FOOD

Sector Focus

Sustainable food

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Ajuntament de Barcelona

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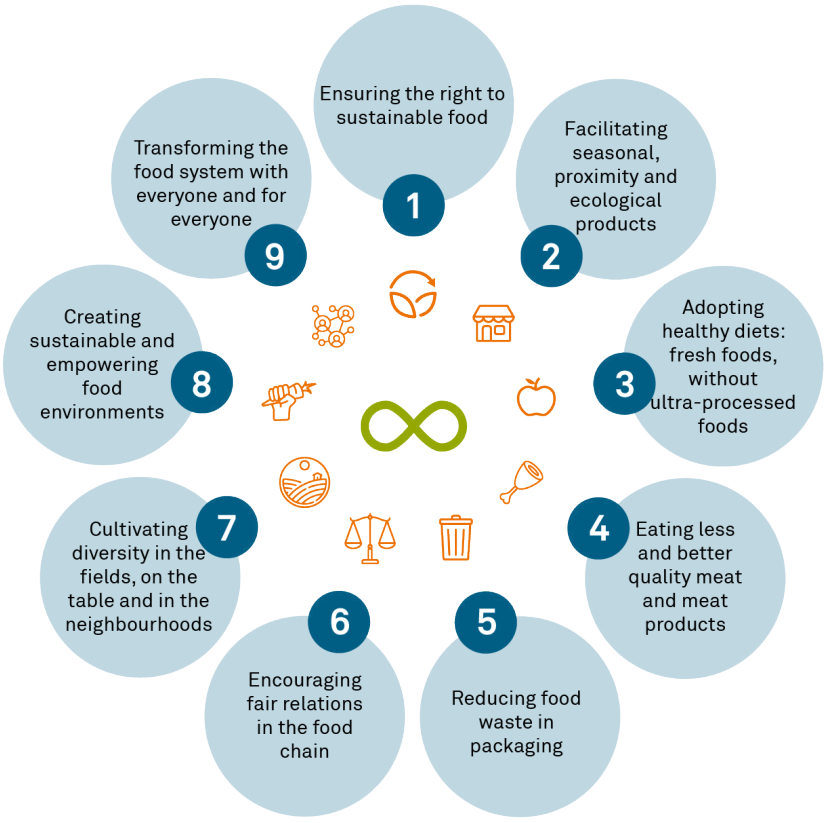
A more sustainable and respectful food model

- Food is a **key element for health**, as well as an **economic engine** with a direct impact on wealth generation and job creation. However, there is a dispute over the current food model and its ability to feed a growing population under **minimum sustainability criteria** is questioned. There are multiple **negative impacts** on the people and the planet: **environmental** -pollution and emission of greenhouse gases-, **social** -food waste and famine- and **health-related** -overweight and other pathologies. In this context, there is a need to move towards a food model that puts the health of the planet and its inhabitants at the centre of all the links in the value chain -production, processing, distribution and consumption- with the aim of building a **more sustainable and respectful system** that is healthy, safe and socially fair in the long term.

Figure 1. The dimensions of sustainable food



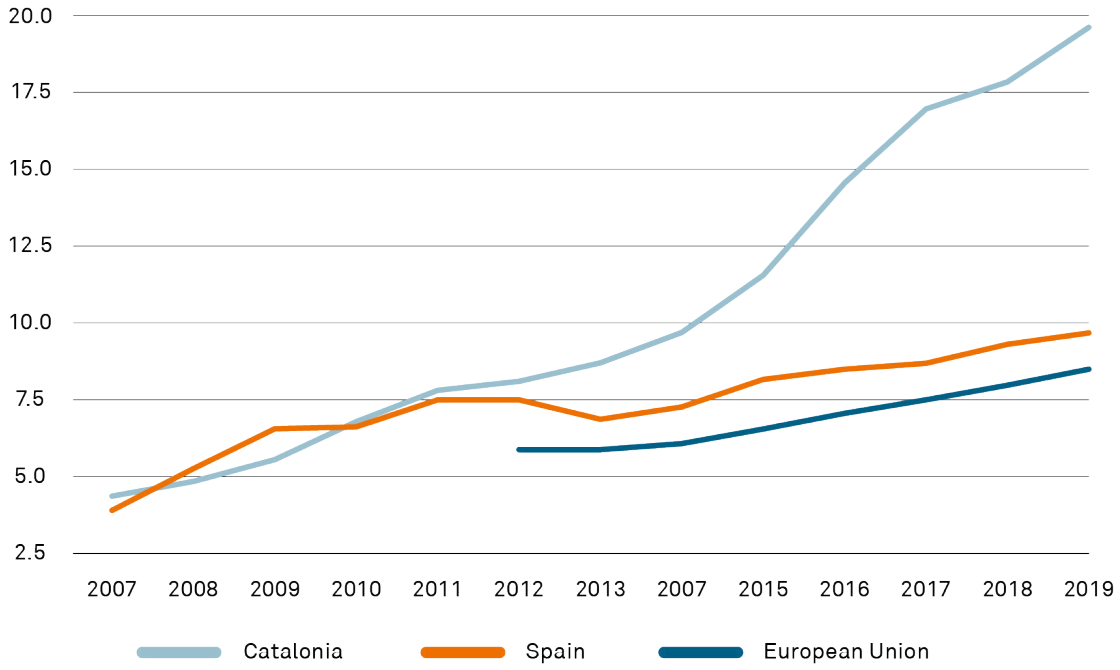
Source: Prepared by the authors, based on data found in the report "L'alimentació sostenible. Manual per a ciutats" (2020).

One of the most concerning consequences of the current agri-food systems is their great negative impact on climate change. **Food as a whole is responsible for 26% of global greenhouse gas emissions**, which occur throughout the value chain process: from animal and plant production (52% and 29% of total food systems, respectively), processing and packaging (9%) and transport and distribution (9%). Finally, one third of these emissions are food waste and loss.

Besides, agri-food systems, as they are mostly designed today, are highly demanding of finite or slow-recovery resources. In this context and with the challenge of turning the situation around, **Spain has more than 2.44 million hectares dedicated to ecological production crops** (2020) according to data from Eurostat and Caixa Bank Research, which makes it the first country in the European Union and the third in the world, after Australia and Argentina. With regard to the utilised agricultural area (UAA) -so, in terms of activity- Spain (8.24%) is above the EU average (7.92%), but it is well below the leading countries, such as Austria, Estonia and Sweden.

In **Catalonia**, in recent years the production area and the number of ecological operators have grown exponentially, according to data by Idescat. Currently, there are more than **256,000 Ha dedicated to organic production** (2020) which represent approximately 10% of the total state ecological area and 1.7% of the European Union's ecological area. In addition, the number of producers who have certified their products as organic increased by 8.4% during 2020, to a total of 4,500.

Figure 2. Percentage of land dedicated to organic farming. Catalonia, Spain and European Union-27. 2007–2019



Source: Prepared by the authors based on data by Idescat (2021)

The food industry specialising in the production, importation and marketing of organic farming products also witnessed an annual increase of 6.5% in the same year, to a total of over 2,400 companies. In the meantime, **ecological livestock farming is also following an upward trend**, with more than 1,000 organic farms. This is therefore where new job opportunities are being found: in the production, control and marketing of organic agri-food products.

In the international context, there is also a firm commitment to boosting organic production in the first phase of the agri-food chain, which is **committed to sustainability** from the outset. In addition to improving the sustainability of agri-food production, another important lever for change is to promote **healthier and more environmentally sustainable consumption patterns**, such as a diet with a greater weight of vegetables and organic foods, seasonal and proximity foods, or the **reduction of food loss and waste** and the promotion of the **circular economy,** as set out in the European Commission's Farm to Fork strategy. Thus, everything related to making the food chain more sustainable and to promoting circularity in food are also factors that generate employment.

Figure 3. Farm to Fork Strategy

Source: Prepared by the authors based on data from "Avançant cap a la sostenibilitat del sector agroalimentari".

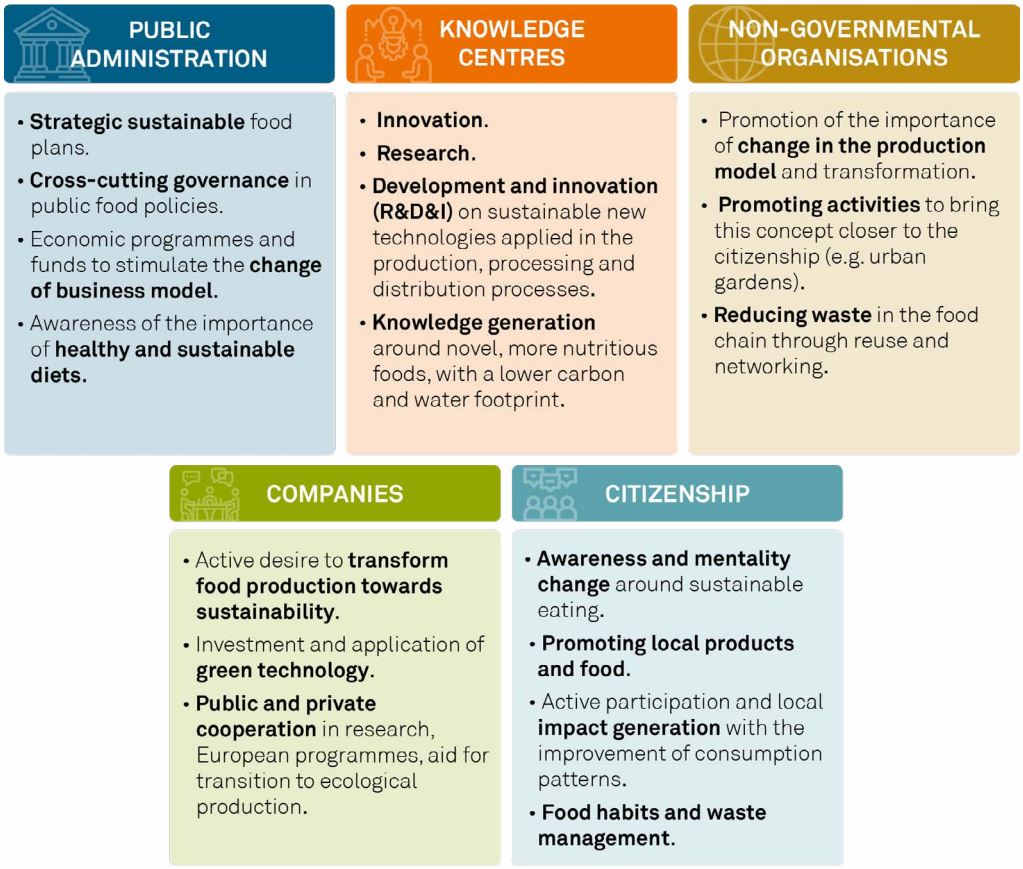
Similarly, this bet must also go hand in hand with the **commitment and daily action of consumers** to increasingly transition closer to a sustainable food and responsible consumption, following the logic promoted since "think globally and act locally". In this regard, the following recommendations can be highlighted:

- **Incorporating healthy habits**. Promoting healthy diets that meet specific needs and personal preferences and eliminate ultra-processed foods, which typically contain too much salt, sugar or fat and are poor in fiber, protein or micronutrients.
- **Finding out the origin of the products**. The way in which a food is produced has a key influence on the health of humans and the planet.
- **Prioritising, wherever possible, proximity and seasonal products**. Seasonal fruits and vegetables should be produced and consumed in the short distance, while local foods strengthen the local economy and peasantry and reduce the impact generated by logistical functions (storage and transport).
- **Reducing food waste and packaging**. Planning food purchases, re-using food -such as dry bread or very ripe fruit- or giving it away to food redistribution initiatives, for example, can help to reduce waste, as well as avoiding disposable packaging (for example, using tupperwares and reusable water bottles for beverages).

The implications of sustainable food in the sector

The idea of **sustainable food** involves, in all its aspects, meeting the current food needs **without compromising those of future generations**, while ensuring a balance between economic growth, care for the environment and social welfare. The transition to sustainable food systems requires, to some extent, a **collective approach** involving all levels of public administration, private actors throughout the agri-food chain, non-governmental organisations, knowledge centres and citizens. In these areas, new jobs will be created linked to the promotion of sustainable food, or existing professional profiles will have to incorporate new skills in this regard: social communication for the awareness, research and innovation in the design of more sustainable and healthier food products, waste reduction, sustainable and locally sourced school lunches, developing healthy and sustainable diets for people under social-health care, among others.

Figure 4. The sustainable food ecosystem



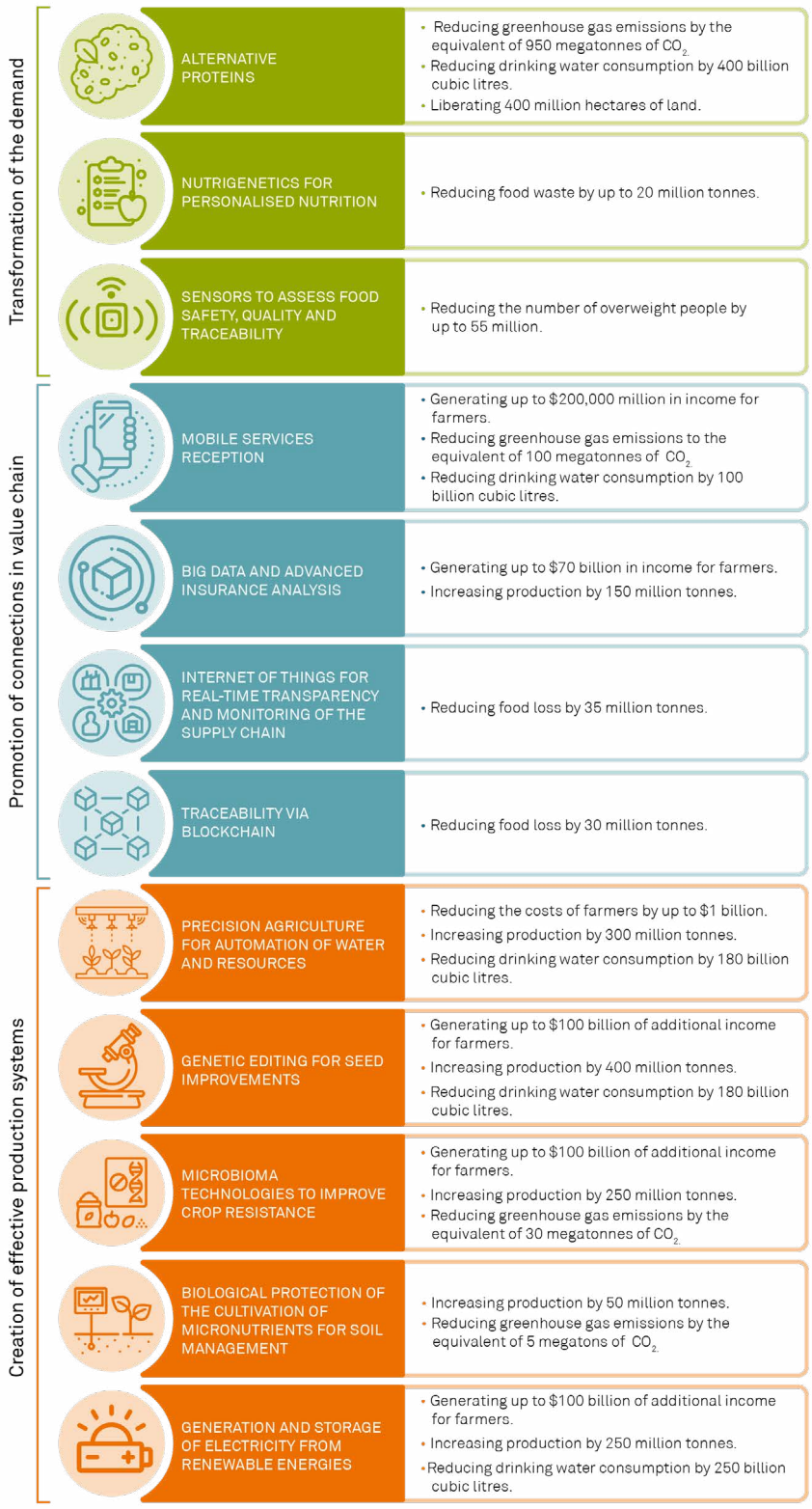
Source: Prepared by the authors

Thus, public administrations have taken the initiative defining **collective strategies**, such as the Action Plan for Sustainable Feeding 2020 – 2023 by the Metropolitan Area of Barcelona or the Catalan Strategic Food Plan 2021-2026 by the Generalitat of Catalonia. At the same time, companies are also aiming for a **more sustainable production and consumption model**, promoting the efficient use of resources and energy, the construction of ecosystem-friendly infrastructures, improving access to basic services and the creation of green jobs -with a fair pay and good working conditions-along the agri-food chain.

It should also be mentioned that this transition of agri-food companies towards sustainability involves integrating many of these issues into their business models, into the supply chain and into the relationship with its interest groups: investing in sustainable processes, materials, machinery and products along the value chain. **This transformation inevitably involves innovation and the incorporation of technologies into the company's process or business line**: tracking the supply chain through blockchain technology, genetic manipulation of seeds to increase crop productivity, and the possibility of scanning foods to know their actual expiry date, are technological solutions that can increase the efficiency, sustainability and nutritional value of food systems, reduce their environmental impact and allow the consumer public to make real-time decisions about the products they consume.

According to the report *Innovation with a Purpose*: *The role of technology innovation in accelerating* food systems transformation -presented by the World Economic Forum-, technological innovations, combined with other interventions, can play a very important role in the generation and acceleration of transformation of food systems. Thus, the report offers a compilation of **twelve emerging technologies that can transform the health of the current food model by 2030,** making it cleaner, more sustainable and more environmentally friendly.

Figure 5. 12 Technology innovations for sustainable food and their potential impact



Source: Prepared by the authors based on data from the report "Innovation with a Purpose: The role of technology innovation in accelerating food systems transformation"

The report by the World Economic Forum shows that each of the 12 technologies mentioned **will have an impact on the jobs in production systems**, especially those of high technical qualifications in the fields of **biology, food technology**, **data science**, **agricultural engineering and digital technologies.**

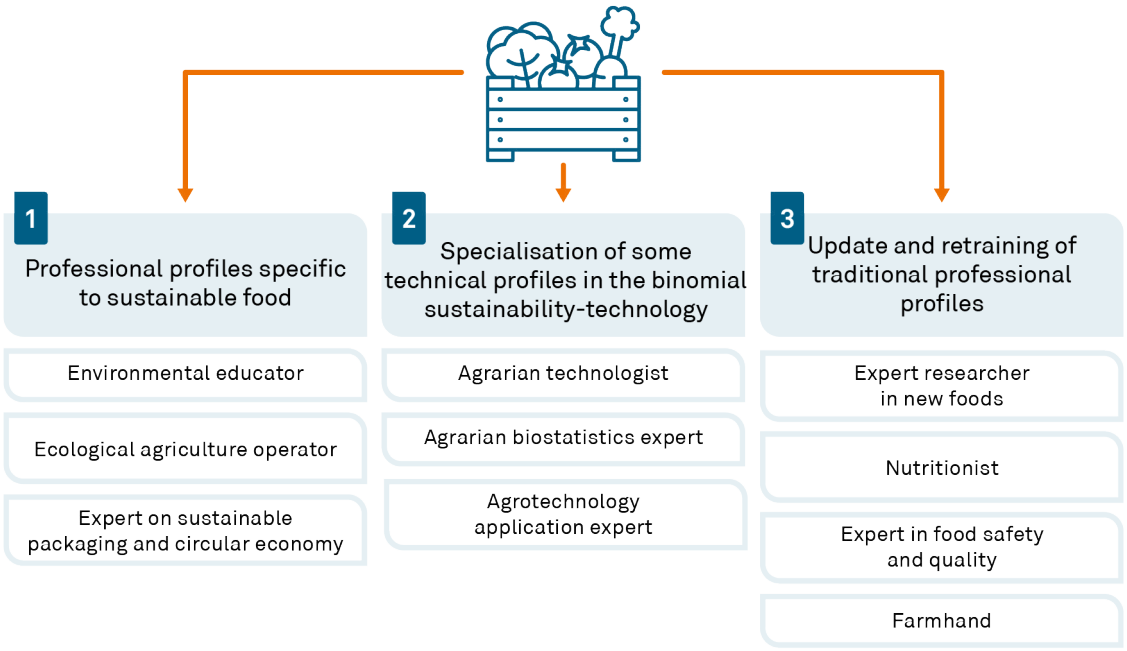
In short, the consolidation of sustainable food as a public and private strategy by the public administrations and companies in the sector entails a reorientation of their strategic planning and a new definition of objectives in professional profiles. This is especially relevant in the private sector, where the actors are no longer solely interested in **maximising profits**, but also seek to **generate a positive impact** -socially and environmentally- especially as both the origin and the journey of the product or food increasingly come from clean and energy-efficient sources.

The impact of sustainable food on professional profiles

The consumer public has **become aware** of the need to make the **current food system more sustainable**, and companies are making an effort to respond to their demands. This implies a new business approach that involves the need for new professional profiles that can plan, specify and control the transformation of food processes and products into more sustainable ones.

Thus, the impact of sustainable food on employment can be summarised in three points: firstly, **new professional profiles** will emerge that are directly linked to the concept of sustainable food; secondly, the sustainability-technology binomial will also lead to the creation of new professional profiles with a **highly technological component**, who will therefore require specific training; and, lastly, traditional professional profiles will require a **knowledge update and retraining** that covers current trends in sustainable production, but without entailing a substantial change in their basic training or normal functions.

Figura 6. Impact of sustainable food in employment



Source: Prepared by the authors

Below are some of the **most in-demand professional profiles** following the consolidation of sustainable food as a public and corporate strategy:

Ecological agriculture operator: a professional working in rural areas, with extensive knowledge of environmentally friendly farming and livestock practices and following the rules of organic production in the agricultural and livestock farming: not using chemical fertilisers, pesticides and herbicides; seeking suitable living conditions for animals; and promoting local varieties, among other requirements.

Expert on sustainable packaging and circular economy: This new professional profile must be able to master the main tools for measuring the impact derived from food packaging and to identify strategies for minimising its environmental impact. For example, they should be familiar with the materials that meet recyclability, reusability or biodegradability criteria, and generate innovative proposals on concepts such as eco-design or eco-labelling.

Environmental educator: They are the person who conceptualise and design the outline of campaigns and programmes of environmental education and communication addressed to the general public or to a specific audience. They participate in the design of information, training, communication and participation strategies, to raise awareness of the importance of participation in solutions to environmental problems, such as those related to the food sector.

Agrotechnology application expert: They are the person using electronics, computer science and telecommunications to develop applications in the fields of agriculture, livestock farming, fishing and aquaculture, which allow the optimisation of existing natural resources, such as automated irrigation or solar energy. In order to carry out their task, they can use tools such as GIS (Geographic Information Systems) or GPS (Global Positioning Systems) that allow them to know the intensity and optimal time for carrying out agricultural operations.

Expert researcher in new foods: They are the person who manage projects for the conception and development of novel foods based on nutritional properties -functional or nutraceutical foods- enriched or improved with the aim of their beneficial impact on any function of the organism. Given the incorporation of sustainable food, many of these projects incorporate the study of waste use, fermentation processes, environmental impact and evaluations, etc.

Farmhand: They are responsible for carrying out the most basic and necessary activities to ensure the proper functioning of the farm and to ensure its viability. They must be aware of the current environmental regulations, be able to detect and control pollutants and, where possible, reduce the harmful effects of human activity on the environment.

A focus on sustainable food

The process of consolidating the concept of sustainable food is an **opportunity for transitioning** towards a food model (production, transformation, distribution and consumption) **that takes into account its economic, social and environmental impact**. In order to move forward with this transformation, companies and administrations must work together to achieve a healthier and more environmentally friendly food system. **In this regard, digital-based technological innovation will also play a key role in the degree of sustainable food development as a business strategy**. As mentioned in this report, technologies have a place across all links in the agri-food chain, are accompanied by improvement and optimisation of processes and are able to help the sector incorporate sustainability and energy efficiency criteria into its activity.

Thanks to the transformation of the food sector towards sustainability (more sustainable farming and livestock, animal treatment, circularity, prevention of food waste, change in consumer habits, processing and distribution of ecological products, knowledge and application of regulations and certifications, among others) **new job opportunities are created**, and already active professionals need to retrain to attain new skills. Some of the potential jobs that will become more significant have already been described.

In short, the transition towards a sustainable production and consumption model is a paradigm shift which also has, and will

continue to have, an impact on employment. New professional profiles are arising in the food sector with the consolidation of sustainability as a cross-cutting criterion, particularly those related to farming and ecological production. Also, a large number of traditional profiles must know and internalise the new requirements, be familiar with sustainability regulations and act responsibly and with good practices to make the logics of sustainable eating become a reality in the coming years.

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