions and, on the other, to offer a more holistic perspective on the issues addressed. By incorporating both figures and qualitative evidence, we can better understand the nuances and complexities of the situation being analysed. This approach will also enable us to identify recommendations based on tangible evidence and to better respond to the specific needs identified in the course of our study.

4.2 Limitations of the analysis and future proposals

Nevertheless, this study presents a number of challenges inherent in its design and methods of analysis. Firstly, the lack of a standardised methodology for measuring social impacts makes it more difficult to assess the results, making comparisons between different regions and contexts more delicate. In addition, the variety of data collection systems in the three countries studied could compromise the reliability and comparability of the information gathered. Finally, these factors, combined with the diversity of socio-economic issues, raise questions about the real impact of eco-packaging practices on employability and make it difficult to isolate the specific effects linked to this industry.

In addition, the gender breakdown, while relevant, also presents challenges in terms of data collection and analysis, particularly due to the under-representation of women in certain job categories, such as operational positions. In addition, potential response biases in the qualitative results may alter the validity of the conclusions drawn from the interviews and questionnaires. Finally, it is essential to bear in mind that the results obtained may not reflect long-term trends, given the rapid evolution of the sustainable packaging industry. Prolonged monitoring would therefore be necessary to assess the real evolution of impacts and adapt recommendations accordingly.

In order to ensure that the results of this study are more robust, a number of avenues for future work should be explored. Firstly, it is crucial to expand the bibliography on eco-food packaging research, as the current body of work remains limited and inadequate. To achieve this, it would be wise to encourage collaboration with experts in the field and with specialist academic institutions. Such a partnership could encourage the development of a more precise and standardised methodology for reliably assessing social impacts in different cultural and economic contexts. Secondly, extending the sample to other Mediterranean or European countries would provide a more relevant comparative perspective. This diversification of the cases studied would help to identify specific trends and challenges encountered in different environments. Finally, it would be relevant to include additional dimensions such as the age, ethnic origin or socio-economic status of workers. By incorporating these parameters, the research would gain in depth and relevance, providing a better understanding of the disparities and dynamics within this industry.

Conclusion and summary

The sustainable food packaging industry is emerging as a key driver of innovation, responding to environmental imperatives while promoting job creation. The transition to biodegradable and compostable packaging solutions, using innovative materials such as antimicrobial biomaterials, is opening up new career paths.

This study is part of an ambitious approach to analysing the social impact of the sustainable food packaging industry on employability, using the social life cycle analysis (SLCA) method. By examining the interactions between the various players throughout the life cycle, it will make a valuable contribution to understanding the economic, social and professional dynamics within a rapidly expanding industry.

In this context, LCA is proving to be a strategic tool for assessing social impacts, particularly in terms of job creation, skills development and improved working conditions. The methodology adopted in this research highlights key criteria, such as the breakdown of positions (strategic, expert, intermediate, operational) and the gender breakdown, providing a detailed analysis of opportunities and disparities within the industry.

However, this research faces a number of challenges, including the lack of a standardised methodology for quantifying social impacts. In addition, the diversity of data collection systems between the countries studied (Morocco, Portugal and Turkey) also complicates the comparability of results.

Ultimately, this study highlights the central role of the eco-packaging industry as a driver of innovation and job opportunities in the transition to a greener, more sustainable economy. It also highlights the importance of taking social dimensions into account within industrial strategies, in order

to maximise the benefits for communities and ensure inclusive and equitable growth. This journey towards sustainability, while ambitious, remains fraught with challenges, but represents an ecological imperative as well as a vector of prosperity for future generations.

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