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Enablers and Barriers for the Circular Economy practices in Mallorca

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Abstract

The current configuration of the economic system is outdated and detrimental to society. It is true that thanks to the linear model of economy society has improved a lot. However, today we are picking up the pieces of the damage caused by past generations to the environment. It is time to change the whole configuration of the economy in favour of the circular economy. It is important to analyse each industry and look at what are the easy and thoughtful steps to take. Tourism industry is the biggest responsible of the socioeconomic development in the Balearic Islands. However because it is configured according the linear economy it is damaging .In this particular case we are going to study the tourism sector in Mallorca and the circular economy practices .More specifically this project is going to study the circular economy implementation on the hotel sector of Mallorca.

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1. INTRODUCTION

Since the first industrial revolution, the configuration of the economy has been the same; the linear production system. But the use and dispose system is no longer sustainable. It has severely deteriorated the environment and threats of damaging more dimensions of the society. This economic model is exhausting the resources of the planet and does not offer any solution than continuing the excessive consumption. In other words, the economic linear model does not guarantee the sustainability in the long-run. Therefore, in some regions the economy is constraining due to the limited availability of resources.

However, the economists have found a way out of this situation. It is necessary to look out for the future. In this way, the circular economy emerges as a solution. The circular economy principles aim for the sustainability of the planet. It stands for the circularity of the product design at all levels in order to be respectful with the environment. Due to the environment deterioration and problems such as the climate change, international organizations are encouraging circular economy policies, practices... Nowadays the commitment to the sustainability is bigger than ever. Latest demonstrations of it are the Paris Agreement, the European Green Deal or focusing on Spain the Agenda 2030. Even, at regional level the commitment with the environment is also important; an example of it is the Plastics Law in the Balearic Islands.

Mature touristic destinations are a clear example of the said environment deterioration that the linear economic model is leading to. Therefore a change in favor the Circular Economy is compulsory. The aim of this project is to analyze the particular case of Mallorca. As a mature touristic destination it has structural problems. Such as high population density, resource scarcity, economic dependency on tourism, excessive pollution... However Mallorca is the perfect spot to experiment implementing circular economy practices because of its location, its capacity, its networks and its high tourist influx. Throughout this project we are going to analyze the difficulty to implement the CE and the CE practices in the hotels of Mallorca. More specifically, the case of Garden hotels. A hotel chain that stands for the sustainability and that is currently leading this new economic model in the hotel sector of the Balearic Islands.

The present project is divided in three chapters. First chapter is a literature review of the circular economy concept, the benefits of it and an explanation of the methodology that will conduct this project. The second chapter explains the high relation of Mallorca with the tourism industry and its consequences. Besides it also introduces the circular economy practices of the hotels. Finally, the third chapter carries out the methodology mentioned before. A SWOT analysis, specifically of Garden hotels, on the CE practices and the barriers and enablers for the CE implementation in hotels. And lastly, this chapter gives the conclusions of the project.

PART I. LITERATURE REVIEW

1. Literature Review of Circular economy

During the last decades the CE concept has received a lot of attention. The particular reason of this is the unsustainability of the linear production model. The linear production model has improved gratefully the global welfare and has made more products accessible to more people. However, this lineal economy incurs unnecessary resource losses in several ways. Such as production chain and end-of-life waste, excessive energy use and erosion of ecosystems ([MacArthur, 2013](#)). In response to this model emerges de CE concept. Ericksson and Robert argued that the reasons of planet's environmental problems are related to the linear production. The global economy and public health will deteriorate until there is a change in the system ([Eriksson & Robèrt, 1991](#)).

However this CE concept has not emerged recently. The origin of the CE has been discussed; and it cannot be linked to a unique author but to different authors and schools of thought. Nevertheless, all the different approaches agree to the same goal: overcome the linear model in favor to the CE model. Besides all share the same principles of building closed designs, sustainability, collaborative economy and respect towards the environment and the ecology. In essence, the principles of CE are necessary for a sustainable development ([Andersen, 2007](#)).

Economists do not agree on who introduced the CE, the origin is not very clear. However, the roots of CE are in the environmental economics. [Rodríguez et al.](#) made a clear table that shows in a linear progression of time the different topics and authors related to the CE concept in history.

Table 1. Origin of the Circular Economy concept.

Year	Author	Topic/School of Thought
1928	Leontief	'The Economy as a circular flow'
1937	Von Bertalanffy	'The general system theory'
1966	Boulding	Improved durability
1977	Stahel and Reday	Performance economy
1989	Frosch and Gallopoulos	Industrial ecology
1990	Pearce and Turner	Closed system of economy-environment interactions
1991	Robèrt	'Most environmental problems are based on the same systemic error, linear processing of material'
1994	Pauli	Blue economy
1996	Lyle /regenerative design	Regenerative design
1997	Benyus	Biomimicry
1999	Hawken et al.	Natural capitalism
2002	McDonough and Braungart	Cradle to Cradle
2011	Mathews and Tan	'Closed-loop economy'

Source :([Rodríguez et al., 2020](#))

As we can see the topics hang together with the basic principles of the CE. Some are almost synonyms of circular economy, such as "The economy as a

circular flow” by ([Leontief, 1928](#)), “Closed-loop economy” by ([Mathews & Tan, 2011](#)) or ([Pearce & Turner, 1990](#)) with a “Closed system of economy-environment interactions”. Some are topics related with the main idea, such as “Improved durability” by ([Boulding, 1966](#)), “Regenerative design” by ([Lyle, 1996](#)) or “Biomimicry” by ([Benyus, 2008](#)).

There are more topics related with the CE concept. For instance, the 3R principle .It consists of reducing, reusing and recycling material ([Heshmati, 2015](#)) .Although some authors have proposed 4R, 6R and even 9R ([Kirchherr et al., 2017](#)).

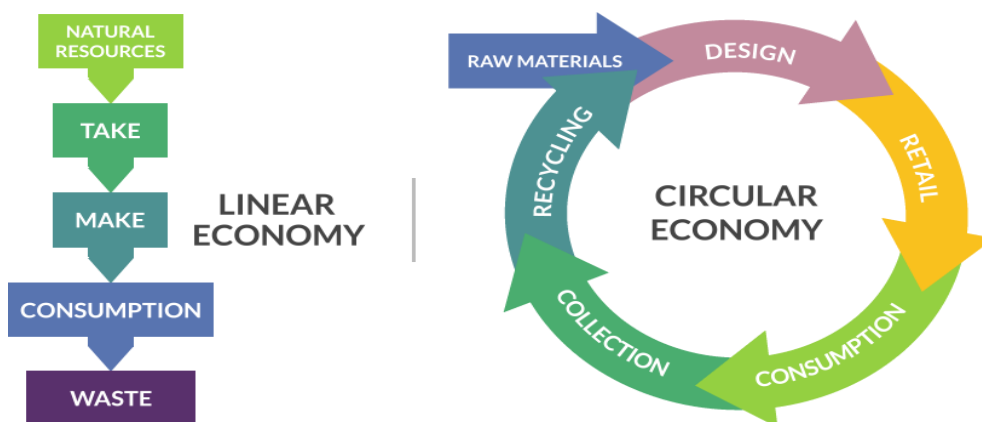
If we are seeking for an official definition of CE, we will not find any commonly and widely accepted. However, all definitions follow the same core of CE. According to ([Yuan et al., 2006](#)) it is defined as the use of raw materials and energy across different stages in a locked circle.

Nowadays the definition of CE globally accepted is the one given by Ellen MacArthur Foundation .According to ([MacArthur, 2013](#)) “A circular economy is an industrial system that is restorative or regenerative by intention and design.”

([Kirchherr et al., 2017](#)) introduced that the CE changes the idea of “*end of life*” during the production processes in favor of circular practices, such as recycling or reuse, along production and distribution. The final objective of these changes is to reach sustainable development which is beneficial for current and future generation. Besides ([Kirchherr et al., 2017](#)) introduced the new idea in the CE that all this processes are accomplished at different levels:

- “Macro level”: City, region, nation and beyond.
- “Meso level”: Co-industrial parks.
- “Micro level”: Products, companies, consumers.

Finally, to easily show the difference between the linear economic model and the circular economic model we use the following chart.



Source: ([End Of Waste Foundation, 2021](#))

To sum up, we can conclude that CE is an alternative model that puts forward the relation between economy and environment. It demands a change of the

mindset in all dimensions to reach total sustainability .From the beginning of the process of creating a product/service to the end of life of the product/service.

2. Methodology

The method that the present project will use to evaluate the circular economy applications and the barriers and enablers to implement them in Garden hotels is a SWOT analysis.

The acronym SWOT stands for: Strengths, Weaknesses, Opportunities and Threats ([Hill & Westbrook, 1997](#)).A SWOT analysis is a very useful tool used in strategic management/planning in an organization to evaluate a project or a plan. This analysis evaluates an organization regarding two dimensions .The organization itself and its relation with the environment. Strengths and Weaknesses are part of the internal analysis, the firm can control them. And Opportunities and Threats are part of the external analysis; they are beyond the firm’s power ([Gürel, 2017](#)).

Once the SWOTs are identified .The organization can work on them. ”Strengths can be capitalized on, weaknesses minimized, and threats turned into opportunities” ([Miller, 2007](#)).

There are several ways to do the SWOT analysis, many different kinds of matrix. Some more complex with more items, some easier. However, the particular reason of using the SWOT as a strategic analysis tool instead of other tools that is very straightforward and simple to analyze a plan.

		Evaluative View of Competitive Factors (Competitive Intelligence-Driven)	
		Desirable	Undesirable
Descriptive View of Competitive Factors (Backend-Planning Driven)	Uncontrollable	OPPORTUNITIES	THREATS
	Controllable	STRENGTHS	WEAKNESSES

The matrix that this project will use was created by [Novicevic et al](#) to do a formal synthesis of the SWOT analysis. The only inconvenient the authors found out, is that it can lack of logical consistence. Therefore [Novicevic et al](#) remarked that “*coherence must be preserved within and between the following three possible combinations of SWOT*”.

Source: ([Novicevic et al., 2004](#))

Some authors consider that the SWOT analysis is not really an analysis. Because it’s just a general description ([Hill & Westbrook, 1997](#)).On the contrary other authors consider that the simplicity and clarity to evaluate a plan is the main advantages of using the SWOT analysis ([Coman & Ronen, 2009](#)).

As we stated before, a SWOT analysis is not the best tool to do a deep analysis. Nonetheless, the objective of this project is to analyze at glance the competitive advantages of implementing circular economy practices in the hotel sector in Mallorca.

PART II. CIRCULAR ECONOMY AND TOURISM

1. Tourism in Mallorca

Since the appearance of the tourism industry in Balearic Islands, and the first “boom” in the 60’s, it has been the principal socioeconomic driver. According to ([Muñoz & Navia, Rodrigo, 2015](#)), tourism is a key for socioeconomic progress in many regions. For that particular reason, it is one of the most important global industries. In this section we are going to analyze the environmental and economic impacts that tourism has had in this region.

Due to the COVID crisis, and the exceptional restrictions of mobility, the data collected related to the tourism industry in 2020 is not realistic. Therefore the majority of the data analyzed in this section will be related to the 2019.

2. Environmental impacts

Generally ,negative environmental impacts are more related to chemical plants or big industries.Because the pollution and the consequences are easier to see. Nevertheless tourism industry also provokes a huge enviromental impact commonly unseen, because it is configured according to the model of linear economy of use and disposes ([Girard and Nocca 2017](#)).

Apart from the Co2 contamination related to the transport,commonly planes and cars.The biggest negative environmental impact has to do with the accomodation supply,the complementary offer and the tourist. Normally the touristic regions are more contaminated because of the high concentration of residents and tourist ([Falcone, 2019](#)).The local land has to endure the use of water, food, enery resources, solid waste, congestion on roads and air pollution provoked by tourism ([Rodríguez et al., 2020](#)).

In the particular case of the Balearic Islands the environmental pressure is due to the high density population .Especially during the high season. The archipelago closed 2019 with 16.45 million tourist arrivals, according to data published by the National Statistics Institute (INE) ([noticiasmallorca, 2020](#)).

But in order to have a deeper analisis on the impact of the toursim. It is more useful to look at the Human Pressure Indicator (HPI). We will examine the month of August of 2019,because the data collected in 2020 will not show faithfully the reality of the high season in Mallorca.The values of the human pressure indicator in Mallorca August 2019 are, in general, higher than those recorded the previous year.During this month a daily average of 1.421.564 people were in the island. The HPI maximum that year was 1.465.222

([IBESTAT, 2021](#)). To show how alarming those numbers are. We will compare it with the population census. In 2019 the population census was 869.038, in 2020 was 912.171 ([IBESTAT, 2021](#)). As we can see, in relation with the last paragraph, the population in Mallorca along the touristic season almost doubles. In addition to that fact, the population census increases year by year.

As we mentioned before, the island suffers from this overpopulation because all the resources within the island are insufficient to provide everybody. The overpopulation obliges the island to totally depend on the resources coming from outside. In addition to that, the Mediterranean climate is characterized by drought, especially during summer. Therefore the scarcity of the most important and basic resource in life is an enormous issue. So, how does the island manage the water to distribute it to all the golf courses, gardens, pools, hotels and also to the resident population...? The response is: Exhausting Mallorca's resources land and other place's land also.

The high water consumption due to the overpopulation and dry summers reach its maximum the year 2016. That year happened at the same time; the worst drought of the decade and a record of tourist arrivals ([EL MUNDO, 2016](#)). The government decided to cut, at intervals, the water in some villages but never in hotels or associated in order to not to ruin the image of tourism ([Iñaki Moure Alvarez, 2016](#)). However, this reality cannot be hidden from tourist. Since that dramatic year the government tried to raise, more than ever, the awareness on water scarcity. In year 2019 the government launched a video which showed the tourists, directly at the airport, the rainfall of this region compared with the places they are coming from ([Govern Illes Balears, 2019](#)).

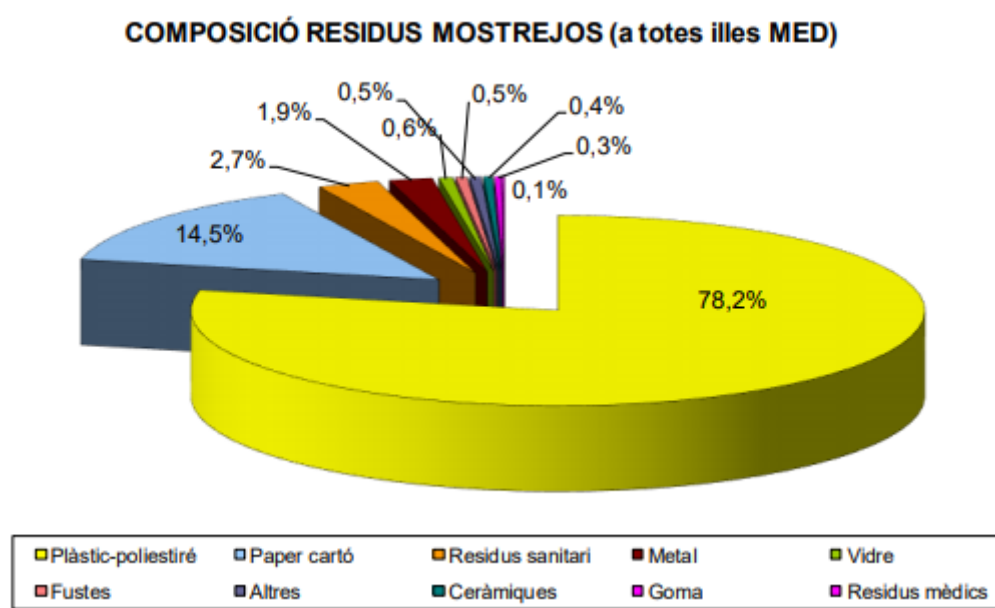
Another issue of this overpopulation is the solid waste generation. On one hand there is the solid waste generation, and on the other hand there is the solid waste treatment.

Solid waste generation is unstoppable nowadays. It can be reduced but never zero. So, at least to reduce the environmental impact, this municipal solid waste generation is treated afterwards. It can be use it to landfill, to incinerate, to recycle or to do compost. In 2018 the average generation of municipal waste per capita in Mallorca, was 642.99 kg ([Consell de Mallorca, 2019](#)). Same year, the data most interesting of the distribution of solid waste treatment is that: 11.811 tons were used to do compost, 39.389 tons to do biogas, 58.842 tons were incinerated and 564.629 tons generated electricity equivalent to 326.804 Mwh ([Consell de Mallorca, 2019](#)).

([Arbulú et al., 2016](#)) analyzed the waste management for mature touristic destinations, taking Mallorca as an example. A conclusion, among others, was that the seasonality leads to over-capacity during some periods and that leads to inefficient waste management. In another research ([Arbulú et al., 2015](#)), concluded that the over waste generation is not only a consequence of the massive arrival of tourist. The amount of MSW generation is bigger when the expenditure of the tourist is also bigger. Thus is important to analyzed is depending on the kind of tourist. The particular reason of this is simple as, the bigger the budget is; the bigger the consumption is. However, to compensate,

this augment of consumption per tourist is more “sophisticated” and “greener”, consequently the MSW generated and treatment also “greener” by the suppliers ([Arbulú et al., 2015](#)).

Last of all, another example of the several environmental consequences of the mankind’s footprint in Mallorca has left so far is the huge amount of micro plastics that invade the Mediterranean Sea. The following chart shows the sea pollution in the Balearic Islands.



Source: ([Consell de Mallorca, 2019](#))

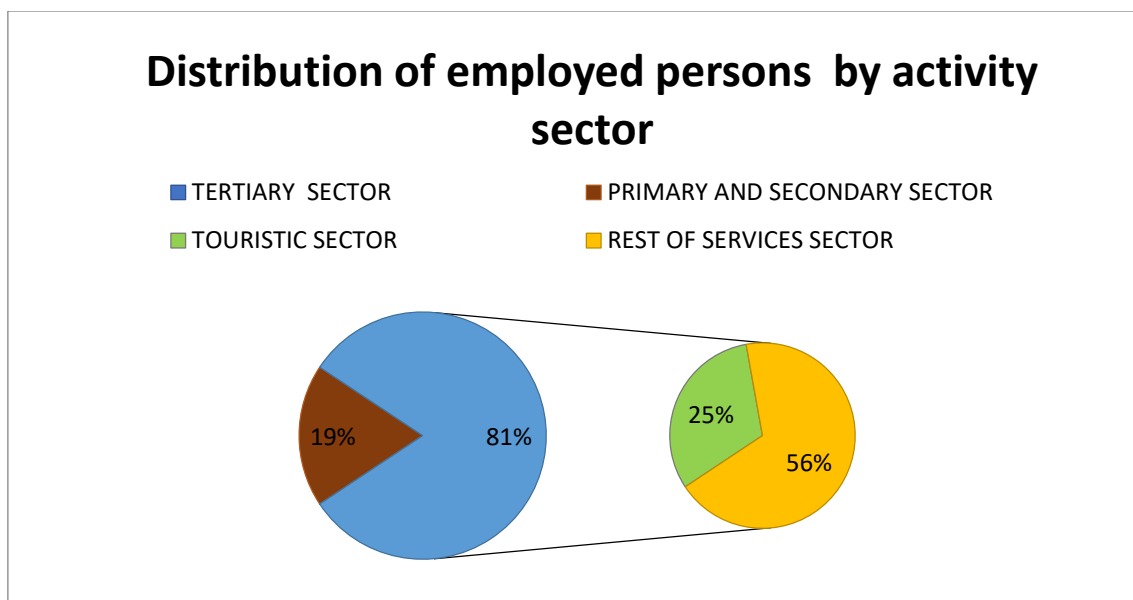
In conclusion, Mallorca suffers enormous environmental consequences due to the massive arrival of tourist. The island suffers from drought in summer; just in time for the touristic season. The main problem is the ecological footprint of each person. All the environmental degradation issues are attached to the human being and the current linear-production model .Mallorca’s principal reason to travel is the beauty of environment. Therefore taking care of the environment is a duty in order to taking care of the present and future benefits. A change is needed because this situation is not sustainable in the long run.

3. Economic impacts

Currently Balearic Islands is a synonym of tourism. According to Exceltur, in year 2014 the tourism made-up the 44.8% of the Balearic Islands GDP. Besides the 32% of the jobs were related to this industry. In other words 3 out of 10 people had some direct connection with tourism in 2014 ([Exceltur y Govern Balear, 2015](#)). In year 2019 ,the tourism was over the 45% of the GDP in the Balearic Islands ([HUGO SÁENZ, 2019](#)).

Another way to see the economic importance of this sector in the Balearic Islands is to analyze the labor market.

In year 2019 the services sector in the Balearic Islands represented 81% of the occupied people. Meanwhile the remaining 19% is distributed between primary and secondary sector. Besides, that year, the tourism industry represented a 25.63% of the whole tertiary sector that year. The following chart represent this data collected from IBESTAT ([IBESTAT, 2021](#)).



Source: Own elaboration based on IBESTAT data ([IBESTAT, 2021](#))

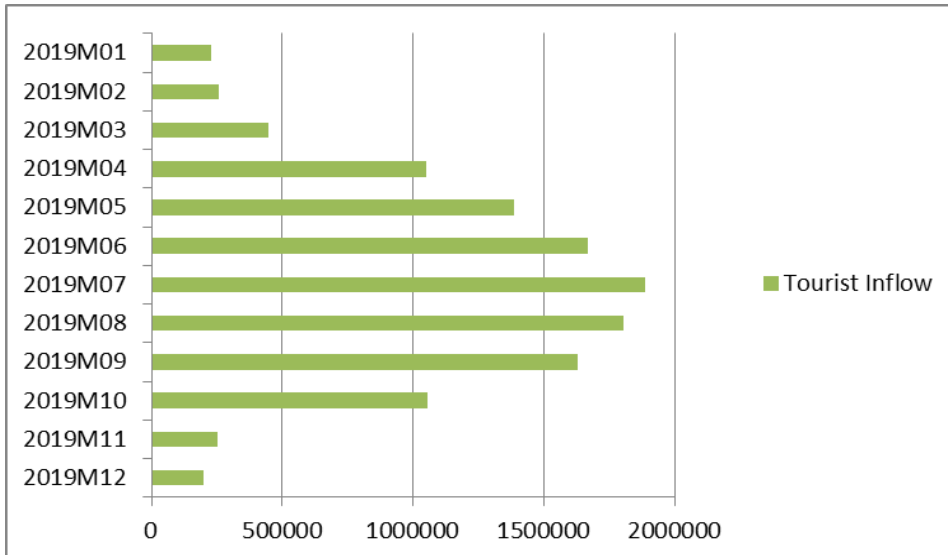
This way, at first sight, it seems that there is only a problem of diversification. The tertiary sector has excessive weight on the Balearic's economy. Moreover, the kind of employment that this sector provides is weak and unsteady. It means that it relies on the seasonability. And this problem is even more alarming. If we check the data related with the unemployment rate we can see that the tendency is clear. The following table shows the unemployment rate of each quarter of the last 5 years. During the touristic season, the second and third quarter, the unemployment rate descends but then at the end of the year raises again.

RATE OF UNEMPLOYMENT OF BALEARIC ISLANDS 2015-2020				
Trimester	T1	T2	T3	T4
Rate 2020	18,20%	15,93%	13,28%	17,34%
Rate 2019	17,06%	12,13%	8,12%	9,91%
Rate 2018	17,42%	11,22%	7,16%	10,91%
Rate 2017	16,76%	11,49%	9,25%	12,61%
Rate 2016	18,41%	13,02%	10,60%	13,80%
Rate 2015	22,29%	16,45%	13,88%	17,02%

Source: Own elaboration based on IBESTAT data ([IBESTAT, 2021](#))

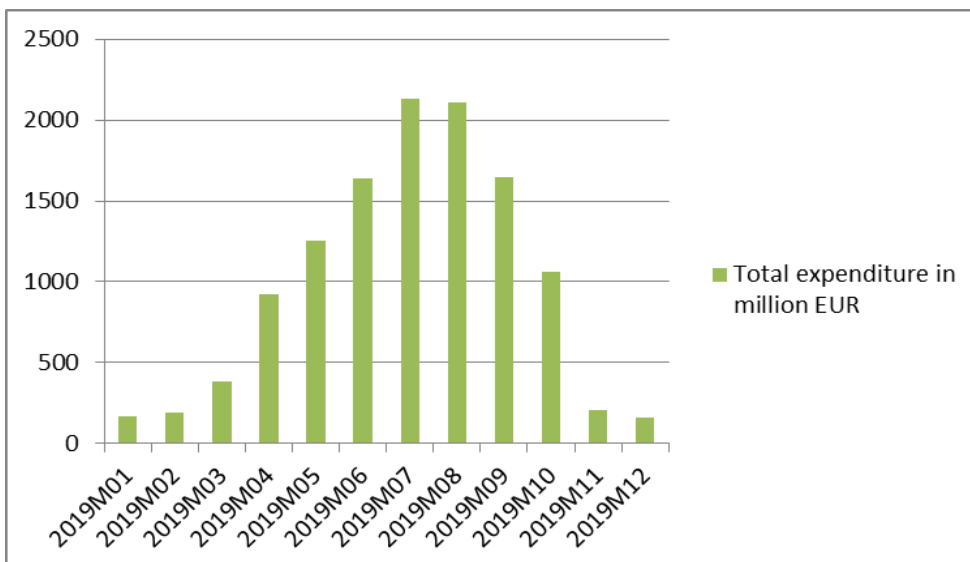
However, it is important to note that the unemployment rate in 2020 is untrustworthy. Nowadays the majority of the hotels in the territory are closed and the airport operations are very low. The percentages of 2020 are manipulated because most of the worker's salaries impacted by the crisis are subsidised by the state although they are not recognized as unemployment.

Lastly the most impressive data in relation with the economy, is the tourist inflow and the total expenditure of said tourist in the Balearic Islands. The following charts shows the tourist inflow in Mallorca during the 2019, last year before the pandemic.



Source: Own elaboration based on IBESTAT data ([IBESTAT, 2021](#))

In addition to that, from an economic perspective, we have to add total expenditure of tourist each month during 2019. The following graph shows.



Source: Own elaboration based on IBESTAT data ([IBESTAT, 2021](#))

As we can see in both charts the tourist's arrivals and total expenditure are massive. Moreover in both charts the highest peaks are during the summer. According to ([IBESTAT, 2021](#)) in 2019 a total of 11.866.512 visited Mallorca. Besides, the tourist spend a total of 11.885,47 million euros in 2019.

To conclude, probably without tourism the current level of wealthy could not have been reached. However the tourism, as a non-essential good is sensible to

the changes in the global economy. Besides, from a economic point of view this extrem dependence on the tourism industry is unhealthy for the economy. We have already seen the consequences of it during these years of the pandemic or the economic crash in 2008. Finally, it is important to ask ourselves if all the enviromental impacts that we stated before and this economic structure is still what the territory needs or is it better to become sustainable in the future.

4. Circular economy in hotels

In the first section we made a literature review of the concept of circular economy. Where we have already questioned changing the current linear production model in favor the circular economy model .In this section we are going to do a first approach of how and which CE strategies can be implemented in hotels and touristic destination.

The CE is the future. Besides, in this modern world being the first is of great importance. Therefore, the tourism industry must be one of the leaders in the transition to the CE. It must take full account of its current and also future economic, social and environmental impacts, when addressing the needs of visitors, the industry, and the environment and host communities ([Carbone, 2005](#)).

From a circular perspective, the waste generated by the tourism industry can be, if properly managed, used as a resource ([Girard and Nocca 2017](#)). However it is not enough, it requires an extreme process of innovation and changes to take full advantage of CE. The CE strategies propose not only the conversion of waste into new resources, but also an innovative change in the current linear production system, where the design of each stage of the production process is guided by the idea of regeneration, as a circular flow ([Chaves-Avila & Campos, 2018](#)).

Regarding the hotels and the CE principles application ([Manniche et al., 2017](#)) made a fantastic approach, dividing the tourism value chain pre-travel and destination supply. Besides it approaches the different infrastructures on which apply the CE. However, it points out that the following scheme must be analyzed depending on the barriers and capabilities of each area. Besides, ([Manniche et al., 2017](#)) said that it is important to differentiate between the “near future” and the “not-so-near future”.



Source: ([Manniche et al., 2017](#))

([Sørensen & Bærenholdt, 2020](#)) argued that this transition should also focus on what tourists do, rather than in how suppliers apply the CE principles. It is an interesting point of view because the tourists also are responsible of the environmental impact.

All begins from the construction of it. To build the hotel, the firm can use secondary raw materials, non-toxic building materials and design it in order to separate and prevent waste ([State of Green, 2016](#)). In addition to all of that, the technologies can play an important role to design energy saving systems and own energy renewable resources. For instance, solar panels, audits... ([State of Green, 2016](#)). According to ([Pieper, 2015](#)), this shows a high environmental commitment. However, these energy management systems are not effective without a circular behavior. Therefore it will be better an environmental attitude to reduce the consumption of energy than a management system to control the energy consumption ([Florido et al., 2019](#)).

The well-known 3r principle is also linked the CE. However, sometimes recycle means destroying. Therefore in terms of efficiency and profitability a better circular solution could be to reduce and reuse whenever it is possible ([Stahel, 2013](#)), ([Manniche et al., 2017](#)).

According to ([Legrand et al., 2016](#)) and ([Manniche et al., 2017](#)) some examples of these practices are:

- Reduce the amount of plastics in the hotel items. For instance the amenities as the shampoo, the gel or any in a plastic packaging.
- Reduce amount of wasted food avoiding or reducing the buffets.
- Reuse the towels and bedsheets to make laundry bags or children's bedsheets.
- Reuse bottles and containers made of glass.
- Remanufacture the furniture and decoration instead of turning it into waste.

To promote nature and eco-friendly activities is also a way to increase the environmental awareness. Besides the hotel could participate in e-commerce

platforms where tourist and residents can benefit from the items that cannot be transported .For instance, renting bicycles, boats...([Florida et al., 2019](#)) .

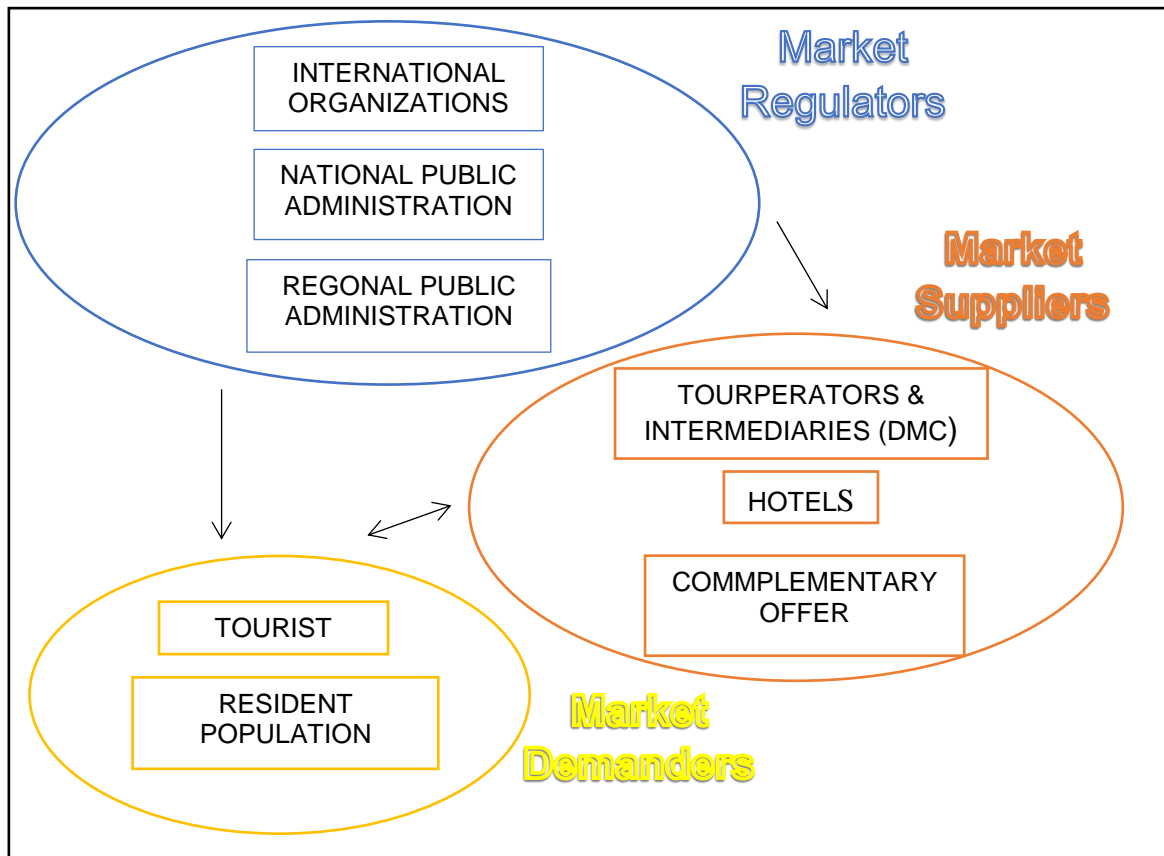
The best way to boost the local economy and put in practice the circular flow of resources is the use of the bio-waste to turn it into fertilizer for the farmers. It also can be turned into biomass, but it is more complex. Currently the hotel chain, Garden Hotels, in Mallorca is doing some of these practices. For this particular reason in the next section we are going to analyze the Garden hotels role in the CE.

However controlling the circular flow of the resources of the hotel will not directly lead us to a “circular sustainable model” ([Legrand et al., 2016](#)). As we said before and the implementation of the CE requires radical changes that will be achieved slowly. The construction of a sustainable circular infrastructure is only attainable if it appears at all levels: Macro, meso and micro. Although it is clear that the changes shall start from the bottom ([Geels, 2002](#)).

PART III. SWOT ANALYSIS

1. Enablers and barriers to CE in hotels

The enablers and barriers to implement CE practices in hotels are several. Following the idea that ([Kirchherr et al., 2017](#)) introduced in relation to CE success. It is a process that must be accomplished at different levels: Macro, meso and micro. This way it is a process that involves all existing players in the current market framework. In the particular case of the hotels, the principal players of any the destination and its relation are shown in the following scheme:



Source: Own elaboration.

This model is similar to the one that [Florida et al., 2019](#) made. However this particular scheme show the organization, in general terms, of any tourism market for a destination. Inside the blue bubble there are the market regulators, all public administrations that can apply or incentive CE policies. Inside the red bubble there is the market suppliers, where our interest object of study is located; the hotels. And finally in the yellow bubble there the actual market demanders of the whole industry. The slight difference with the one that [Florida et al., 2019](#) proposed is that, this scheme includes the tourist and the resident population in the same group because both are active participants, at different degree, of the tourist destination's offer. So, based on this scheme, which are the barriers and enablers to implement CE in the hotels?

Before analyzing each group; in this market framework all have one common barrier above all barriers: The lack of environmental culture.

To start, the market regulators .Public administrations are responsible of regulating the society at all levels. Thus, as responsible of “the rules of the game”, they can legislate, provide loans, training, policies... in favor the CE practices in order to enforce and incentive it.

However, the biggest barrier to hotels is the lack of specific and coherent regulation that does not incentive the hotels to carry out practices towards this change ([Rizos et al., 2016](#)). This particular barrier has been always an issue. Although, nowadays the EU is putting the CE issue as a priority .The EU is currently investing money and giving assistance to those regions that need help

to develop this ecological transition. A hundred billion EUR has been given at least over the period 2021-2027 ([European Commission, 2021](#)). This way, although the last decade little actions have been made, it is true that most recently real action plans are starting to function. An example of it is the project "Green Fiber International" ([MUNOZ, 2021](#)). At national level, the Government of Spain has approved The Spanish Circular Economy Strategy (EEEC), which pretends to unite Spain's CE plan with the recent CE plans of the EU of 2015, 2020 and the Agenda 2030 for sustainable development. Besides the (EEEC) includes the tourism industry among the prior industries that need this change. This plan is encouraging because it establishes concrete objectives. Monitoring and evaluating the strategies in three year action plans ([Ministerio para la Transición Ecológica y Reto Demográfico, 2020](#)). This shows, more than ever, the strongest commitment to CE, by the big regulators. Focusing in our particular case, the government of the Balearic Islands, is unfortunately taking very little actions to preserve the environment and to encourage the CE practices. An example of those policies is that over the next two years, continuing the last projects and promoting new, 1.3 million euros will be provided to projects to do a sustainable management of tourist waste. This way, there are already fourteen projects working on this field in Balearic Islands. ([Residuos Profesional, 2021](#)). From our point of view that investment is insufficient in order to really make a change. However big investments coming from the EU are expected to arrive. Said so, the EU legislation does not provide sufficient guidelines of the waste management to the EU countries. As a consequence of this, each country has its own regulations and even in each country, each region can have their own policies and initiatives. This lack of determination, definitely shows the ignorance of the EU about the benefits of conversion waste into resources ([Wilts et al., 2016](#)). The reason of this inefficacy are two: lack of information towards the CE and the administrative burden of implementing it. Regarding the lack of information, the market is unaware of the potential benefits of implementing CE practices ([Murillo-Luna et al., 2011](#)). Part of this, is because there is not sufficient investigation. An example of it is the poor literature regarding the CE and tourism ([Florida et al., 2019](#)). This scarcity of information is a consequence of the lack of environment awareness. Regarding the administrative burden, it is difficult for the administration, with the current resources (financial, human...) and the actual technical information to supervise and analyze the execution of all CE practices ([Rizos et al., 2016](#)). In addition to that the administrative burden can suppose an extra cost, which can be either time or money, for the firms, ([Rizos et al., 2015](#)).

Second, the market suppliers. In this particular case we are going to focus on the hotels, as a part of the touristic sector. The internal barriers of the hotel sector to implement CE, in addition to the stated before, are several.

To start with the lack of capital, although some of the biggest hotel chains in the world were born in Mallorca (Melià, Iberostar, Barceló...) the majority of hotels in the island are family properties or medium-size hotel chains. Thus, dedicating considerable amounts of money and time, with the uncertainty of the future benefits, is difficult for these small and medium size hotels. Without much administrative support, in form of subsidies or tax-avoidance it is hard to obtain funds for these hotels to invest in these new practices. The classical way, such

as loans from banks, is difficult and risky ([Dervojeđa et al., 2014](#)). Besides it is logical that top-managers and owners of the hotels fear of failing due to the uncertainty of the benefits ([Wooi & Zailani, 2010](#)). In addition to that, and as a consequence of the scarcity information and the little public support, there is another barrier: The lack of know-how in this field. At the hotels, aside of the new technologies needed for this transition, it will mean that a new form of production will be integrated and thus new prepared personal and competent managers are needed also ([Rizos et al., 2016](#)). And this will be a barrier also for medium and small size hotels of Mallorca, the formation and raise of awareness among the hotel workers. Furthermore, the current configuration of the supply chain and the demand is also a barrier. A hotel's main product is the accommodation. It is compound product where multiple suppliers are needed. This way, the circularity of the hotels product design will depend on the circularity of the supplier's product. For instance, the cleaning products or the amenities. If a hotel wants to start this change. First, the hotel will need to modify the supply contracts because the product will change and the life expectancy will expand. Second, it increases the bargaining power of suppliers, due to the total dependency on the supplying companies and their capabilities ([Van Buren et al., 2016](#)). Therefore it is a "cross-sectorial barrier", which is a consequence of actual the model of production ([Manniche et al., 2017](#)). Besides, normally ecofriendly-design products mean a higher cost. It is cheaper pollute than taking action towards the environment. Therefore, the cost is also a barrier in the supply chain because higher cost can mean be less competitive in the market ([Van Buren et al., 2016](#)).

Lastly the market demand. The customers, which can be either the tourist or the resident population. Although regarding the hotel sector it is totally oriented to the tourist. In relation with last paragraph, if the tourists do not prefer more ecological products, then the hotels will neither pay enough attention to that. In other words, if the clients do not ask for different product, then the whole production chain will stay the same ([Kirchherr et al., 2018](#)).

To sum up, the barriers that the hotel managers have to lead CE in the tourism sector are several. On one hand as external barriers there the lack of legislation and public support, the lack of information, the lack of innovation, the lack of supplier's chain, and the lack of customers demand. On the other hand as internal barriers which are related to the external ones. There is the lack of capital and resources (money, time, personal...), the lack of know-how, the lack of environment commitment and the fear to the uncertainty regarding the benefits of it. This way, all the barriers can be summarized into one: the lack of environment awareness.

However it is important to be positive. Some barriers can be turned into enablers also. For instance the lack of environmental awareness, the biggest barrier. If at some point the environmental awareness growth exponentially. Then the biggest barrier would become the biggest opportunity for the CE implementation.

Regarding the external barriers. The market regulators at all levels in the European Union. From the EU to the local administrations are really making an

effort to lead the CE worldwide. Thus the EU is investing huge amounts of money and designing plans in order to incentive the CE and become “climate neutral” in 2050 ([European Commission, 2021](#)). Therefore some of the external barriers that we stated before are currently slowly turning into enablers of the CE implementation .Such as the lack of policies and public support, the lack of information or the lack of innovation. As a consequence of this, and according to the EU planning, the rest of the barriers will also slowly turn into enablers ([Houston et al., 2019](#)).

Regarding the internal barriers, the first and essential enabler is the commitment in the long run of the firm and the firm’s workers for the CE implementation. The people that drive that company are the core of all the activities. Therefore all the company’s activities, plans...must be committed to the final goal. It is obvious that if the companies receive the necessary incentives, the barriers can also be turn into enablers. As we mentioned before, with good monetary investments, innovation, training and the right information to advice, all coming from public organizations .We could overcome the issue regarding the shortage of capital, the lack of know-how and the lack of innovation of the CE .Another enabler of the CE is to engage the whole supply chain to the sustainability goal. If more companies start to develop more circular products, then the barrier of the current supply-chain organization could also turn into an enabler of the CE. However, the incentives to engage the whole supply chain must be very attractive. Such as, cost reduction .In this way, price reduction of the raw materials and resources is another key enabler .In addition to that, one more enabler are the constructions of infrastructures and networks that facilitate this transition ([Houston et al., 2019](#)).

However, the biggest opportunity to make a big step into the CE design is the change on the demand market. In this modern time, a big sector of the population is caring more for the environment than ever. Therefore there are customers demanding for more eco-friendly products. For this particular reason, there is an attractive niche that nowadays is increasing. In this way, the barrier of the customer demand is currently turning into an incentive to improve the environmental footprint and an opportunity for the companies to gain market share ([Houston et al., 2019](#)).

Regarding the hotel sector, tourism opens a door to raise environment awareness. We can say that the hotels can be “*living laboratories*” that can help the tourist reorganize their lives. In this way, tourists can change their way of living for a few days and change their routines to more environmental actions .Moreover, far from the hedonism and the wasteful spending that the industry traditionally sells, it offers a chance to differentiate from the rest of the competitors providing a different experience that helps people to evolve to a more ecofriendly attitude ([Manniche et al., 2017](#)).

In Mallorca’s hotel sector some specific enablers and barriers that might turn into CE opportunities .As we stated before the role of administration is very important and recently is starting to be more consistent on the financial support and the planning. In this way, if public organizations fund the R&D, then the hotel sector could beneficiate of the new technologies and innovations. Another

facilitator of the CE implementation is the new market opportunity that represents. To become a more eco-friendly brand is good for the image of the hotel, a chance to improve the Social Corporate Responsibility and furthermore it is an opportunity to develop a market niche. The social recognition can also be a motivation for the firms to improve the environmental awareness. In addition to that, in touristic destinations is important to implicate the residents population in the CE transition and therefore raise social environmental awareness. Other facilitator to motivate the CE design is the supply chain configuration and the collaborative economy. The construction of a local network of entrepreneurs with environmental conscience is an opportunity to build a more and more circular economy. However, as we mentioned before, the price is a key enabler for the CE success ([Florida et al., 2019](#)), ([Houston et al., 2019](#)).

In conclusion, the solution to implement the CE is to involve all players in this process. Each player has their own engine to start the revolution in favor the common good. However, in general the industries will always look after the benefits. It is compulsory that the market regulators make an effort to engage all players in into this change. According to ([Geels, 2002](#)), it shall start from the bottom. Moreover we would like to give a deeper insight to that statement .The bottom level, which are the clients. The demand group has the biggest power to completely change the whole configuration of the market. However, as Jordan Petterson said this change will totally function when, there is a change even in the lowest level of the each person: the own conscience ([The Global Warming Policy Forum, 2020](#)).

2. SWOT analysis of Garden hotels

First of all, a little introduction of Garden Hotels .Garden Hotels is a hotel chain born in Mallorca. Nowadays the company has ten hotels. The distribution of them is: Seven in Mallorca, one in Menorca, one in Ibiza and one in Huelva. It is also a company that stands out for its environmental policy and its close collaboration with the local community. This hotel company, unlike others, strives for the sustainability. A clear example the circularity commitment of the company is that even the plants that decorate the gardens are 100% native.

Due its dedication to the sustainability the company has received many awards. According to ([Garden Hotels, 2021](#)) the awards received are:

- ❖ TUI UMWELT CHAMPION at the Playa Garden Hotel & Spa for four consecutive years.
- ❖ Re Think Hotel 2018, award given to the ten best sustainability and hotel rehabilitation projects in Spain.
- ❖ Tourism Awards 2017 awarded by the Balearic Tourism Agency for the Composting project (Circular Economy).
- ❖ Innobankia Awards 2019 award for best sustainable company recognizing excellence in the development of sustainable actions as pioneering as the composting project from organic waste generated in the hotel.

In [Responsabilidad corporativa | Garden Hotels - Web Oficial](#) there are all the practices that Garden Hotels does.

In relation with the creation of synergies we found out that Garden Hotels is member of several local and national business organizations and collaborates with associations and projects for the innovation in the sector and in relation to the CE. Besides the hotels engages the resident population to raise environmental awareness organizing beach clean-up day. In addition to that, the company also supports the local community with the sponsorship of local sport teams and specific events. The company also promotes the local culture among their customers and use signs to raise the water-consumption awareness. But Garden Hotels not only engages the residents and the customers to the environment commitment. The company also involves the personal to the sustainability objective ([Garden Hotels, 2021](#)).

Regarding the social action; Garden Hotel collaborates with different local and international non-profit organizations for social campaigns. The list of these is the following:

1. Fundació Deixalles.
2. Cruz Roja.
3. Sonrisa Médica.
4. Aspanob.
5. Acció contra el hambre.
6. Operación kilo del sector hotelero balear.
7. Fundació Vicente Ferrer.
8. Amadip Esmert Fundació.
9. Dentistas sobre ruedas (to be launched in 2021).
10. Cáritas.

The company supports in different forms the local community. Garden hotels accomplish a km 0 policy. Thus the 80% of the suppliers are local. Besides, it promotes the green suppliers. Regarding the food, the company advertises to the customers that the buffet products are 100% eco and local. Besides, the supplier of brochures is Amadip Esmert, which is a local non-profit organization that promotes social integration of people with disabilities ([Garden Hotels, 2021](#)).

With regard to the CE practices of the 3R, according to ([Garden Hotels, 2021](#)) the company does the followings:

- All the installations have the necessary bins to facilitate the recycling of employees and customers.
- Training the personal.
- *Circular economy project*, which consist of composting, promoted by the company and supported by the Balearic Government.
- CE practices such as: Composting, use oil waste to do biodiesel, or prioritize eco-friendly suppliers.
- Reuse of grey water for WC or irrigation.
- Prioritize the restoration of the furniture, in order to extend their lifetime

- Ecologic systems to change the towels and sheets.
- Environmental strategies such as: “No plastic” or “Paper Less”.
- Elimination of single-use amenities and replacement of it with refillable dispensers of shampoo, gel...
- Reduction of packaging purchases, in order to reduce waste.
- Reduced consumption of bottled water by providing employees and customers with refillable bottles and purified water dispensing machines.
- Use of recyclable tonners throughout the same supplier.

With respect to the efficient use of resources, according to ([Garden Hotels, 2021](#)) the company does the followings:

- Prioritize the new technologies for efficient use of resources (e.g. water, energy, sewer treatment...).
- Take into account the energy-efficiency rating when buying equipment for the hotels.
- Energy-saving LED luminaires.
- Intelligent automated irrigation systems that can shut-off when there is a rainfall.
- Use of an ecological mop that reduces water and chemical usage.
- Use of energy with 100% renewable origin.
- Modernization of kitchen refrigeration systems with centralized systems and use of glycol water, as well as systems with gases with lower global warming potential.
- Promotion of eco-friendly transport with recharging station in some hotels and central headquarter.

All said, the following SWOT analysis is based on the CE practices of Garden hotels that we mentioned before.

STRENGTHS	WEAKNESSES
<ol style="list-style-type: none"> 1. Boost the local economy (networking) 2. Activities to raise the environment awareness of the society. 3. Customers are direct participants of the CE practices 4. Use of technologies to be efficient and save resources. 5. Action plans defined. 6. Whole company commitment to CE. 7. Analyzes own environmental impact to take action. 8. Widely awarded. 	<ol style="list-style-type: none"> 1. Possible loss of competitiveness. 2. Poor CE infrastructure. 3. No specialist. 4. Lack of investment in new technologies. 5. Extra economic effort. 6. Lack of long term planning.
OPPORTUNITIES	THREATS
<ol style="list-style-type: none"> 1. Leaders of the ecological transition. 2. Improve of Corporate Social Responsibility. 3. Reduce costs (e.g. energy). 4. Reduce pollution. 5. New technologies. 6. Improve the landscape attractiveness. 7. New attractive market-niche 	<ol style="list-style-type: none"> 1. Lack of environment awareness. 2. Customers refuse to participate. 3. Absence of policy guidelines. 4. Insufficient institutional support 5. Excessive cost of Eco-resources 6. Suppliers refuse it, no infrastructure 7. Administrative burden

Source: Own elaboration based on the data of ([Garden Hotels, 2021](#)).

From an internal point of the view, the strengths of Garden hotels are several. To start, it is a company widely awarded because of his CE actions. That means that apart from the green certificates it has a higher recognition, above the rest of the competitors. In this way is important to point out the strong environmental commitment of the whole company .The company has different actions plans defined .Such as the” Circular economy project”, or the No plastic” and “Paper Less” policies ([Garden Hotels, 2021](#)). Within the action plan, Garden hotels use technologies to be efficient in resource management. It is important to indicate that in general the gadgets and the household appliances they use are not super innovative or unaffordable for the competitors. Examples of it are the LED luminaires or the ecological mop mentioned above. However, these little changes are important. The highest investment is made in the modern refrigeration system of the kitchen and the household appliances ([Garden Hotels, 2021](#)) .Besides the company raises the tourist environmental conscience. Not only making them participants when recycling but also with the posters of water consumption or with the “plastic-less” amenities that they found in their rooms ([Garden Hotels, 2021](#)). Apart of the tourist, Garden hotels also

raise the resident's environmental awareness with actions such as beach clean-up days ([Garden Hotels, 2021](#)). Nevertheless, the biggest achievement for the CE implementation is the way Garden hotels boost the local economy. The clearest example is the composting project, but they also collaborate with social associations, such as Amadip Esment. In addition to this, the company analyzes their own environmental actions to know .However in the webpage there is no sufficient information regarding which tools and methods they use to do so. Although, this fact shows that the company clearly strives more for the CE in comparison to other hotels and hotel companies in the island ([Garden Hotels, 2021](#)).

On the other hand, the internal weaknesses that we found in Garden hotels are less than the strengths. However, most of them are barriers for the CE implementation than actual weakness of the company. For instance the lack of capital and innovation, which in the SWOT appear as lack of investment in new technologies and the extra-economic effort .Another issues, commonly understood as a barrier and related with the scarcity of information of CE and hotels are the absence of a specialist and the lack of long-term planning .In addition to all this, the poor CE infrastructure in Mallorca difficult the ecological action of the company .Finally as a consequence of all the weaknesses, and specially in relation with the last one mentioned, we added the possibility of a loss of competitiveness .Which at the end is the main worry of any competitive firm ([Florido et al., 2019](#)), ([Houston et al., 2019](#)), ([Manniche et al., 2017](#)) .

Regarding the external side of the SWOT analysis, the opportunities of the CE implementation that we found are very attractive .To start and in contrast to the lack of innovation that we mentioned before as a barrier, there is the opportunity of appearance of new technologies that enable the CE implementation. In relation to this technology innovation there is the opportunity to reduce pollution and cost. Which are commonly known as CE enablers due to the benefits that they represent .Moreover, because of the reduction of pollution the environment would improve and the attractiveness of it also .These three opportunities benefit the CE principles, the company and the tourist experience .Besides, being the leaders of the CE in Mallorca, offers the shot of benefiting from a new customer market, more sophisticated, that cares of the environment actions of the services and goods that they purchase. Finally, in relation with the last opportunity mentioned, there is the chance of improving CSR. ([Florido et al., 2019](#)), ([Houston et al., 2019](#)) However, this is a field where a lot of companies, above all big brands, are making an effort. To cultivate a "green" and inclusive CSR seems to be compulsory nowadays. An example of a direct competitor in Mallorca is Melià .If we take a look on [Responsabilidad corporativa - Web corporativa oficial de Meliá](#) we discover that they are really compromised with the sustainability goal and the agenda 2030. Even they take action in several projects. For instance; to protect the sea life they participate in the Coca Cola's Circular Seas project to clean up coast-lines and seabeds ([Nexotur, 2019](#)), ([Melià, 2021](#)). In this way all the opportunities stated are also chances to any competitors that want to develop their firm strategy based on the CE principles.

Finally the threats are in general, like the weaknesses, more related to the barriers for the CE implementation than concrete threats to Garden hotels .For

instance, the lack of environmental awareness, the biggest threat and origin of the rest of barriers and threats .In this particular case, this barrier is translated as the rejection by the clients to participate in these practices. The rest of the threats are barriers that we already mentioned before, when analyzing the barriers and enablers of the CE implementation. For instance: the lack of information, the lack of institutional support and the administrative burden that CE practices have. To finish the biggest barrier here is the lack of infrastructure which is a consequence of the lack of engagement of the whole supply chain to the sustainability goal and is translated as an extra cost to find eco resources and eco designed goods/services, due to its scarcity ([Florido et al., 2019](#)), ([Houston et al., 2019](#)), ([Manniche et al., 2017](#)) ([Van Buren et al., 2016](#)).

3. Conclusion

The Balearic Islands are in a privileged situation in the tourism world. Because of the location and the high influx of tourist every year .But this privileged situation is not only a consequence of the nature and the attractiveness of the destination. It is also because of the infrastructure that, after many years, the tourism industry has constructed. An example of this is the airport of Mallorca, third largest in Spain. This highly facilitates the international connections. In addition to that, the local touristic network has an exclusive relation with the major tour operators of Europe. However, this infrastructure has been build according to the linear production system. And as a consequence of it; the economy has grown rapidly, but the environment degradation has also grow rapidly. Besides, the economy's reliance on tourism is weak and unhealthy, besides most of the environmental damages are almost irreversible. However we can still save our little treasure. For this to reason a change is needed, in form of CE practices.

Mallorca is the perfect spot for the implementation of CE practices .Because the economy is already driven by the touristic industry. Thus, it is only necessary to align the touristic sector to the CE principles and rest of the economy will also change it owns configuration.

The tourist will continue coming season after season .The main concern of the touristic sector (in and out Mallorca) and the residents should be the future of the destination. There are several places like Mallorca, but there are not several places with the infrastructure, the relations, the market consolidation and the proximity to the outbound markets in the Mediterranean Sea. Therefore it is important to conserve the environment to still being a reference in the tourism world.

After analyzing the barriers and enablers for CE we can conclude that the CE practices are not a threat of competitiveness loss. On the contrary the benefits are bigger than the risks of losing market share. In addition to that, we think that if the hotels receive the necessary institutional support, the design of a tourism industry can take a greener direction. Nevertheless, it is impossible to be sustainable at 100% in the short run. It will take a lot of time to become totally sustainable. At the moment the nearest goal is the Agenda 2030 and we expect that the objectives are completely achieved.

Finally it is important to stand out that achieve said goals is not the end of the CE. The CE's philosophy has to settle down on the economy and on every substrate of the society. It is a new way of understanding the world and the interactions with the environment.

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