

Chapter 4

Designing a Dynamic Map of Circular Economy in the Tourism Sector of the Valencian Community



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Introduction

Growing interest is being shown in the circular economy (CE) in areas like strategic management, operations management and technology management. Moreover, governments, industry players and academia are increasingly recognizing and focusing on this concept. Adopting CE principles has become crucial for companies to sustain their competitive advantage (Centobelli et al., 2020; Ghisellini et al., 2016; Pieroni et al., 2019).

CE can be defined as an economic system that aims to eliminate waste and keep resources in continuous use to, thereby, minimize the consumption of raw materials and energy, and the environmental impact (Alcayaga et al., 2019; De Angelis et al., 2023; Murray et al., 2017; Perello-Marin et al., 2022). It is based on closing the loop of the traditional linear “take-make-dispose” model of production and consumption (Blomsma et al., 2019; Pieroni et al., 2019).

Within a CE framework, products and materials are intentionally designed, produced, and utilized to enable reuse, repair, remanufacturing or recycling instead of being disposed of after a single use. The overarching objective of CE is to establish a regenerative system that conserves resources and minimizes waste (Blomsma et al., 2019; Puntillo, 2023). Therefore, in addition to the 3 Rs principles (Reuse, Reduce, Recycle) commonly applied in sustainability, CE also includes

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efficiency (in energy and resources) and collaborative approaches (Kevin van Langen et al., 2021; Lüdeke-Freund et al., 2019).

Hence the transition to CE requires a systemic shift and collaboration across sectors to redesign products, rethink supply chains and promote sustainable consumption patterns (Puntillo, 2023; Romero-Perdomo et al., 2022). By adopting CE principles, societies can reduce waste generation, conserve natural resources and create economic opportunities, while minimizing environmental impacts (Lüdeke-Freund et al., 2019; Murray et al., 2017; Suchek et al., 2021).

The hospitality sector has significant ecological ramifications and can exert substantial strain on resources because it could involve or be land, water, energy and food. This, in turn, leads to the accumulation of substantial waste and contributes to issues like overcrowding, noise pollution and air pollution (Florido et al., 2019; Rodríguez et al., 2020).

Therefore, applying CE to the tourism sector may provide numerous opportunities to operate more sustainably, reduce costs, enhance reputation and contribute positively to the environment and local communities (Florido et al., 2019; Rodríguez-Antón & Alonso-Almeida, 2019; Rodríguez et al., 2020; Vargas-Sánchez, 2018). By embracing circularity, hotels can align themselves with the growing demand for sustainable tourism and position themselves as leaders in industry (Menegaki, 2018; Pan et al., 2018).

However, this paradigm is not always easy to implement because it requires taking a comprehensive approach that involves various stakeholders, including tourism businesses, governments, local communities, and even tourists themselves (Gamidullaeva et al., 2022; Kevin van Langen et al., 2021; Rodríguez et al., 2020).

One of the main barriers that small- and medium-sized enterprises, especially those in the hospitality sector, find when designing and implementing CE is the considerable difficulty in gaining access to the different stakeholders in the supply chain, which can be aligned with their CE strategies. Not that much information is easily available, and what is accessible is not always easy to use or to understand (Reuter, 2016; Wu, 2020).

Mapping sustainable data emerges as a very effective approach to overcome these obstacles (Reuter, 2016). Mapping data involves organizing and visualizing data in a spatial format, i.e., on a map, to enhance understanding and accessibility (Blomsma et al., 2019; Oymatov et al., 2021; Romero-Perdomo et al., 2022). Thus as mapping makes data easy to use and understand, it empowers users to extract valuable insights, identify trends and make informed decisions (Blomsma et al., 2019; Mies & Gold, 2021; Oymatov et al., 2021; Romero-Perdomo et al., 2022).

By following the model proposed by De Angelis et al. (2023) about circular business models, the Innoecotur team has developed a dynamic map based on the three-pronged strategy framework for circular business models research by focusing on open strategy and developing dynamic capabilities adopted by companies in the hospitality sector.

Methodology to Build the Innocotur Interactive Map

Dynamic maps provide numerous benefits, especially in tourism. By enhancing their adaptation to circularity, the companies operating in the tourism sector can not only extend their own sectors, but can also contribute to the growth of other industries by implementing comprehensive and transversal policies.

Dynamic maps offer additional benefits because circular companies can locate and connect with one another, which facilitates the analysis and adoption of the best practices implemented by other companies. This allows the creation of synergies and the exchange of knowledge in the CE ecosystem. In particular, the circularity elements that have been identified are interconnected and have implications for various groups of the involved actors (Mies & Gold, 2021).

In the Spanish context, specific circular technology platforms can be found, such as GIEC: “the Interplatform Group for Circular Economy”. This group includes 29 Spanish Technology Platforms. Their ongoing initiatives actively promote the implementation of European and Spanish strategies by supporting research and innovation endeavors and by facilitating collaborative projects in national and international programs (GIEC.es, 2022). There are also specific platforms for the packaging value chain from suppliers to recycling (Ecoembes, 2023).

If we look for dynamic maps, two examples can be found in the CE context: one in Spain and another one in Italy. The Spanish case is *EnCircular* (2023) and the Italian one is *Atlante* (2023), but the latter is not specifically from the tourism sector.

When looking in detail on the *EnCircular* website, we find that a CE map of the Valencian Community in Spain is hosted there. This map makes visible the network of organizations and agents committed to evolution toward a “circular” system in the Valencian Region. It aims to be a strategic tool to facilitate alliances and focuses on general sectors, such as industries, education, energy, public administration, technology and telecommunications, among others. It is a general map that also includes good practices of circular companies (Encircular.es, 2023).

In the Italian case, the *Atlante* Map is hosted on the EconomiaCircolare.com website. It was developed by the CDCA, the Documentation Center for Environmental Conflicts, with the support of Erion. *Atlante* is an interactive web platform that researches and reports the experiences of economic realities and associations that are committed to apply CE principles in Italy. The interactive map is intended to act as an awareness-raising, information and documentation tool for all those concerned about striking a balance between economy and ecology, and who wish to orient their consumption in a responsible way (*Atlante*, 2023).

Yet to date no interactive map has been developed that reflects information on the CE value chain in the tourism sector. For this reason, and by taking into account the numerous benefits that it can bring to the tourism sector in the Valencian Community, the Innocotur team has developed the first of its kind in this sector.

Conceptual Framework. Identifying the Actors Involved in the Tourism Value Chain in the Valencian Community

Based on the stakeholders in CE in tourism identified by Gamidullaeva et al. (Gamidullaeva et al., 2022), namely tourism businesses, governments, local communities and tourists, an analysis of the tourism CE in the Valencia Region was performed, which ranged from service providers to end consumers. This analysis comes as a dynamic map to make it easier for all the aforementioned stakeholders to locate and connect with one another to, thus, facilitate the analysis and adoption of the best practices implemented by other companies.

The main goal is to map the CE tourism value chain to have a stronger impact on local communities and tourists themselves. It is important to highlight that local governments not only have the power to influence the value proposition of their region's tourism industry through regulations, but can also directly experience tourism ecosystem outcomes. They bear the responsibility of managing the socio-economic development and efficiency of the tourism sector by ensuring its positive impacts on the region, while minimizing any potential negative effects (Gamidullaeva et al., 2022; Marjamaa et al., 2021; Menegaki, 2018).

Therefore, when considering all these aspects, the key actors included in the present project are the following (see Fig. 4.1):

1. Accommodation providers: this category includes hotels, resorts, guesthouses, bed & breakfasts, and other types of accommodation establishments.
2. Restaurants and food service providers: the region is known for its culinary offerings, and restaurants, cafes, bars, and other food service providers play a vital role in serving tourists local cuisine.

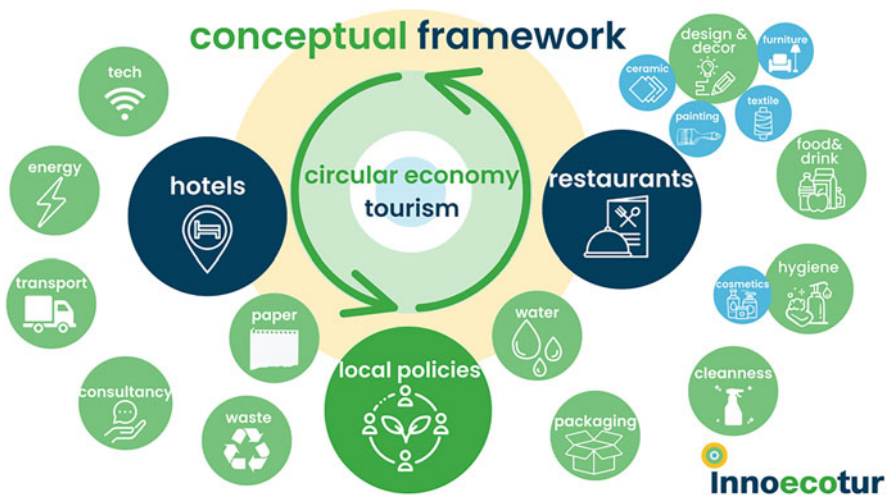


Fig. 4.1 Conceptual framework on the Innoecotur map of CE. Source: the Innoecotur project

3. Different suppliers that attend to the necessities of the above-mentioned main actors, such as food and drinks, energy, water, textiles, construction, consultancy, hygiene, lighting, furniture, paper, transport, logistics, among others.
4. Local policies. All the above-mentioned actors are affected by the local policies applied in the region.

Aspects to Analyze the Environmental Impact of These Actors and Their Contribution to Circular Economy

In order to identify actors' contribution to CE, an evaluation of their practices, operations and initiatives, aligned with CE principles, was made. In doing so, different methods could have been considered, but the Innoecotur team decided to focus on certifications and sustainable seals by paying attention to Sustainable Development Goals (United Nations, 2023).

For the search and analysis of the most appropriate certificates and seals, the Innoecotur team assessed the central aspects of CE, as stated above: Product design for durability and reuse; Reduce, refurbish, remanufacture; Recycle and recover materials; Renewable energy and resource efficiency. These aspects (Segarra Oña et al., 2023) were grouped into four categories (see Fig. 4.2):

Energy: reduce, resource efficiency.

Water: reduce, resource efficiency.

Food & drinks: waste reduction, resource efficiency.

Materials & waste: durability & reuse; reduce; recycle & recover, resource efficiency.

The transversal policies that affect all the above categories were grouped into these categories, where we can find aspects like technology, other suppliers, consultancy, mobility or training and employment.

The process followed to build the interactive map was done by identifying the main actors, together with the principal certifications and seals, related to the covered aspects.

To ensure the credibility of the companies featured on the map, and to ascertain their actual contributions and the specific areas they impact, it is crucial to demonstrate and verify all the aforementioned aspects in relation to CE.

This is why certifications and seals are especially relevant because they are a way to demonstrate that the companies included on the map have followed a verification process about the CE aspects they claim, and there is formal evidence to demonstrate their CE involvement.

A worldwide search for certifications was made. Only the certifications and seal that deal with the aspects included within this conceptual framework were considered. Table 4.1 lists the certifications included on the map, together with the section of the conceptual map that they mainly contribute to.

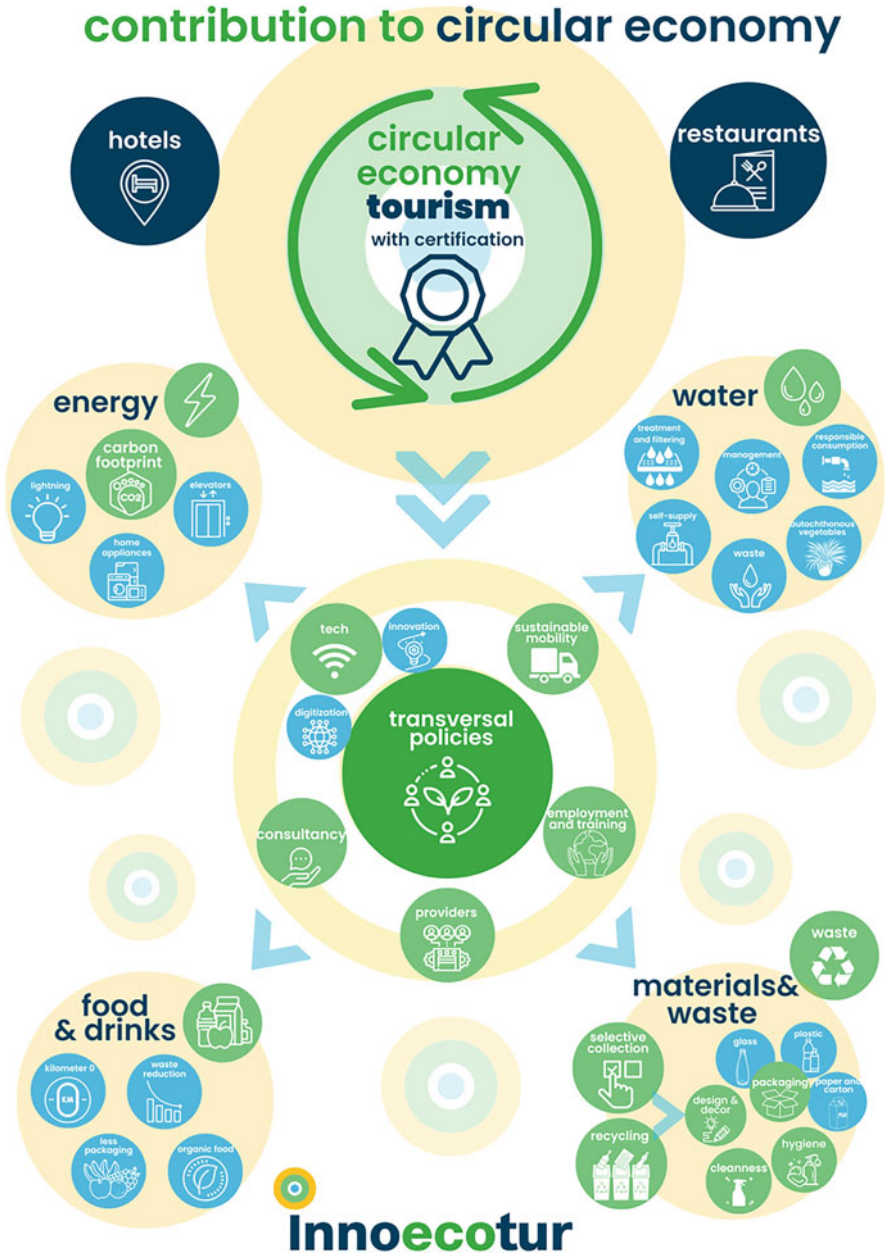


Fig. 4.2 Contribution to the circular economy of the agents involved in tourism. Source: the Innoecotur project

Table 4.1 Contribution to the circular economy of certifications

Certification	Contribution
Bcorp	Energy
Carbon proof	Energy
Coop electricas	Energy
Huella Carbono Ministerio	Energy

Certification	Contribution
Acene	Food & Drinks
ASC Aquaculture Stewardship Co	Food & Drinks
Bienestar animal	Food & Drinks
Bio vida Sana	Food & Drinks
CAECV	Food & Drinks
CosmeBio	Food & Drinks
Demeter	Food & Drinks
Ecocert	Food & Drinks
Fair trade	Food & Drinks

Certification	Contribution
Booking viajes sostenibles	Tourism
Green Globe	Tourism
Green Key	Tourism
Hilton Lightstay	Tourism
Hostelling International Qualit	Tourism
S ICTE	Tourism
Travelife	Tourism

Certification	Contribution
Breem	Materials
Global Recycled Standard	Materials
GOTS textil	Materials

Certification	Contribution
ISO 14046	Water

Certification	Contribution
Biosphere	Transversal
Blueangel	Transversal
Cisne Blanco	Transversal
Cradle to cradle	Transversal
Earthcheck	Transversal
Ecolabel	Transversal
EMAS	Transversal
Madera Justa CV	Transversal
Preferred by nature	Transversal
REAS	Transversal
Sannas	Transversal

Source: the Innoecotur project

Identify the Sustainable and Circular Practices That Are Being Implemented into the Tourism Industry in the Valencian Community with a Dynamic Map

As previously mentioned, information on a map makes it easier to present and to search in a very visual intuitive way. This is why the Innoecotur team used this format to display information.

The map is constantly updated and the last version can be viewed on this website: <https://innoecotur.webs.upv.es/mapa/>. It is an open source that is available to any user (see Fig. 4.3):

This map is labeled as a dynamic map because it is not fixed, but is updated at any time when companies in the CE tourism cluster join it. It is designed to be open. It is constantly updated with the data from all those companies that adapt and introduce aspects of circularity into their day-to-day operations. The purpose is to increase their visibility and acknowledgement by as many companies as possible to serve as a reference.

This map can facilitate the search for suppliers with demonstrated concern and circular mentality to increase the circularity of the entire ecosystem.

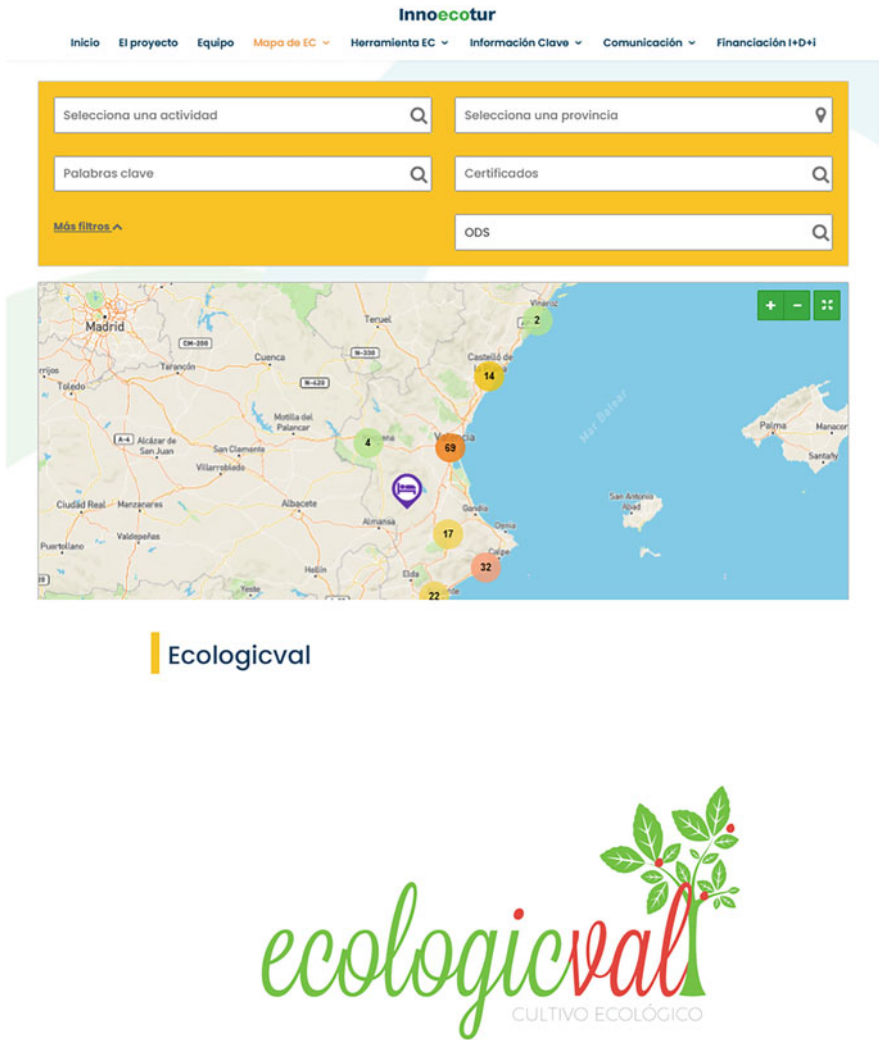


Fig. 4.3 Interactive Circularity Map Search Engine aspect view and example. Source: the Innoecotur project

Data value filtering, which is intrinsic to the visualization process, was employed to facilitate shifting the focus between different data subsets to analyze specific categories of values (Heer et al., 2012).

The map incorporates all the companies with any of the certifications mentioned in the tables and located in the Valencian Community. They were grouped according to activities, certificates and geographical area or province. Searches can be made for activities, specific certificates or geographical areas.

Conclusions

After developing this dynamic map, it can be stated that it is not only a handy tool that makes visible the companies involved in circularity in tourism sector, but it is also a tool that can act as a lever for change to empower and motivate increasingly more companies to adopt actions that benefit their circularity and sustainability.

This map also shows the wide variety of certifications and seals that deal with CE. They include details, such as environmental aspects, energy efficiency, waste reduction, resources optimization, proximity of resources, among others.

As a preliminary conclusion of this analysis of the different CE-related certifications and seals, lots of duplicities in their approaches appear. Many cover the same concepts, but with minor variations. However, we have yet to find any that broadly covers circular behavior. We believe that this fact hinders the visibility of CE and, thus, makes it difficult for companies to adopt it.

During the process of providing this map with content, the team was asked for information by many companies that wished to adopt CE practices. They asked us for recommendations on which certification could meet these concerns, or one that would cover as many CE requirements as possible. The answer to the question is complex; there are many, but they are all incomplete. Some are complementary and others overlap part of the scope.

As a general conclusion of this work, we stress the need to develop certification that clearly covers all CE aspects as a whole.

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