ESIC European Service Innovation Centre
REPORT

Summary Assessment of the Canary Islands

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ESIC in Brief

Increasingly service innovation plays an instrumental role in the transformation and upgrading of traditional economic sectors and industries into more productive, competitive and high value-added business ecosystems. Considered as being multi-dimensional in nature, service innovation comprises innovation in services, service sectors or service industries that are provided by service entrepreneurs and service firms. It also takes place in manufacturing industries, adding further value and contributing significantly to overall productivity and profitability. There is a growing need to assess, analyse and demonstrate what impact service innovation has on industrial change and to assist Member States and regions towards a greater understanding of service innovation as a driver of industrial transformation and future competitiveness.

The European Service Innovation Centre (ESIC) is a two-year initiative commissioned by the European Commission’s Directorate-General for Enterprise and Industry to capture and demonstrate the dynamics and large-scale impact of service innovation as well as to assess how service innovation impacts on competitiveness, industrial structures and regional development. It will also focus on assessing the implications and impacts of service innovation on employment structures, economic patterns and on value creation.

Primarily, ESIC will provide customised advice to six selected model demonstrator regions (the Canary Islands, Emilia-Romagna, Limburg, Luxembourg, Northern Ireland and Upper Austria). The initiative will also help other Europe's regions and Member States to make better use of the transformative power of service innovation in strengthening existing and emerging industries and markets and to develop better industrial policies and smart specialisation / cluster strategies. The goal of creating a favourable eco-system for service innovation will boost supportive infrastructures and business conditions that, in turn, will facilitate the take-up of innovative services throughout the economy.
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Introduction

A strong, healthy, high value-added services sector is essential for the efficient operation of a modern economy, for facilitating commercial transactions and for enabling the production and delivery of other high value added goods and services. Service innovation represents the systematic development, design and testing of new and/or improved service offerings, processes and business models, using multidisciplinary social science, engineering and technology-enabled models, methods and tools. As it addresses the whole economy and not only the service sector, service innovation is very relevant to achieving the EU2020 goals of smart, sustainable and inclusive growth.

In this context, the European Service Innovation Centre is instrumental in pointing up the innovation potential of service activities across Europe and supporting the assessment of how regions can both unlock their service innovation potential and increase their economic performance significantly.

The purpose of this summary assessment report is to assess whether the regional policy mix of the Canary Islands is conducive to the emergence of new business sectors/models or the transformation of existing sectors/models, via the application of service innovation processes and concepts. This includes a mapping of the economic change induced by service activities and service innovation and also an assessment of policy options and policy support measures. Based on the analysis, the report provides policy recommendations for a systemic approach to policies and better support for innovative companies, which offers a favourable business environment conducive to structural change.

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Executive Summary

The region of Canary Islands demonstrates significant potential for the future. The archipelago, consisting of seven islands, each with its own characteristics, attracts visitors all-year round. The flow of tourists has sustained the local economy, which has several challenges to address including unemployment, especially among young people, lower GDP per capita compared with mainland Spain and low levels of investment in research and development in the private sector, which is dominated by micro-sized companies.

There are also certain framework conditions that present additional challenges to the future development of the region. One of these is location, which creates additional costs for infrastructure and services, whilst others include, for instance, tax and trade regulations. To tackle these issues, the Canary Islands have chosen to focus on tourism as the key industry, as well as on other sectors that are important such as environmental services, energy and the management of natural resources, transport and logistics and ICT. Tourism is facing increasing competition, and the market is also becoming more diverse, due to an increase in new niche markets. Therefore there is a need for a change towards a more versatile tourism sector that can be supported by, and serve as leverage for, other industries.

The service sector, and especially tourism and construction, are the cornerstones of the Canary Islands’ economy with services contributing considerably to the value added. Employment in all sectors decreased notably between 2008 and 2011, which hit services and construction the hardest, but this fall was accompanied by a growth in labour productivity. Employment rates in knowledge intensive services and service innovation intensive industries have, however, increased. While the total expenditure on R&D (GERD) has remained stable, business expenditure has dropped between 2000 and 2010.

This assessment combines information derived from the European Service Innovation Scoreboard in terms of structural indicators, the ESIC study visit and desk study of interviews, documents and other data, as well as the self-assessment tool (SAT) that portrays the views of the regional stakeholders. When the five functions of the innovation system - entrepreneurial activities, knowledge development and transfer, innovation and business model generation, financing innovation and growth, and collaboration and networking - are considered, the following observations can be made.

While the entrepreneurial spirit is high, the level of entrepreneurship is lower than in other locations with a strong tourism sector, such as the Balearic Islands or Greece. The policies supporting entrepreneurial activities are largely supply-oriented and tend to focus on traditional R&D.

Knowledge development and transfer is hampered by a lower level of education compared with EU27, despite a relatively high share of tertiary education and excellence in certain sub-fields such as astrophysics and renewable energy. Also, the related structural indicators are below the EU27 average. In addition, awareness of service innovation is modest. It seems that knowledge generated in the universities and public research institutes is not transferred to enterprises and vice versa, and there are not enough policies supporting knowledge transfer between, and across, sectors as well as amongst students, researchers, academics and entrepreneurs.

Regarding innovation and business model generation, the region of the Canary Islands is not a hotspot for innovation, and consequently, innovation constitutes a function in which there is both the potential and the room for improvement. The public sector is responsible for a large share of R&D, and non-technological innovation is less common in the region than in mainland Spain or in Europe on average. Skills supportive of innovation have been identified as a challenge, but there are only a few related policies implemented by the Canary Office of Research, Innovation and Information Society (ACIISI). The need to use new business models to create innovations is not yet fully reflected in the strategies and policies of the Canaries. ACIISI can be seen as a forerunner in this context, and it should raise awareness of the importance and impact of new business models and innovation amongst all actors in the innovation system.

Although the structural indicators suggest that financing innovation and growth is at a good European level, the findings of the study, as well as the self-assessment, indicate a more challenging situation. Much of the funding is derived from the EU structural funds and is used mainly for traditional R&D rather than creating and implementing new business models and innovations. Taking a business to the next level often requires seed or venture capital funding and access to such funding has been increasingly difficult on the Canaries. New support measures have recently been created, but their feasibility and impact have yet to be assessed. Furthermore, administration and bureaucracy are also hindering access to funding.

The number of sectoral networks and cluster organisations suggest a high level of collaboration and networking. Cooperation seems, however, to take place in silos, both in the public and private sectors, instead of being horizontal and cross-sectoral and this divide is reflected in the policy mix that contains mainly traditional, cluster-based measures. There is relatively little specialisation in clusters that cut across...
the manufacturing and service sectors. Also, the share of innovative SMEs which collaborate with their peers is very low compared to the average levels of Spain or EU27.

In conclusion, the current policy mix and administrative setting is not fully conducive to regional transformation and the revitalisation of the regional economy. Based on the assessment of the regional policy mix, all five functions of the innovation system can be improved. This might include:

- Evaluating current support measures and developing the mix accordingly;
- Increasing knowledge development and transfer by supporting the cross-fertilisation of ideas;
- Involving more actors in innovation and business model generation by raising awareness and providing suitable platforms;
- Embracing all forms of innovation and taking a step away from traditional R&D; and
- Decreasing the administrative burden faced by enterprises hoping to innovate and grow on the Canary Islands, as well as internationally.

The large-scale demonstrator approach of the Canary Islands represents a good start, as a group of important challenges has been identified, which suggests a need to diversify the regional, essentially tourism-based, economy but there are several factors linked to existing framework conditions, which cannot be solved by the regional authorities alone. However, the SAT results indicate a more positive view of the existing situation compared with that of the ESIC team.
1. The Challenge

The Canary Islands are a well-known tourist destination and receive an average of 12.5 million tourists per year. The archipelago is characterised by several other factors such as being one of the EU’s outermost regions and having a higher population density but a lower GDP per capita than mainland Spain. Other economic indicators illustrate slow growth rates accompanied by high unemployment, especially amongst the younger population. The enterprises on the islands are mainly micro-sized as such a description fits 90% of all businesses. This is reflected in the low level of investments in private sector research, development and innovation. Services are very important to the regional economy, as they accounted for 82.38% of the regional gross added value in 2012. Tourism is considered to be a strategic sector, as it represents 29.6% of the regional gross added value and 34.7% of the employment.

The Concept Note identifies the following challenges for the Canary Islands: "the islands are located far from mainland Spain, bringing additional costs for infrastructure and services (e.g. ICT, energy and transport). Paradoxically, it has also suffered from a slow adoption of e.g. solar and wind energy sources due to regulation, despite very good natural conditions. It also appears that some tax and trade regulations aimed at protecting local industries may have had a negative effect on innovation. Future development is seen to depend on submarine cables and relate to the absence of an adequate legislative framework tailored to the specificities of the archipelago market. Although there are two universities on the Islands, the educational level of labour force is rather low."

To tackle these types of challenges the Canary Islands continue to build on strategic sectors such as environmental services including the greening of industries, energy and the management of natural resources, transport and logistics and, of course, tourism. Attention will also be paid to primary and secondary sectors through the introduction of new environmental technologies and new business models. As indicated in the Concept Note of the Canary Islands, the year-round tourism has demonstrated resilience during economic turmoil and can be, on one hand, considered a real strength of the region. The tourism sector, on the other hand, is in a state of stagnation and lacks the new and innovative approaches needed to induce sustainable economic growth into the archipelago. Therefore, the Canary Islands wish to develop a more versatile tourism sector that is supported by, but serves as leverage for, other industries.

Key points:

- The Canary Islands is a region faced with several challenges: location, high population density accompanied by low GDP per capita, unemployment, dominance of micro-sized companies reflected in the low level of private sector RDI investments and a legislative framework not supportive to the development of the Canary Islands’ market;
- There are also many opportunities such as a constant flow of tourists, an abundance of solar and wind energy and the specific characteristics of each of the seven islands.

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1 IMPACTUR 2012. Estudio del impacto económico del turismo sobre la economía y el empleo de las islas Canarias
2. Regional Performance and Potential

2.1. Socio-economic context for service innovation

The Canary Islands is one of the outermost regions in Europe. It is close to Africa, which is only 100 kilometres away, whereas the distance to mainland Spain is over 1,000 kilometres. More than two million inhabitants live on the seven islands of El Hierro, Fuerteventura, Gran Canaria, La Gomera, Lanzarote, La Palma and Tenerife; the majority of population lives on the two main islands – Gran Canaria and Tenerife – while only 10,000 people live on El Hierro.² Each island is different, having its own characteristics. Only 4.6% of the total population of Spain inhabit the Canary Islands, yet the average population density is more than twice the Spanish average. When taking into account the flow of tourists, the two main islands, in particular, are heavily congested.

Measured by population as well as by the contribution to national GDP, the Canary Islands are ranked eight among the 17 Spanish regions. Although the economy on the islands has not grown, it has not decreased either, due to the resilience of the tourism sector to economic turbulence. The GDP per capita on the islands at € 18,935 is, however, significantly below both the Spanish level of € 22,291 and the EU27 average of € 25,600. Unemployment is also an issue, almost every third member of the whole working population was seeking work and, more alarmingly, nearly two thirds of all young people were unemployed, in 2012³.

The companies on the Canary Islands are mainly small and micro-sized, which is reflected in the low level of private R&D. The R&D investments of companies have slightly decreased between 2000 and 2010, while the level remains moderate due to the high concentration of SMEs in the service sector and the significant number of self-employed workers that is more than half of the total number of companies. Public sector administration accounts for 50.1% of the total R&D on the islands and a further 20% is provided by the higher education institutions (HEIs).

The economy is dominated by the service sector, especially tourism and construction. Services account for 82.38% of GDP, followed by construction (7.76%), industry (4.43%), energy (4.33%) and agriculture (1.1%). There are no notable differences compared to mainland Spain except for the share of the industry sector, which is almost 9% lower on the Canary Islands. This is partly due to a lack of raw materials, the peripheral location and the small local market.

Key points:

- The majority of the population lives on the two main islands (Gran Canaria and Tenerife) making them heavily congested;
- The regional economy has not been affected to a large extent by the economic downturn due to the resilient tourism sector. Tourism is a service-intense sector, and services account for more than 80 per cent of GDP.

Sectoral structure and innovation orientation

The structure of the Canary Islands’ economy can be seen to be very specific, in particular, when considering the relative weight of services. The contribution of tourism to the Canary GDP is extremely significant. According to the European Cluster Observatory, tourism and hospitality was the only 3-star cluster in Canary Islands in 2010, whilst construction and tobacco were rated as two 2-star clusters. The relative importance and volume of tourism is also clearly visible in the accommodation statistics. In 2011, there were 42,757 nights spent at tourist accommodation per 1000 inhabitants in the Canary Islands, while the relevant figures for Spain was 8,447 and for EU-27 it was 4,711 (Source: Eurostat).

In 2010, the employment structure of Canary Islands had:

- Almost 25% of the labour force in public administration, education and health care;
- 17% in the wholesale and retail trade, repair of motor vehicles and motorcycles;
- 14% in accommodation and food services;

² RIS3 Canarias draft, march 2013
³ Eurostat news release 78/2013. Unemployment in the EU27 regions in 2012. 22.5.2013
9.5% in professional scientific, technical and service support activities;
9.1% in construction, 8.4% in arts, entertainment, recreation, activities of extra territorial organisation and bodies; 5.8% in extractive industries, electricity, gas, steam, sewage and waste management;
5.5% in transport and storage; and
1% in information and communication.

In total, services generate 81.6% of the value added, compared to 69.9% at national level, employ 85% of the labour force and 83% of the firms in Canaries operate in services⁴. Out of the total value added generated by services, 40% is generated by commerce, repair of motor vehicles, transport and storage, accommodation⁵ and food services, 22% by public administration and defence, education and human health and social work activities, 11.5% by real estate activities and 7.9% by professional scientific and technical activities and administrative and support service activities⁶. The importance of services and agriculture in the employment structure has grown over time, whereas the relative importance of construction and industry has decreased. Services employ 5% more workers and agriculture 0.2% more, whereas industry decreased by 0.3% and construction contracted by 5.1% (Figure 1). Within the total G and I sector, the percentage of people employed is shrinking, whereas the share of people employed in transport and storage and in accommodation and food services is increasing (Table1).

Total employment dropped by 11.2% over the period 2008-2011. All sectors experienced an overall decrease in employment, with construction and services witnessing the largest. Within services, the largest decreases in employment were experienced by commerce, repair of motor vehicles, transportation and storage, accommodation and food services with 2.4% and by professional, scientific and technical activities, administrative and support service activities with 1%. Within services, the smallest decreases have been experienced in real estate, information and communication and in financial and insurance activities. However, these sectors employ very few people out of the total labour force.

**Figure 1: Employment on the Canary Islands measured by the share out of the labour force**

<table>
<thead>
<tr>
<th>Employment by sector % out of the labour force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
</tr>
<tr>
<td>Construction</td>
</tr>
<tr>
<td>Industry</td>
</tr>
<tr>
<td>Agriculture and fishing</td>
</tr>
<tr>
<td>2008</td>
</tr>
<tr>
<td>79,3%</td>
</tr>
<tr>
<td>12,3%</td>
</tr>
<tr>
<td>5,7%</td>
</tr>
<tr>
<td>2,1%</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>79,8%</td>
</tr>
<tr>
<td>12,3%</td>
</tr>
<tr>
<td>6,0%</td>
</tr>
<tr>
<td>1,9%</td>
</tr>
</tbody>
</table>

Figure 2 illustrates a faster decline in the total number of companies in Canary Islands compared to Spain. Trends in the evolution of the number of companies are different by sector, whereas the total number of companies declined, some sectors experienced a net increase in the number of companies such as: Energy and Water, ICT, Education and Services and Other Sectors compared to 2008 (Table 2). However this increase in the number of companies reflects a fragmentation of companies as employment declined in these sectors (Table 1). Although potential entrepreneurship is higher than in Spain 14.9% versus 12.1%, very few actually realise their plans of establishing a company in Canary Islands and the total early stage entrepreneurial activity is 4.6% (lower than the Spanish average of 5.7%). Moreover the rate of the survival

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⁵ Accommodation refers to the tourist industry
of newly founded companies is very low in the Canary Islands at 7.2% and this rate is even lower than the Spanish average of 8.7%.

Figure 2: Illustration of the number of companies in Spain and on the Canary Islands
### Table 1: Sectoral employment structure of the Canary Islands


<table>
<thead>
<tr>
<th>Employment structure by type of sector</th>
<th>Total employment</th>
<th>Employment variation %</th>
<th>Employment % out of the labour force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and fishing</td>
<td>16.5</td>
<td>16.1</td>
<td>16.1</td>
</tr>
<tr>
<td>Industry</td>
<td>51.6</td>
<td>44.8</td>
<td>42.9</td>
</tr>
<tr>
<td>Construction</td>
<td>105.3</td>
<td>75.7</td>
<td>69.7</td>
</tr>
<tr>
<td>Services</td>
<td>685.9</td>
<td>649.3</td>
<td>642.6</td>
</tr>
<tr>
<td>Commerce, repair of motor vehicles,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>transport and storage, accommodation</td>
<td>327.2</td>
<td>302.9</td>
<td>298.5</td>
</tr>
<tr>
<td>and food services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information and communication</td>
<td>9.5</td>
<td>8.3</td>
<td>8.1</td>
</tr>
<tr>
<td>Financial and insurance activities</td>
<td>13.3</td>
<td>12.7</td>
<td>12.3</td>
</tr>
<tr>
<td>Real estate</td>
<td>13.0</td>
<td>11.4</td>
<td>11.1</td>
</tr>
<tr>
<td>Professional scientific and technical</td>
<td>90.0</td>
<td>83.5</td>
<td>81.3</td>
</tr>
<tr>
<td>activities, administrative and support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>service activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public administration and defense;</td>
<td>169.7</td>
<td>169.6</td>
<td>169.7</td>
</tr>
<tr>
<td>education human health and social work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>activities</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Business Confidence indicator includes an indicator of overall business conditions and business confidence and is based on survey data asking companies for a direction of change or tendency by reference to a ‘normal’ state, e.g. production level. Spanish companies were asked at the end of 2012 about their expectations in terms of turnover, sales, employment and investment for their companies for 2013. Spanish companies had a negative expectation regarding the in turnover, sales, employment and investment and had positive expectations regarding exports (CES, 2013). Turnover, sales, employment and investment experienced a decline in 2012, only exports grew by 20%, less than what it was expected. Overall, the actual results and expectations for 2012 followed the same direction expect for sales, where a modest improvement was expected but instead a large decline was experienced. More than half of the companies surveyed on factors impeding economic and business activity identified a decline in demand and also financial difficulties as the being most important factors, while very few identified lack of adequate equipment or a shortage of skilled labour (Table 3). There is very little variation across sectors in the importance of increased competition, except for the construction sector, which has experienced little increased competition but a higher decline in demand than the average (Table 4, Figure 4). The construction and industry sectors experienced more financial difficulties than average, due to the fact that these sectors have been hit hardest by the crisis, and they have experienced a higher decline in demand than average along with commerce (Figure 3). Transport and accommodation, as well as commerce, experienced an increase in competition but the difference compared to the average was not so large (Figure 3, Table 4).
### Table 2: Number of companies in various industries

<table>
<thead>
<tr>
<th>Industry</th>
<th>2008</th>
<th>2012</th>
<th>Variation (2008=100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and mining</td>
<td>61</td>
<td>52</td>
<td>85.24</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>6071</td>
<td>4663</td>
<td>76.80</td>
</tr>
<tr>
<td>Energy and water</td>
<td>458</td>
<td>601</td>
<td>131.22</td>
</tr>
<tr>
<td>Construction</td>
<td>22659</td>
<td>15700</td>
<td>69.28</td>
</tr>
<tr>
<td>Hotels commerce and transport</td>
<td>63725</td>
<td>58991</td>
<td>92.57</td>
</tr>
<tr>
<td>ICT</td>
<td>1642</td>
<td>1815</td>
<td>110.53</td>
</tr>
<tr>
<td>Financial services</td>
<td>2608</td>
<td>2588</td>
<td>99.23</td>
</tr>
<tr>
<td>Real estate</td>
<td>5031</td>
<td>4843</td>
<td>96.26</td>
</tr>
<tr>
<td>Business services</td>
<td>23770</td>
<td>22801</td>
<td>95.92</td>
</tr>
<tr>
<td>Education and services</td>
<td>7586</td>
<td>8657</td>
<td>114.11</td>
</tr>
<tr>
<td>Other activities</td>
<td>9859</td>
<td>10470</td>
<td>106.19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>143470</td>
<td>131181</td>
<td>91.43</td>
</tr>
</tbody>
</table>


### Table 3: Factors that limited business activities in Canary Islands in 2013

<table>
<thead>
<tr>
<th>Factors limiting entrepreneurship activities in Canary Islands in 2013</th>
<th>Increased competition</th>
<th>Decline in demand</th>
<th>Financial difficulties</th>
<th>Shortage of adequate skilled labor</th>
<th>Lack of adequate equipment</th>
<th>Other causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanzarote</td>
<td>47,6</td>
<td>83,9</td>
<td>60,5</td>
<td>14,5</td>
<td>7,3</td>
<td>39,5</td>
</tr>
<tr>
<td>Fuerteventura</td>
<td>43,6</td>
<td>89,7</td>
<td>56,4</td>
<td>13,7</td>
<td>9,4</td>
<td>35</td>
</tr>
<tr>
<td>Gran Canaria</td>
<td>37,2</td>
<td>80,3</td>
<td>46,8</td>
<td>6,3</td>
<td>3,7</td>
<td>31,2</td>
</tr>
<tr>
<td>Tenerife</td>
<td>40,1</td>
<td>88</td>
<td>58,1</td>
<td>6,3</td>
<td>6,7</td>
<td>28,9</td>
</tr>
<tr>
<td>La Gomera</td>
<td>27,8</td>
<td>74,1</td>
<td>68,5</td>
<td>5,6</td>
<td>3,7</td>
<td>38,9</td>
</tr>
</tbody>
</table>
Table 4: Factors that limit business activities in Canary Islands in 2014

<table>
<thead>
<tr>
<th>Factors limiting entrepreneurship activities in Canary Islands in 2013</th>
<th>Increased competition</th>
<th>Decline in demand</th>
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<th>Shortage of adequate skilled labor</th>
<th>Lack of adequate equipment</th>
<th>Other causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanzarote</td>
<td>54,7</td>
<td>71,5</td>
<td>53,3</td>
<td>13,9</td>
<td>11,7</td>
<td>26,3</td>
</tr>
<tr>
<td>Fuerteventura</td>
<td>43,2</td>
<td>73,6</td>
<td>54,4</td>
<td>17,6</td>
<td>12,8</td>
<td>40,0</td>
</tr>
<tr>
<td>Gran Canaria</td>
<td>43,3</td>
<td>76,2</td>
<td>39,0</td>
<td>4,7</td>
<td>4,3</td>
<td>26,4</td>
</tr>
<tr>
<td>Tenerife</td>
<td>39,4</td>
<td>77,0</td>
<td>54,0</td>
<td>7,0</td>
<td>9,1</td>
<td>26,8</td>
</tr>
<tr>
<td>La Gomera</td>
<td>32,1</td>
<td>69,6</td>
<td>46,4</td>
<td>5,4</td>
<td>5,4</td>
<td>30,4</td>
</tr>
<tr>
<td>La Palma</td>
<td>53,8</td>
<td>84,0</td>
<td>64,2</td>
<td>10,4</td>
<td>7,5</td>
<td>45,3</td>
</tr>
<tr>
<td>El Hierro</td>
<td>19,2</td>
<td>94,2</td>
<td>65,4</td>
<td>11,5</td>
<td>11,5</td>
<td>36,5</td>
</tr>
<tr>
<td>Canarias</td>
<td>43,0</td>
<td>76,8</td>
<td>51,2</td>
<td>9,0</td>
<td>8,4</td>
<td>30,8</td>
</tr>
</tbody>
</table>

Source: CES, 2014 based on the Spanish National Institute of Statistics, Central Business Directory,

Notes: Base reference period 2013

Table 5: Factors that limited business activities in Canary Islands in 2013 by industrial sectors

<table>
<thead>
<tr>
<th>Industrial sectors</th>
<th>Increased competition</th>
<th>Decline in demand</th>
<th>Financial difficulties</th>
<th>Shortage of adequate skilled labor</th>
<th>Lack of adequate equipment</th>
<th>Other causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>27,3</td>
<td>89,8</td>
<td>79,7</td>
<td>11,7</td>
<td>8,6</td>
<td>37,5</td>
</tr>
<tr>
<td>Industry</td>
<td>39,4</td>
<td>86,9</td>
<td>65</td>
<td>5,8</td>
<td>8</td>
<td>38,7</td>
</tr>
<tr>
<td>Commerce</td>
<td>43,7</td>
<td>91,2</td>
<td>47,4</td>
<td>7,4</td>
<td>3,7</td>
<td>32,6</td>
</tr>
<tr>
<td>Transport and accommodation</td>
<td>43,5</td>
<td>84,1</td>
<td>52,4</td>
<td>11</td>
<td>8,5</td>
<td>35,4</td>
</tr>
<tr>
<td>Other services</td>
<td>37,6</td>
<td>76</td>
<td>55</td>
<td>7</td>
<td>3,5</td>
<td>29,5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>39,3</td>
<td>84,7</td>
<td>57,3</td>
<td>8,5</td>
<td>6,1</td>
<td>33,9</td>
</tr>
</tbody>
</table>

Source: CES, 2013, elaborated based on Indicators of Business Confidence in Canary Islands: trimestral series ISTAC
**Figure 3: Factors limiting business activity by sectors**

![Chart showing factors limiting business activity by sectors in Canary Islands 2013]

Source: CES, 2013, elaborated based on Indicators of Business Confidence in Canary Islands: trimestrial series ISTAC

**Table 6: Established business ownership rate versus potential entrepreneurship**

<table>
<thead>
<tr>
<th>Year</th>
<th>TEA&lt;sup&gt;1&lt;/sup&gt; Established Business Ownership Rate&lt;sup&gt;2&lt;/sup&gt; in Canary Islands</th>
<th>TEA&lt;sup&gt;1&lt;/sup&gt; Established Business Ownership Rate&lt;sup&gt;2&lt;/sup&gt; in Spain</th>
<th>Potential&lt;sup&gt;2&lt;/sup&gt; entrepreneurship in Canary Islands</th>
<th>Potential&lt;sup&gt;2&lt;/sup&gt; entrepreneurship in Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>4.21</td>
<td>5.15</td>
<td>ND</td>
<td>7.7</td>
</tr>
<tr>
<td>2005</td>
<td>5.83</td>
<td>5.65</td>
<td>8.77</td>
<td>7.71</td>
</tr>
<tr>
<td>2006</td>
<td>7.83</td>
<td>7.27</td>
<td>5.07</td>
<td>5.45</td>
</tr>
<tr>
<td>2007</td>
<td>9.0</td>
<td>7.62</td>
<td>6.09</td>
<td>6.38</td>
</tr>
<tr>
<td>2008</td>
<td>7.16</td>
<td>7.0</td>
<td>8.0</td>
<td>9.1</td>
</tr>
<tr>
<td>2009</td>
<td>4.83</td>
<td>5.1</td>
<td>5.1</td>
<td>6.4</td>
</tr>
<tr>
<td>2010</td>
<td>3.6</td>
<td>4.3</td>
<td>5.7</td>
<td>7.7</td>
</tr>
<tr>
<td>2011</td>
<td>6.9</td>
<td>5.81</td>
<td>6.4</td>
<td>8.8</td>
</tr>
<tr>
<td>2012</td>
<td>4.6</td>
<td>5.7</td>
<td>7.2</td>
<td>8.7</td>
</tr>
</tbody>
</table>

Source: CES 2013, based on Global Entrepreneurship Monitor 2013

---

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Notes:
1. TEA represents total early stage entrepreneurship activities which combine nascent entrepreneurship and businesses that were established less than three and half years ago;
2. Established Business Ownership Rate measures the percentages of businesses that have remained active over the last 42 months;
3. Potential entrepreneurship captures the percentage of individuals who are planning to start a business in the next three years.

Figure 4: Innovative behaviour of Canary SMEs, relative to Spain and EU

Source: Regional Innovation Scoreboard 2008. Data are normalized CIS 2008 data.

Key points:
- Entrepreneurial spirit is high, yet the level of self-employment is rather low and the region has less entrepreneurship than, for instance, the Balearic Islands or Greece, which are also locations with a strong tourism sector. Furthermore, R&D intensity is not high and companies often lack an international orientation;
- Despite the share of tertiary education being close to the EU average, there is still room for improvement concerning the general level of education. A brain drain and a high level of unemployment among the young, educated population are also a challenge. However, the Canary Islands excel in technological sub-fields such as astrophysics and renewable energy;
- The Canary Islands have not yet capitalised on their potential for innovation and business model generation, partly due to the bureaucratic administrative structures. The region also lacks an innovation culture in the tourism sector. The public sector is mainly responsible for R&D targeting technological innovation, which is reflected in the share of SMEs that are non-technological innovators, and this share is significantly below that of Spain;
- Financing innovation and growth has been a challenge for the Canary Islands and this is reflected in the low levels of private sector R&D expenditure, as well as in the share of SMEs investing in in-house innovation activities. Considerable amounts of EU funding target traditional R&D based development, instead of focusing on non-technological innovation;
- Several sectoral networks and cluster organisations exist on the Canary Islands but the share of innovative SMEs collaborating with others is very low. In addition, there do not seem to be many inter-sectoral links in the region, but the local policy networks are relatively good;
- Tourism contributes significantly to the Canary Islands’ GDP, with the tourism and hospitality cluster being the only 3-star cluster in the region;
- A quarter of the labour force works in public administration, education and health care;
• Services generate over 80% of value added, exceeding the national average by ten per cent. The relative importance of services and agriculture has increased whilst that of construction and industry has decreased;
• Overall employment has decreased by more than 10% between 2008 and 2011 and this has most affected the construction and services sectors.

**Strengths and weaknesses of the innovation system**

The Canary Islands’ innovation system has been reviewed according to the functions of innovation systems, as defined in the ESIC Concept Note. An overview is presented below of the five functions of entrepreneurial activities, knowledge development and transfer, innovation and business model generation, financing growth and innovation and collaboration and networking. The five elements constitute an innovation system that is able to transform a region into a service based knowledge ecosystem, assuming the elements are in place and are fully functional.

**Table 7: Strengths and weaknesses per function of Canary Islands’ innovation system**

<table>
<thead>
<tr>
<th>Function of innovation system</th>
<th>Structural indicators</th>
<th>Regional value</th>
<th>EU 27</th>
<th>Dynamics/change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entrepreneurship activities</strong></td>
<td>Share of people who think it is important to try new and different things</td>
<td>0.61</td>
<td>0.42</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Share of people who think it is important to be creative</td>
<td>0.76</td>
<td>0.54</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Labour productivity growth</td>
<td>2.35</td>
<td>2.20</td>
<td>On decrease</td>
</tr>
<tr>
<td></td>
<td>New business formation in the region</td>
<td>4.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge development and transfer</strong></td>
<td>Total expenditure on R&amp;D (GERD) (% of GDP)</td>
<td>0.51</td>
<td>1.68</td>
<td>Stagnant</td>
</tr>
<tr>
<td></td>
<td>Share of employees with a higher education degree (in %)</td>
<td>29.3</td>
<td>30.4</td>
<td>Increased 2000-2010</td>
</tr>
<tr>
<td></td>
<td>Share of researchers among employees (in %) business sector</td>
<td>0.05</td>
<td>0.34</td>
<td></td>
</tr>
<tr>
<td><strong>Innovation and business model generation</strong></td>
<td>Business expenditure on R&amp;D (BERD) (% of GDP)</td>
<td>19.9</td>
<td>61.3</td>
<td>Slight decrease 2000-2010</td>
</tr>
<tr>
<td></td>
<td>Employment share in medium-high-tech and high-tech manufacturing</td>
<td>0.93</td>
<td>6.39</td>
<td>Stagnant 2000-2010</td>
</tr>
<tr>
<td></td>
<td>Employment share in knowledge intensive services</td>
<td>28.63</td>
<td>35.32</td>
<td>Slight increase 2000-2010</td>
</tr>
<tr>
<td></td>
<td>Employment share in service innovation intensive industries</td>
<td>2.40</td>
<td>4.85</td>
<td>Slight increase 2000-2010</td>
</tr>
<tr>
<td></td>
<td>Companies with service innovations (in %)</td>
<td>5.0</td>
<td>8.1</td>
<td></td>
</tr>
</tbody>
</table>
Table 7 presents a number of structural indicators as well as the change in their values, when available, in the five categories mentioned above. The Canary Islands region appears in a relatively positive light. The structural indicators measuring entrepreneurial activities suggest that the region has performed better than the EU27 Member States on average. In addition, based on the Global Entrepreneurship Monitor, the entrepreneurial spirit is quite high. However, this does not seem to be reflected in employment as the level of self-employment is somewhat low at 13.3%, which is well below similar regions that have a rate of 19.8% and below the EU27 average of 15.1%. According to the GEM Total Entrepreneurial Activity Index, the Canary Islands are also lower in entrepreneurship when compared with some other locations that have a strong tourism sector, such as the Balearic Islands or Greece. The entrepreneurial base does not seem to be very strong in the knowledge intensive sectors nor is it reflected in strong R&D intensity. There also seems to be evidence that companies are not necessarily very internationally oriented but tend to cater for the local or the domestic markets in mainland Spain.

When it comes to knowledge development and transfer, the Canary Islands as a region does not perform well. All three structural indicators in this category, but most notably the total expenditure on R&D, are below the EU27 average. Little general knowledge of service innovation seems to be available. Although the share of tertiary education is rather high at 29.3% and close to the EU average, the general level of education seems to be lower than in some European regions. Unemployment has been on the rise amongst highly educated young people, which is problematic as so much talent and potential remains untapped, and this, in turn, reinforces the brain drain to mainland Europe or even to South America. This situation presents a serious challenge to local knowledge development and capacity building.

However, it must be acknowledged that there are some technological sub-fields with strong international reputations. For instance, the Marine Technology Institute is amongst the best in the world, producing publications that are well-known and respected world-wide. There are also some important research infrastructures on the islands in the fields of astrophysics and renewable energy. However, in terms of patent applications and scientific publications, the capacity to generate new technology and scientific breakthrough is not a major strength. Also, patents are especially beneficial for high-tech manufacturing industries but for innovation in service industries they are generally less useful. In times of open innovation, it can be useful to have access to new technologies but they do not have to be invented on the Canaries.

The structural indicators related to innovation and business model generation illustrate a significant gap between the Canary Islands and the EU27 average, despite slight increases in the share of employment in medium-high-tech and high-tech manufacturing, as well as knowledge-intensive services. It can be said that the Canary Islands region is not among the best regions in Europe although there are indications that it possesses considerable potential. There are several examples of innovative approaches in various sectors, including tourism, but there seems to be quite a lot of unnecessary bureaucracy and administrative and regulatory barriers that hamper the innovation process. The ESIC team also identified the lack of an innovation culture, especially in the tourism sector, which to a large extent may be related to the position of the Canary Island in the value chains and its long-term emphasis on mass tourism.

Much of the R&D spending is taking place in the public sector and appears to be rather technology oriented. This is also evidence of a low share of employment in knowledge intensive services. The innovation behaviour of SMEs is also of importance. For service innovation, non-technological innovations, in the form of organisational changes and new business models, seem to be even more important than patents or publications. However, as Figure 4 shows, the share of SMEs which are non-technological marketing or organisational innovators is about 50% below that of Spain’s.
The only structural indicator measuring **financing innovation and growth** implies that progress exceeds that of the EU27 average level, while the SAT results called for the increased availability of seed and venture capital funding. During the study visit, the ESIC team identified financing as a challenge for the region because companies struggle for funding. The general R&D expenditure is somewhat low and, especially, the private sector R&D expenditure (BERD) has been consistently low. Additionally, the share of SMEs that invest in in-house innovation activities is only half that of the share for Spain as a whole (Figure 4).

The heavily bureaucratic administrative system, with regulations to be respected at EU, national, regional, and local levels, presents an almost insurmountable barrier to financing innovation and growth. The Canary Islands have also directed a considerable amount of the EU Structural Funds to ‘core research and technological development’, and relatively much less to ‘business innovation support’, while, naturally, the latter type of spending is more relevant to service innovation. The Canary Islands Development Company (SODECAN) has some funding that may be well-suited to innovative start-ups and instruments that complement other national and EU funding sources. It is, however, too early to assess the impact of such new instruments.

Finally, **collaboration and networking** are rather strong features in the Canaries, in the sense that many sectoral networks and cluster organisations exist. However, compared to both the EU and Spanish averages, the share of innovative SMEs, which collaborate with others, is very low. Also inter-sectoral networks seem to be quite weak, which might pose a problem for service innovations that take place in the various support functions for tourism or at the interfaces of these different functions. However, because of the compact and somewhat insular location, the local policy networks appear to be quite effective.

Table 8: **Strengths and weaknesses per function of the Canary Islands’ innovation system**

<table>
<thead>
<tr>
<th>Function of the innovation system</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial activities</td>
<td>Well-developed entrepreneurial attitude, based on GEM data</td>
<td>Low self-employment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low level of private sector R&amp;D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low level of European/international cooperation</td>
</tr>
<tr>
<td>Knowledge development and transfer</td>
<td>Relatively high share of people with tertiary education. Some subfields excel in their domain, for example, marine technology, astrophysics, water and renewable energy</td>
<td>Knowledge output in terms of patents and publications lower than the average of the EU27 and mainland Spain.</td>
</tr>
<tr>
<td></td>
<td>Relatively good knowledge infrastructure in some areas such as energy and astrophysics</td>
<td>Low level of general education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High un-employment among young, highly educated people</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brain drain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low capacity in many firms to capitalise on knowledge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The fit between knowledge supply and knowledge demand is not optimal</td>
</tr>
<tr>
<td>Innovation and business model generation</td>
<td>Innovative solutions and expertise can be found in various sectors such as energy and water</td>
<td>Lack of an innovation culture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overly-heavy bureaucracy</td>
</tr>
<tr>
<td>Financing innovation and growth</td>
<td>New financial instruments for innovative entrepreneurs such as through SODECAN</td>
<td>Companies struggle to find funding</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of private funding to match public support</td>
</tr>
</tbody>
</table>
All in all, this study gives the impression that the Canary Islands’ innovation system is rather unbalanced in that there are a few high-level nodes of R&D activities but, in general, the innovation performance is moderately low, especially in the private sector. In addition, the various functions appear to be more geared toward technological development than to service innovation, although the regional economy is very service oriented.

### 2.2. Regional benchmarking

The benchmarking exercise reveals that the Canary Islands is a relatively poor region where the inhabitants produce on average 26% lower GDP per capita than the EU27 average, and 76% less than the average of the other large-scale demonstrator regions that are amongst the most well-off regions in Europe with a GDP per capita that is 46% higher than the EU27 average. The tax system increases the average disposable income in Canary Islands by 4%, so redistribution makes a modest contribution. On average, the inhabitants have 20% less disposable income compared to the EU27, and 15% less than most similar regions. Compared to the EU27 average, in relative terms, there are 12% less self-employed people in the Canary Islands.

Long-term unemployment has risen exponentially in the Canary Islands. The region is one of 10 European regions that reported a rise in overall unemployment of more than 10% between 2007 and 2010. Long term unemployment has rocketed in Spain, since the economic crisis took hold in 2007 and now one in two people without work are classified as being long-term unemployed. Long-term unemployment is 2.25 times higher than the EU27 average. In absolute terms, it is 13.4% compared to 4.1% in the EU27 and 5.4% in the most similar regions. Young people and workers over 45 years of age are particularly affected by long term unemployment and youth unemployment is especially alarming. The Canary Islands is one of six regions in which the youth unemployment rate exceeded 50% during 2010.

In terms of educational qualifications, the percentage of employees with ISCED 5-6 is similar to the EU27 average, the large demonstrator’s average and the most similar regions. Labour productivity growth is also similar to the EU27 average in the Canary Islands but this growth was 34% less than in the most similar regions.

Support for business innovations from the EU Structural Funds is 20% less in the Canary Islands than the EU27 average, whereas the amount of the Structural Funds devoted to core research and development activities is 40% higher than the EU27 average. The RIM annual report 2012 shows that the share spend on business innovation support has been increasing in most regions, at the expense of the share for core R&D that mostly comes from public sources. When the share of services in the economy is very high, as in the Canary Islands, supporting business innovation seems to be more relevant than assisting R&D activities.

EPO Patent applications are 90% lower than the EU27 average. However the percentage of high tech patent applications out of the total of filed patents is only 10% lower than the EU27 average. Compared to the EU27, most similar regions and demonstrator regions, the Canary Islands has a lower level of specialisation in knowledge-intensive services and a lower employment share in knowledge intensive services, 18% less than the EU27 average but similar to the most comparable regions. However, when the time dimension is taken into consideration, looking at the changes in employment in knowledge intensive business services (KIBS) over the period 2000-2010, a higher increase in employment in KIBS of 30%, compared to the EU27 average, can be observed. The increase in employment in KIBS has been more than twice as high than in

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<table>
<thead>
<tr>
<th>Collaboration and networking</th>
<th>Relatively good networks among policymakers</th>
<th>Lack of cooperation and communication between clusters/sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inter-sectoral and cluster networks and collaborative organisations</td>
<td>Lack of private/public collaboration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The administrative model is complex with relatively high levels of bureaucracy and inefficiency.</td>
</tr>
</tbody>
</table>

---

7 Eurostat Regional Yearbook 2012.  
8 Ibid
the most similar regions, suggesting that although Canary Islands is doing better than the EU27 average, it has not, as yet, attained its full potential.

Figure 4: Index-based benchmarking of the Canary Islands to EU27=100%.

Compared to the most similar regions, the specialisation in service-oriented clusters in the Canary Islands is below their average while employment in service innovation intensive industries is also lagging behind most similar regions and the EU. In terms of employment, the Canary Islands have half as many people employed in service innovation intensive industries than the EU27 average. The change over the last decade in employment in service innovation intensive industries has been 13% less in the Canary Islands compared to the EU27 average. When compared with the most similar regions, the Canary Islands have experienced a growth of employment in service innovation intensive industries that is three times slower. It is 1.5% in the most similar regions, compared to 0.53% in the Canary Islands.

The total expenditures on all R&D and on business R&D are both 70% less than the EU27 averages. The Canary Islands spend less on R&D than even the most similar regions.

The Canary Islands’ region is mostly a service oriented region, with a strong focus on tourism. The Canaries have a seven times higher number of tourist arrivals, compared to the EU27 average, and 1.5 times more

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Notes: All the figures are calculated first as a percentage of the EU27 average value and then 100 is subtracted. Positive values indicate that the figures of Canary Islands are higher than the EU27 average and negative values indicate that the values of the Canary Islands are lower than the EU27 average figures.
tourists, compared to most similar regions. The number of average nights that tourists spend in a hotel in Canary Islands is almost twice as high when compared to most similar regions and 17 times higher when compared to the EU27 average. The Spanish Island Region of the Canaries and the French Capital Region of Ile de France had by far the highest numbers of overnight stays in 2011, with 89.8 million and 77.2 million respectively\textsuperscript{10}. They were followed closely by Cataluña (69.3) million, Illes Balears (64.3 million) and Veneto (63.4 million) overnight stays.

When the total number of nights for the Canary Islands is adjusted by the population, two troughs are apparent in 2004 and 2008, and these are then followed by a slight recovery during 2009 to 2011. The tourism intensity/tourism pressure is less in the Canary Islands than the Balearic Islands.

Figure 5: Tourism intensity/tourism pressure

Source: Eurostat: total nights spent by non-residents

The Canary Islands region is among the top six regions within the EU in terms of visits by foreign tourists. These regions are Canarias, Illes Balears, Cataluña, Inner London, Île-de-France and Veneto\textsuperscript{11}. The number of tourist arrivals is higher in the Canary Islands than in Balearic Islands. The rate of occupancy in hotels and similar accommodation in the Canary Islands was 68.9% in 2012 and higher than for Spain at 53%, and higher than in any other European region, except the Balearic Islands, which had a rate of 77.9%\textsuperscript{12}.

Key points:

- The Canary Islands, as a region, is not as well-off as many other European regions in terms of GDP per capita and the people living in the region have 20% lower disposable income compared to the EU27;
- In relative terms, long-term unemployment is 2.25 times higher in the Canary Islands compared to the EU27, whilst overall unemployment rose by more than 10% between 2007 and 2010. Unemployment hits the young and those aged 45 or over, the hardest;
- There has been a greater increase in employment in KIBS of 30%, during the period 2000-2010, compared to the EU27 average, which is more than twice as high as the figure for the most similar regions;
- In terms of the EU Structural Funds, support to business innovations is 20% less in the Canary Islands, whereas funding for core R&D activities is 40% higher than the EU27 average;
- Patent applications to European Patent Office are 90% lower than the EU27 average;
- The total expenditure on R&D, as well as business R&D expenditure, is 70% less than the EU27 averages;
- The number of tourist arrivals in the Canaries is seven times higher compared to the EU27 average.

To sum up, the main strengths of the region are its tourism sector and some pockets of core RTDI in the public sector.

\textsuperscript{10} Tourism statistics at regional level
\textsuperscript{11} Ibid
\textsuperscript{12} Eurostat. Net occupancy rate of bed-places and bedrooms in hotels and similar accommodation
2.3. Opportunities and demands for service innovation

A region such as the Canary Islands seems ideal for service innovation and this is also stated in the region’s Concept Note: “Canary Islands represent the best laboratory to effectively test the transformative power of service innovation to tackle societal challenges and to then replicate this approach in regions with similar conditions”. A region characterised by year-round tourism and a strong service sector should provide a solid basis for developing new business models and value chains, based on service innovation.

According to the background analysis and the interviews conducted on the Canary Islands, the time so far has not been right for introducing service innovation to the regional stakeholders. This is also reflected in the preference to spend EU Structural Funds on core RTDI, rather than on business innovation, which favours supply-side innovation policy over demand-side policy. This preference may cause difficulties for activities that seek to strengthen service innovation and, therefore, there is a greater need for increased awareness-raising about the potential that service innovation possesses and the possibilities that it presents. The activities conducted by actors such as Turisfera (see section 3.1) play a key role in emphasising the need for sustainable business models and reinventing those that are no longer durable.

Based on the strong service orientation in the Canaries, as well as on the massive flow of international tourists to the islands, there is an abundance of opportunities and also a demand for service innovation. Until now, demand has not been satisfied by new service offerings, and there is a particular lack of those that are built on user-driven innovation. There are several reasons for this situation.

Firstly, the tourism sector is not run, for the large part, by local people. International tour operators play a major role in channelling the large flow of tourists. Most hotel-owners depend on this channel or ‘global pipe-line’, through which they are competing on costs with their peers in other popular destinations. This dependency makes it difficult for the local hotel-owners to invest in innovation and develop new markets. In addition, the tour operators dictate when the tourists arrive. The ‘high season’ is decided months in advance and charter flights schedules are planned accordingly. As a consequence, there are very few flights outside this high season. Even if there is a demand, as was the case when there were unstable situations in some other competing holiday destinations like Northern Africa and Turkey, flights could not be organised and so hotels, restaurants and other service providers went empty handed. Also, part of the income generated by tourism always goes, or stays, abroad due to the dominance of international operators.

Secondly, the tour operators are the key clients for the local service providers, and especially hotels, whereas the tourists are the clients of the operator. Service providers on the islands are not very aware of the needs of the users, the tourists, and these needs are not monitored. This is reflected in the way in which the tourists are seen. They are regarded as being mass consumers, instead of being seen as individuals with various needs, wishes and interests to which services could be tailored and further developed. For several decades, the Canary Islands have offered the visitors "sand, sea and sun" and many tourists continue to visit the most popular attractions over and over again. However, due to increased international competition from new destinations that can operate at even lower costs, the tourist sector will have to diversify and innovate to demonstrate that the Canary Islands can offer more than the traditional package of sand, sea and sun. In addition, other sectors can support, and benefit from, a transformation towards new business models.

Consumers are becoming more and more demanding, and new niche markets are emerging. As the seven islands are diverse, they have a huge potential to offer an array of leisure and tourist services on the Canaries. Some good examples already exist such as the Ironman Competition, Astrotours (see Box 1) or certain beaches that offer excellent conditions for surfing. Even the LGBT (lesbian, gay, bisexual and transgender) community can be regarded as a potential niche market. Another niche market could be cruise travellers even though they might only spend a few hours on shore.

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Thirdly, there is resistance to change. Several small business owners are used to dealing with the tour operators and are dependent on, and content with, regular income from renting their apartments or hotels to the operators instead of managing their own businesses. Hence there is no incentive for them to develop their businesses or to innovate. Also, being a ‘business man’ in this setting does not require specific innovation skills or entrepreneurship and so, the managerial skills of local people do not increase. The lack of skills is even more apparent in terms of e-commerce or e-marketing. Normally, online information is crucial, but few entrepreneurs possess the necessary skills to exploit mobile applications or online marketing tools.

**BOX 1 - ASTROTOURS - COMBINING NATURAL CONDITIONS, RESEARCH AND TOURISM**

The Canary Islands provide ideal conditions for astronomical research, due to their location and the low levels of light pollution. Consequently, the islands are home to several telescopes. These factors have been combined with tourism on the island of La Palma. Astrotours was established in 2009 and is based at the Observatory Roque de los Muchachos, which is under the administration of the Canary Islands Astrophysics Institute (IAC) and part of the European Northern Observatory. The idea is to enable everyone to discover the secrets of night sky, in an exciting and relaxing way. The services offered are characterised as cultural leisure time activities. The show begins as sunlight fades and the audience can enjoy a night sky full of stars. The seemingly randomly placed stars form constellations in front of the audience’s eyes, while more distant objects can be viewed through the telescope. The tours are conducted in English. In addition, workshops and introductory courses in astronomy are organised. To maintain the excellent sky transparency for astronomy, the Heaven’s Protection Act was introduced on La Palma in 1988.

**BOX 2 – A SYSTEMIC APPROACH TO ENERGY INDEPENDENCE AND ECO-FRIENDLINESS**

The smallest of the Canary Islands, El Hierro, is a good example of a large-scale demonstrator in a miniature size, as there are only around 10,000 inhabitants on the island. The island aims to be capable of supporting itself completely through renewable energies. The process dates back to the 1990s when a model for sustainable development was approved. The model was inspired by a waste treatment plan based on recycling, organic agriculture and cattle farming, as well as on sustainable transport. The construction of a water and wind power station was a way toward self-sustainability in terms of energy and now by using water and wind power, El Hierro will no longer consume 6000 tons of diesel fuel every year, and so avoid the emission of 18,700 tons of CO₂ into the air. There are also plans for solar energy and hydrogen-powered cars. The progress made towards a more ecologically-friendly island has required determination, joint commitment and cooperation. The local people have displayed the will to take this systemic approach over more than the last two decades.

Key points:
- The Canary Islands was proposed as a laboratory for testing the transformative power of service innovation in the Concept Note;
- Based on the analysis, the region does not seem to have a developed awareness of service innovation or of the opportunities that it provides. This can be seen by the fact that more attention has been paid in the allocation of EU Structural Funds to core RTDI rather than to user-driven innovation or business innovation;
- There are also several obstacles to a more effective implementation of service innovation and related activities. These include the role of international tour operators in channelling the flow of tourists, the tour operators, rather than the end-users, being the clients for local companies and the resistance to change among local, small entrepreneurs;
- The emergence of new niche markets can provide opportunities for service companies.
2.4. Assessment of regional performance

The results of the structural indicators in comparison with the EU27 average, as well as the results of the Self-Assessment Tool (SAT) are displayed in Figure 7. The light blue line represents the best score among all EU27 regions, while the dark blue line refers to the scores according to the structural indicators. The grey line corresponds to the regional perception in terms of the five innovation system functions when respondents were asked to assess, according to specific questions and on a scale from 1 to 5, if the regional innovation system and its elements were conducive to a transformative shift in the regional economy towards higher value added products and services.

Figure 6: The Canary Islands compared to the best performing regions in terms of service innovation related structural indicators

Notes: Data for the indicators are from 2010/2011, for exact year please see Table 6.

The figure above clearly illustrates the mostly positive views of the regional stakeholders, based on the SAT results, compared to performance measured by the structural indicators. Significant differences can be detected concerning all the functions of the innovation system. Based on the data of the self-assessment on entrepreneurial activities, there appear to be many opportunities for service innovation in the region. There is a relatively good presence of leading customers and new business creation is seen as being relatively strong. However, the entrepreneurs’ awareness of service innovation as well as the supportive tax and regulatory frameworks need to be improved.

The results of the self-assessment indicate a substantially better situation regarding knowledge development and transfer, compared with the performance according to the structural indicators. Regional stakeholders consider human resources to be reasonably good and these include a relatively
highly-educated, service-oriented workforce. There also seem to be quite a lot of organisations that are able to help with knowledge transfer. At the same time, the levels of the physical and virtual infrastructures supporting service innovation vary a lot in the region. The education and research landscape is also not very supportive to cross-fertilisation of ideas between sectors and disciplines.

**Innovation and business model generation** was given good scores in the self-assessment. Consequently, the regional stakeholders’ view is that there are quite a few knowledge-intensive service providers in the region, although the situation could be better. When looking at creative or service industries, the situation is passable at most. Perhaps the biggest challenges are the low involvement of service oriented SMEs in larger scale research and innovation activities, as well as the low level of internationalisation. The IPR regime might also be more service-sector friendly.

According to the regional self-assessment, **financing innovation and growth**, particularly in the service sector, may also need some improvement. The region appears to be lacking in seed and venture capital and the availability of new funding instruments such as crowd-funding and micro-finance is also low, although in the case of microcredit, some new funding has recently become available. It also appears that the region lacks business angels but some indirect funding is available. There are different opinions regarding the fiscal, legal and regulatory frameworks for funding R&D and innovation. The frameworks seem to be regarded as being poor or good depending on their approaches. It should also be noted that the tough financial environment may not only be a problem for the service sector but for enterprises in general, as the financial crisis seems to have decreased investments and overall funding.

Of the five systemic elements of the regional innovation system, the results of the regional self-assessment on **collaboration and networking** are most aligned with the structural indicators. There appears, however, to be relatively little specialisation that cuts across the manufacturing and service sectors. The culture of collaboration across industries varies and the culture of collaboration between service firms and academia may also need to be improved. The assessment of the involvement of users and employees in innovation activity seems to be rather positive but opinions vary on whether the physical and social environment supports cross-sectoral networking.
3. Regional Policy and Policy mix

The objective of this chapter is to provide an overview of the policy strategy, the policy mix and the institutional basis that affects service innovation. The emphasis is placed on analysing how regional policy supports structural change and what systemic policy approaches exist.

3.1. Innovation policy and institutional background

As one of the outermost regions in Europe, the Canary Islands are an autonomous region of Spain. The islands are divided into two provinces: Santa Cruz de Tenerife and Las Palmas. The former covers the islands of Tenerife, La Gomera, La Palma and El Hierro, while the latter contains the islands of Gran Canaria, Fuerteventura and Lanzarote. Instead of having a single regional capital, there are two: the cities of Santa Cruz de Tenerife and Las Palmas.

The governance system of the Canary Islands is rather different from most other European regions. There are four layers of administration on the islands:

- The Government of Spain;
- The Government of the Canary Islands – a joint administration of the seven islands;
- The administration of each island (isle council); and
- The administration of each municipality.

Matters related, for instance to energy, are decided at the first level, making it difficult for the stakeholders within the energy industry on the Canaries to alter the current framework. Also in terms of taxation and trade, the Canary Islands have a special status which differs from regions on the mainland of Spain. It provides an institutionalised background to protect ‘home-grown’ indigenous products and services.

At state level, the main decision-making power in terms of research and innovation has been entrusted to the Ministry of Economy and Competitiveness (MINECO). According to Erawatch, the Ministry is responsible for the design and management of research and innovation policy and allocates approximately two thirds of its national budget to R&D. The Council of Science, Technology and Innovation (CPCTI) is also an important actor and it plays a coordination role in relation to regional governments and other stakeholders in the Spanish R&D system. Its members include the secretaries of state of the ministries with R&D and innovation responsibilities and representatives of each of the regional governments. The key activity of the Council is to support the drafting of the national strategies. Another related body is the Executive Committee for Science, Technology and Innovation policy (CDCTI) that is responsible for the planning, evaluation and coordination of the Spanish RDI instruments.

The key documents supporting and coordinating science, technology and innovation are the Spanish Strategy for Science, Technology and Innovation 2013 -2020 (EESTI) and the Spanish State Plan for Scientific and Technical Research and Innovation 2013 -2016 (PECTI). The former contains the rationale, objectives and indicators for the Spanish R&D and Innovation policy. The latter is a tool for implementing the EESTI by setting the priorities, programmes, coordination mechanisms, costs and sources of funding.

The Integrated R&D&I Plan for the Canary Islands 2011-2015 is the key policy document at the regional level. The overall objective of the plan is to move towards a new model of development based on knowledge. In addition, the medium term plan acknowledges that R&D&I is not something that can be conducted in isolation but needs to be integrated into the whole socioeconomic system. Therefore, stronger links have been built, for instance, between research and education in order to improve the understanding of knowledge and innovation in the broadest sense. Also policy-makers are becoming more aware of concepts such as the innovation triangle of science, society and economy and the knowledge triangle of education, research and innovation.

It is also important to acknowledge that investments in R&D&I constitute knowledge capital, including sources of knowledge such as patents, royalties from the use of innovations, new ideas arising from

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14 Erawatch database. Spain. Governance Structures
15 Plan Canario Integrado I+D+I 2011 -2015 (Integrated R&D&I Plan)
cooperation with suppliers and customers or reorganisation. These, in turn, determine the short-term, medium-term and long-term potential of economic growth. R&D&I are considered to contribute significantly to productivity and are therefore crucial to ensuring a continued and sustainable per capita income for all citizens. Also research and development enables growth that minimises the negative impact on resources and the natural environment, while addressing societal challenges through providing advanced services that affect the whole population. R&D&I policies must be adapted to local circumstances in order to have any effect. In addition, the willingness of companies to participate in R&D activities and their willingness to use the knowledge generated from those activities has to be developed and maintained.

The key ingredients of the plan are to improve the skills and capacities of individuals, to create talent, and to reward effort in order to ensure that research institutes and companies can be innovative and globalise their outcomes and products. However, the plan also pays a considerable amount of attention to technology and “emphasises technology-intensive sectors with higher added value, associated economic sectors able to generate employment and wealth”. It is divided into the following strategic areas or action lines: governance and management; human capital; promotion of R&D; promotion of business innovation; and strategic sectors.

Under governance and management it is stated that administration can sometimes demotivate the development of R&D, and hence legislative reforms are needed to reduce barriers and to ease administrative procedures. The creation of the Canary Office of Research, Innovation and Information Society (ACIISI) is seen as a step in the right direction, but more should be done to consolidate the agency’s ability to coordinate R&D activities on the Islands. In terms of human capital, the plan’s developmental emphasis is placed on mobility. Competitive project funding is considered to be an appropriate tool for the promotion of R&D. The projects that are funded are expected to lead to new products, processes and services. Another tool supporting R&D is infrastructure, which can house centres of excellence, as well as facilitate internationalisation.

The aspects of the plan relating to the strategic areas do not reflect a notable change towards a systemic approach, although acknowledging the need for legislative reforms to reduce existing barriers is a valuable signal. The fourth strategic area seems most promising in this respect. Business innovation will be supported by helping companies to incorporate innovation into their products, production processes and management. Although the approach is again technology-driven, attention is also paid to transformation. All in all, however, the objectives set in the plan seem rather traditional. For instance, technology parks that are part of the plan are often considered to be an outdated means of fostering innovation, whereas living labs might represent a more up-to-date approach.

Key points:

- There are four layers of administration on the Canary Islands including the Government of Spain, the Government of the Canary Islands, the Isle Council and the Municipalities with matters relating to energy and research and innovation being decided at national level;
- The Ministry of Economy and Competitiveness designs and manages research and innovation policy and allocates national R&D funds, while the Council of Science, Technology and Innovation coordinates the Spanish R&D system;
- The key document targeting research, development and innovation at the regional level is the Integrated R&D&I Plan for the Canary Islands 2011-2015, which identifies the importance of knowledge capital and the need to adapt R&D&I policies to local circumstances;
- A clear change towards a systemic approach cannot yet be identified as more attention is paid to technology-driven development than to transformation.

**Implementation of innovation policy**

Implementation of the related plans on the Canary Islands is the responsibility of the Canary Office of Research, Innovation and Information Society (ACIISI). The tasks of ACIISI include the promotion of research and scientific and technological development, business innovation and the deployment of the telecommunications infrastructure and services of the information society. ACIISI is also developing a knowledge-based economy on the Islands to enable sustainable economic growth, without endangering the
natural resources. This is done by managing promotion programmes for research, development and innovation, as well as by promoting the use of information and communication technologies.\(^\text{16}\)

In terms of its activities, the regional Ministry of Economy and Treasury of the Canary Islands is also an important contributor to regional development. The ministry proposes and implements the governmental guidelines related to budgetary, financial, tax and auditory aspects. The ministry is also responsible for managing and planning economic activities as well as coordinating economic affairs with the European Union. The ministry promotes innovation in the private sector via EU-funded programmes such as the ERDF and ESF. There is also an additional tool used for managing finance and grants for the expansion of innovative, technology based enterprises.

The Government of the Canary Islands also has an investment corporation called SODECAN. The mission of this organisation is to develop businesses in the region. Although owned by the government, SODECAN is self-financed and independent of the annual budget of the government. The strategy of the organisation was renewed in 2012 to promote a co-investment, public-private partnership model. The idea is to maximise the socioeconomic impact of the available public resources. Since 2012, SODECAN has managed the JEREMIE Holding Funds (€ 23m) and has identified the financial market failures and designed instruments to alleviate such failings in the future. As a result, SODECAN launched funding instruments such as soft loans and guarantees, as well as equity instruments such as co-investments and VC funds for entrepreneurs and SMEs. SODECAN is not allowed to finance or invest in these operations. Instead, it organised a Call for the Expression of Interest to choose financial intermediaries for the management of each programme.\(^\text{17}\)

There are also a few non-profit organisations on the Canary Islands that play a role in this context. For instance Turisfera,\(^\text{18}\) the tourism business cluster of Tenerife tourist companies, promotes innovation and research within companies in the tourism sector. The revenues are concentrated on developing and promoting sustainable projects related to innovative systems, products or tourist services that focus on the clients or end-users. Turisfera is a new player in the Tenerife innovation system. It was established in 2010, as a response to the need for a space in which entrepreneurs, public institutions and the University of La Laguna could collaborate on innovation. The mission of Turisfera is to generate and channel innovative companies in the tourism sector, and create a network of tourism enterprises to undertake innovative projects, as well as a network that strengthens sustainable business models and reinvents those that are currently unsustainable. Without a deeper insight into the organisation, it is difficult to estimate its understanding of service innovation or the potential for transformation. Acknowledging the need for sustainable business models and especially the need to change those that are currently unsustainable is considered to be a big step into the right direction, away from the traditional "sun, sea and sand approach."

Key points:
- The Canary Office of Research, Innovation and Information Society is responsible for implementing innovation policy on the Canary Islands, whereas the regional Ministry of Economy and Treasury contributes to regional development through its use of EU funding;
- SODECAN provides venture capital funding;
- Turisfera, and other non-profit organisations, are leading the way in implementing new, sustainable business models.

3.2. The policy mix

Support measures targeting (technological) innovation

There are several support instruments on the Canary Islands including specific regional measures and other national measures that contain elements that support innovation.

\(^{16}\) ACIISI. Presentation.
\(^{17}\) SODECAN. Presentation.
\(^{18}\) Turisfera
These instruments are presented in the Figure 8 below and for an analytical overview of the regional innovation policy mix and references to individual policy measures, see Appendix F. The current policy measures are plotted on a matrix in which the horizontal axes indicate the extent to which a certain measure is specific to the domain of goods or the domain of services. In the case of a measure that is not particularly dedicated to either of them, the vertical axes enables a distinction to be made between measures that are simply not specific to any sector at all and are 'neutral' and measures that explicitly address goods or technology and services activities or sectors, at the same time, and are 'specialised'. The axes in Figure 8 correspond to a great extent with common classifications for the way service innovation is addressed by innovation policies that are designated by the letters T, E, A, D, and S. These classifications will be adhered to in the presentation of The Canary Islands’ innovation policy measures. The colours, in turn, refer to the earlier used functions of the innovation system to which a particular measure is relevant.

Figure 7: Categorisation of regional policies

The framework is largely based on the classifications by Den Hertog et al., (2000), ‘The Smart Guide to Service Innovation’ (EC Enterprise & Industry, 2012), and ‘Strategies, policies and rationale for service innovation’ (Dialogic/OECD, 2012).
Some of the support instruments that exist on the Canaries have a strong technology focus (T). These include, for instance, instruments such as technological bonds and grants to promote the creation and expansion of innovative, technology based companies, as well as grants under the programme to Support Innovation in SMEs. The lack of technology-focused support measures reflects the dominance of services on the Canary Islands. Other instruments contain assimilated (A) elements for the most part and embedded (E) elements in some parts and the majority are not sector specific. In the assimilation approach, services and service innovation are analysed and supported by using, or adapting, concepts and tools developed for manufacturing and innovation in manufacturing. In the embedded approach the measures do not support service innovation as such but do not discriminate against it either.

‘Technological bonds’, ranging from € 2,000 to € 10,000, support the use of ICT as well as the creation of technological innovation in companies - both SMEs and large enterprises alike. The bonds can be used to cover part of a project’s costs and certain criteria have to be met. The beneficiary must be the SME applying for the grant, the bond is paid directly to the service provider and the service provider needs to be found from a database containing a list of qualified providers. Although the measure is technology-driven, it can contain embedded elements closer to service innovation such as assistance in the identification and planning of innovative actions.

Technological bonds were replaced in 2013 by innovation vouchers which companies can use to search, outside their usual networks, for new knowledge that enables them to grow through the development of products, processes and services and the exploration of new markets. Originally the vouchers were designed to support enterprises working together with schools, colleges and university departments. Currently, SMEs can use a wider range of suppliers with the capacities to support innovative ideas based on R&D, the application of design to business or the management of intellectual property.

Although technology is also emphasised in the funding granted to promote the creation and expansion of innovative technology based companies, there are also important implications for service innovation. The objective of the grants is to boost the economic activity and creation of new productive structures based on R&D in technology based enterprises. Funding can be granted for prototype projects that involve the development of new or improved processes, products or services, based on existing knowledge and techniques. In addition, the support can be used for establishing a business, based on R&D results from a university, research centre or company on the Canaries.

During 2012, funding was also granted under the ‘Support to Innovation in SMEs’ - InnoEmpresa 2012 programme. The main aim of this funding was to increase the creation of technology-based companies. An additional objective was to support the employment of qualified R&D personnel. Thus, grants were awarded to the following activities: organisational innovation; management improvement; technological innovation and quality improvement; and collaborative innovation projects. Organisational innovation and management improvement are concepts associated with service innovation and the embedded approach.

Grants are also awarded for the training of research staff. The aim of this funding is to encourage research staff to complete their doctoral theses on the Canaries Islands. ‘The R&D projects for research groups and enterprises support measure’ promotes research and joint innovation activities between research centres and enterprises. These activities are intended to develop a generation of new knowledge and extend the application of existing knowledge to the solution of problems and its transfer to the markets. The measure relies on public calls that include an assessment of the proposals, with the aim of improving the competitiveness of the productive sectors through fundamental research, applied research and the experimental development of innovation projects in enterprises. The calls can be directed to groups of public researchers but projects that build collaboration between research institutes and enterprises in any sector are of special interest. There is no particular approach to services or service innovation nor is there any discrimination against them.

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20 Regional Innovation Monitor. Canary Islands. Support Measure. Technological Bonds programme
21 Regional Innovation Monitor. Canary Islands. Support Measure. Grants to promote the creation and expansion of innovative technology based companies
23 Regional Innovation Monitor. Canary Islands. Support Measure. Grants for the training of the research staff for doctoral thesis
24 Regional innovation Monitor. Canary Islands. Support Measure. R&D projects for research groups and enterprises
ACIISI has a range of activities it can use to support research, development and innovation. A cooperation agreement was signed in 2009 between the Ministry of Science and Innovation and the Government of the Canary Islands to strengthen and support the ‘Technology Park Network’ on the Islands. The objective of the network is to support the creation and growth of innovative companies. There have been previous actions under the agreement in 2013, as ACIISI allocated € 5m to create a new fund. The fund’s loans range between € 50,000 and € 500,000 and are intended to promote business projects and public-private collaboration in the fields of innovation, research and development and also in the fields of consumption and energy efficiency. ACIISI encourages companies, especially SMEs, to apply for funding to overcome the shortcomings of the financial market and the absence of financing instruments tailored to the needs of innovative projects. The fund will be managed by SODECAN. Since the fund does not have a name as yet, it has been placed on the matrix under the title of ‘SODECAN fund.’

Other financing instruments of SODECAN include the ‘Microcredit programme’ and ‘Warranties programme’. An entrepreneur with a new business idea, a self-employed person or a start-up with less than three years of activity are all eligible for funding, from the microcredit programme, of up to € 50,000 without any warranty, guarantee or guarantor. Microcredit loans are targeted at small businesses, regardless of the sector in which they operate, that have little ability to obtain financing through traditional sources.

Warranties are soft loans of € 50,000, with financing costs below market and reduced bank endorsements, and these are aimed at entrepreneurs and SMEs. Warranties are used to facilitate businesses’ access to credit by playing a complementary role. Banks are the main source of external funding for SMEs but SMEs face increasing difficulties in meeting the loan requirements. Warranties are specifically designed to meet particular needs such as guarantees for start-ups and spin-offs, for obtaining microcredit, for supporting the rapid growth of highly scalable business, for promoting the internationalisation of business and for stimulating investment in high-tech or innovative solutions.

The private co-investments offer larger sums of up to € 500,000 to encourage private investors, both local and foreign, to make investments in innovative projects. Investors must demonstrate their investment capacity and experience in this type of process and have the technical and human resources for investment analysis. Additionally, financing is provided for investment in spin-offs arising from R&D results via the ‘Technology Transfer Fund’ that is run by ACIISI-SODECAN and has a budget of € 1.3m for the period 2013-2015. Also there is a scheme for attracting international talent to promote enterprises in the fields of Astrophysics, Marine Technology and Biotechnology that is again run by ACIISI-SODECAN and has a budget of € 2.5m for the period 2013-2015. The JEREMIE fund is used to attract professional venture capital teams, as well as to create local networks of business angels to invest in those projects that have an overall budget of less than € 500,000.

Financing has also been allocated for the promotion of innovative projects. This support covers most stages of a company from creation through growth to consolidation. The measure is managed by ACIISI and the Instituto Tecnológico de Canarias (ITC). An applicant company is asked to develop a business plan and provide relevant documentation. The business plan is considered to be an essential planning tool for the implementation of a business project, regardless of the professional experience of the promoters and the project size. Applications are processed by the ITC. If a company applies for funding associated with its creation, that SME must have been established during the previous 24 months. There are three specific funding lines for the first cycle of business life, which are the young entrepreneurs’ line, the entrepreneurs’ line and the social entrepreneurs’ line. Growth funding is targeted at SMEs with needs exceeding € 75,000 and with viable and financially profitable business models. SMEs can apply for the two related funding lines of ENISA Competitiveness Expansion and ENISA EBT. Companies aiming to consolidate, for instance through mergers and acquisitions, can be granted funding exceeding € 200,000. These financial products are intended to support entrepreneurship and encourage new business ideas among entrepreneurs, as well as foster the creation of new jobs. There seems to be a demand for this kind of support since, for instance, in 2011 consideration of some of the requests had to be postponed to 2012, as all the funding for 2011 had been exhausted.

25 Five million Euros to the creation of a new fund.
26 SODECAN Microcredit programme.
27 SODECAN Warranties programme
28 SODECAN Private co-investment programme
29 Institute of technology of the Canaries. Canary SMEs have new financing to promote innovative projects
In addition to funding, attention has been paid to the development of human resources. Support is provided for the training of innovation managers in order to raise the capacity and quality of the Canary Islands’ R&D system. Another programme called ‘Managers of Innovation in Business’ offers training on theoretical and practical innovation management to micro, small and medium sized enterprises, free of charge. It is clear that ACIISI has acknowledged the need to improve the skills and competences of entrepreneurs on the Islands but more still needs to be done and this is outlined in section 4.3. Interestingly, support is already offered for demonstrator projects. Although the support measure mainly targets the information society, it encourages the implementation of projects that foster innovation and act as catalysts for innovation. Examples of new, innovative approaches are very important, especially in a region that lacks a real innovation culture.

ACIISI also runs the network of ‘Centres for Innovation and Business Development (CIDE)’

ACIISI also runs the network of ‘Centres for Innovation and Business Development (CIDE)’

According to the Concept Note, the Canary Islands Government has recently added new measures to its portfolio and amended older ones. The ‘Programme for innovative actions in tourism’ has been modified to include technological modernisation, rather than concentrating solely on IT. The objective of the measure is to promote tourism-focused business clusters, the diffusion of innovation throughout the sector via distributed centres in collaboration with business organisations and the training of tourism innovation managers, as well as technological modernisation including the use of ICTs and the efficient use of water and energy. Two new measures have also been planned - a ‘pilot programme in support of the innovation and competitiveness of Canary Islands SMEs’ and a more general ‘management training programme for innovation.’ The former proposes actions specifically tailored to the SME sector, whereas the latter aims to increase productivity in 100 knowledge-based companies, 100 traditional companies with a capacity for growth and 1.200 SMEs located in rural areas. These measures have not, however, been implemented due a lack of funds.

In summary, most of the instruments in the Canary Islands policy mix are based on the Decree 899/2007 of the Ministry of Industry and contain the same objectives: supporting the creation of new facilities; the expansion and modernisation of existing facilities; supporting the creation of new jobs and maintaining existing ones; increasing production capacity; improving the competitiveness of companies through the acquisition of technologically advanced machinery and the improvement of production processes; contributing to the diversification of production to meet new markets and develop additional products; and ensuring compliance with safety standards.

3.3. Assessment of the regional policy mix

According to the classifications offered by ‘The Smart Guide to Service Innovation’ (EC Enterprise & Industry, 2012), and ‘Strategies, policies and rationale for service innovation’ (Dialogic/OECD, 2012), five ‘service innovation approaches’ can be distinguished:

1. The technological approach concerns policies that focus entirely on technological R&D;
2. The assimilation approach is used when policies for (technological) R&D are made service-inclusive such as by broadening criteria;
3. The demarcation approach involves policies which are specifically developed for service innovation, taking into account service peculiarities that are often sector-specific;
4. The embedded approach refers to neutral policies in which no distinction between sectors is made; and
5. Policies belonging to the systemic approach are characterised by their goal to combine goods-based and service-based innovation, also often in the context of a particular sector.

Entrepreneurial activities on the Canary Islands are largely supply oriented and tend to focus on traditional R&D. In a modern economy this is not enough. The structural indicators linked to entrepreneurial activities, such as the share of people who think it is important to try new and different things and share of

Network of Centres for Innovation and Business Development (CIDE)

European Service Innovation Centre - 27
people who think it is important to be creative, imply an increasing interest in entrepreneurship. However, this is not reflected in other indicators such as the decreasing number of companies. Apart from the Technology Park Network and the promotion of innovative projects, the policy mix does not contain measures supporting the establishment of start-ups, the nurturing of new business ideas or the facilitation of business development through mentoring. In addition, innovation policies addressing SMEs often involve sector specific cluster projects where participants consider themselves as competitors, in the same way in the situation regarding products and services in similar markets. In principle, starting a business is easy but in practice, it always requires a license, permission or some other form of authorisation from regional public sector organisations. Receiving a response has been said to take a long time and, in extreme cases, even years.

Measured concerned with knowledge development and transfer mainly focus on increasing the skills in academia like the ‘Aid to research staff training’ or the ‘Grants for the training of research staff’. In addition, the new RIS3 strategy does not contain instruments supporting the generation of knowledge, development or transfer, which implies that there will be no quick change in the current situation. It seems that although the share of tertiary education is quite high at 29.3% and close to the EU average, the general level of education seems to be lower than in some other European regions. Unemployment has been on the rise amongst highly educated young people, which is problematic as so much talent and potential remains untapped, and this, in turn, reinforces the brain drain to mainland Europe or even to South America. This situation presents a serious challenge to local knowledge development and capacity building.

It is also important to increase knowledge transfer between and across sectors as well as amongst students, researchers, academics and entrepreneurs. Internships and training periods in enterprises could also increase the interest of young people in entrepreneurship, and provide crucial expertise, as well as an entry point into the labour market. Taking into account the level of unemployment, self-employment through establishing a business should be an appealing option.

In innovation and business model generation, the Canary Islands Region is not amongst the best regions in Europe, although it has considerable potential. ACIISI is the organisation involved in supporting innovation and business model generation on the Canaries. Consequently, some of the newer instruments pay attention to the development of skills supportive of innovation. There also seems to be a demand for the kind of development in question, since the lack of skills has been identified as one of the barriers to innovation. Although ACIISI has acknowledged the need to increase innovation and new approaches in the region, the other actors in the Canary Islands innovation system should be more involved. There are several examples of innovative approaches in various sectors, including tourism, but there seems to be a quite heavy bureaucracy as well as an administration and regulatory barriers that hamper innovation processes.

In addition, the innovation culture is not especially dominant in the tourism sector, which may be to a large extent related to the position of the Canary Islands in the value chains and its long-term emphasis on mass tourism. Furthermore, much of the R&D spending takes place in the public sector and appears to be rather technology oriented. This is reflected in the innovation behaviour of SMEs as well as in the low share of employment in knowledge intensive services (see Figure 4 and Table 1). For service innovation, the non-technological innovations in the form of organisational change and new business models seem even more important than patents or publications. However as Figure 4 shows, the share of SMEs which are non-technological, marketing or organisational innovators is about 50% below that of Spain. Hence all actors in the innovation system should be made aware of the importance of new business models and of how these models can help to boost the local economy and increase innovation in the region. At the same time, more attention should be paid to policies supporting all forms of innovation, including service innovation, to ensure the availability of suitable policy tools to support increased awareness-raising.

New support measures for financing innovation and growth were established in 2013 to help companies to access funding. For instance, the Canary Islands Development Company (SODECAN) has developed funding that may help innovative start-ups and instruments that complement other national and EU funding sources. It is, however, too early to assess the impact of these new instruments. The need for new policies supporting companies’ abilities to innovate and grow is apparent, as the existing bureaucratic administration in the region is a real barrier to accessing financing innovation and growth. Moreover, the Canary Islands have directed a considerable amount of funding from the EU Structural Funds to ‘core research and technological development’, and allocated relatively less to ‘business innovation support’, whilst expenditure on the latter type of activity seems more relevant for service innovation.

The policy mix does not contain many instruments supporting collaboration and networking, and the nature of the existing instruments is rather traditional. For instance, in the programme for innovative
actions in tourism the focus is partly on modernisation and the use of IT, combined with the promotion of tourism-focused business clusters. It should be noted that the sector-specific approach, applied in some policy instruments, has its risks, especially when it is applied to sectors which are homogenous and have a low level of diversification. For example, it is difficult to enhance cooperation between similar firms which compete on the same market, within the context of a sector specific cluster initiative.

As it has been pointed out, for example in section chapter 2.1, cross-sectoral collaboration seems to present a challenge to the region. Often discussions on a certain topic end with the policy suggestion that “actors should be brought together around one table”. Merely organising networking events such as the ICT platforms for the tourist sector is not enough to generate new joint initiatives. After a first general networking event, match-making events could be followed up by an appointed ‘business-developer,’ who could help in transforming ideas and intentions into concrete initiatives. In addition, it is important that participants in joint cross-sector initiatives have the interest and willingness to invest their time and effort. Otherwise projects end when the subsidy is spent. Therefore, cluster policies supporting collaboration and networking should be modernised by integrating more demand-side elements, making their operations less sector-specific and involving users.

Key points:

- Some of the instruments are more technology-oriented, but most of them contain assimilated and/or embedded elements and do not discriminate against services. However, they do not emphasise either service innovation or other forms or non-technological innovation;
- A few of the instruments also pay attention to the development of skills and competences supportive to innovation while one instrument targets demonstrator projects;
- The availability of venture capital funding will increase through SODECAN funding and there are already a number of measures providing financial aid for SMEs on the Canary Islands.

Self-assessment

The regional stakeholders were asked to assess the service innovation inclusiveness of the policy mix by taking a self-assessment test (SAT), and the results are displayed in Figure 9. Some variation was detected in entrepreneurial activities. On the one hand it was stated that policy measures support entrepreneurs operating in all types of innovation and thus, they represented the embedded approach, while the regional innovation strategy is focused on cross-sectoral themes/challenges, targeting both services and manufacturing industries and represents the systemic approach. In the latter case the response given was based on the future RIS3 strategy that is a change from the past policies. This partly explains the difference in views compared with the policy mix described earlier in this report and the responses from the region.

Based on the replies, knowledge development and transfer is at a good level. According to the respondents, there are specific initiatives targeting service innovation, such as knowledge transfer platforms where companies and researchers cooperate specifically on service innovation. These reflect methods of support that are fundamentally distinct from manufacturing-based approaches, mainly through vertical policy measures that are specific to individual service sectors: in other words, the demarcation approach. Knowledge transfer support policies target prioritised themes, such as societal challenges, where both technological and non-technological knowledge is fostered. The concept of service innovation is deeply embedded in the focus of these policy initiatives and so a systemic approach is adopted. The views of local stakeholders and the ESIC team vary considerably. The team only identified a few measures that focus on knowledge development and transfer, which were described as containing mainly elements of the assimilated approach to service innovation.

Innovation and business model generation does not score as well as the previous two functions of the innovation system because support to business innovation was assessed as being focused on research activities in firms and the development, or the acquisition, of new technologies, thus offering no support to service innovation. Another opinion was more positive and indicated that there were specific policy measures in support of business innovation, such as assistance with innovation management and incubators for services industry firms. In general, the ESIC team shares this view but there is room for improvement in innovation and business model generation, and especially, in business model generation.

A variation was also detected in the local responses to financing innovation and growth. On the one hand, it was stated that financing activities are focused on technology-oriented business plans but have also been adapted to the needs of service industry firms, thus applying the assimilation approach. On the other
hand, however, support has been made available for integrated service innovation projects or the embedded approach and opportunities in service innovation are actively exploiting regional innovation programmes that have set specific thematic targets or use a systemic approach. Although there seems to be quite a lot of instruments providing financial support, they do not pay specific attention to service innovation or to other non-traditional forms of innovation. However, they do not discriminate against them either and can therefore be labelled as embedded.

In terms of collaboration and networking, the results of the SAT and the views of the ESIC team are partially in line. According to the SAT responses, cooperation is mainly fostered amongst the actors in the regional innovation system, especially between university, research organisations and enterprises but no support for service innovation is provided, and this is also the conclusion of the ESIC team. Collaboration does exist but mainly within sectors and inter-sectoral links are still weak. Another respondent from the region had a totally different opinion, however, and believed that the policy mix followed a strategy in which themes for cross-sectoral collaboration had been identified and are targeted by collaborative innovation support schemes for service concepts, technology-development and new business models, so this represented a systemic approach to service innovation.
Figure 8: Illustration of the SAT results of the Canary Islands regarding the policy mix

Although there are not suitable structural indicators to measure the framework conditions at regional level, the assessment has identified some aspects of the Canary Islands’ innovation landscape that can be considered as being barriers to transformation. The four-level administrative system is an almost insurmountable barrier to the speedy implementation and financing of innovative ideas.

Other hurdles that have a negative effect on certain sectors or impinge horizontally across all sectors have been identified. The lack of a proper IT infrastructure, especially 3G and 4G networks, is a factor that impacts on all sectors, and especially on the tourism sector. The development of the IT infrastructure is, however, very expensive, as it is dependent on submarine cables, and another problem is the lack of an effective or adequate legislative framework. The energy sector is regulated from mainland Spain, which has resulted in a slow adoption of solar and wind energy in the Canary Islands, despite the excellent indigenous natural conditions. In addition, it seems that some tax and trade regulations aimed at protecting local industries may have had a negative effect on innovation.

It appears that the current policy mix of the Canary Islands is not adequately addressing the challenges faced by the region or its ability to transform its economy. As described above, a number of existing support measures on the Canaries pay some attention to service innovation, although this might not have been their original intention. Despite the role of services in the regional economy, the measures often emphasise technological innovation and R&D, and promote the generation of new technologies with supply-side innovation policies. The application of existing technologies and the adoption of organisational innovations and new business models seem to be more relevant to the Canary Islands.
Furthermore, many of the support measures ended in 2013 and may not be renewed because of cuts imposed by the continued economic downturn. Some of the existing measures could, however, make room for new, more suitable measures that could also support a more systemic approach to service innovation. In the future, it will be important to evaluate the support measures and use key indicators to assess the impacts of the instruments. Decisions could then be made on the basis of verified facts and figures.

The new funding instruments provide much needed aid for innovative companies that have struggled in their attempts to secure loans from the banks. It is, however, too early to judge the success of these instruments as they have only recently been established. Access to funding is one of the bottlenecks that has been identified and this problem is now being addressed, at least partly, by the Microcredit programme that offers small loans without any warranty, guarantee or guarantor. During the study visit, it was pointed out on several occasions that funding instruments and support measures are next to useless because of the time that it takes to receive a final decision. Unfortunately, this reflects a phenomenon that is prevalent in many regions in Europe.

The LSD strategy calls for more demand-side innovation policy instruments. Discussions and projects that focus on matching the supply from the supporting sectors with the demand from the emerging tourist industries should begin with the demand-side and not, for instance, by reviewing the R&D capabilities of institutes in the ‘supporting’ sectors. Relevant demand-side policy instruments seem to include: living labs; demonstration initiatives; thematic innovation platforms involving users; and coaching schemes.

It is also necessary to take a step away from cluster and or sector-specific policy instruments or projects if fragmentation is to be avoided. If it does not focus on its link with the tourist sector, any strategy may end up producing a non-systemic outcome and a situation in which each of the prioritised sectors can formulate its own sector project.

The development strategy may also need to be linked to a broader reform in the economic and governance model. Several sources have indicated that governance, especially with four different levels, is hindering the opportunity to reform the tourism sector through service innovation. At local and regional levels, the bureaucracy may slow down or hamper new innovative approaches and, at national level, the regulations and legislation may present problems for new region-specific solutions. At national level, there is almost complete consensus that Spain is suffering from its high level of bureaucracy, which has discouraged both the development of innovation and the establishment of new businesses. The bottom-line is that the new, more systemic approach emphasising non-technological innovation and service innovation specifically, cannot succeed unless the governance and innovation systems are streamlined and developed at the same time and in the same direction.

Key points:
- The rather strong R&D focus in the support instruments is not supportive to service innovation;
- The Canary Islands lack demand-side support policies, such as living labs and innovation platforms;
- The organisation of general events and meetings is not enough to encourage cooperation and knowledge exchange;
- There may be a need for a broader reform of the economic and governance model to reduce bureaucracy and to increase the uptake of innovative approaches;

The SAT results, in general, are more positive than the assessment of the ESIC team, which partially results from the more critical view of the team about what can be considered as service innovation.
4. Large-Scale Demonstrator Strategy for the Future

The previous chapters provide a descriptive overview of the Canary Island’s current socio-economic situation on the one hand, and the regional, national and European strategies and policies that are relevant to service innovation in the Canary Islands, on the other. In this chapter, several observations and considerations are presented, which could be taken into account when redesigning the regional policy mix so that it can unleash the full transformative power of service innovation.

The focus of the large-scale strategy

The Concept Note or ‘Large-scale strategy of the Canary Islands’ has been built around the tourism sector, which needs to increase its competitiveness and innovativeness, as well as its sustainability. The tourism sector can also leverage innovation, internationalisation and competitiveness in other sectors. In promoting the diversification of the Canary Islands’ economy by responding to the tourism sector’s demand for innovative products and services, other sectors are boosted through their links with tourism\(^\text{31}\).

Traditionally, there has been little cooperation and knowledge exchange between the various sectors that contribute to tourism and the tourism sector itself. An important element of the proposed Smart Specialisation Strategy involves strengthening the links between all the sectors involved. Previous innovation policy projects were, to a large extent, sector oriented, and only involved participants from the chosen sector. The process of formulating the RIS3 strategy has also followed a sector specific approach, as it resulted in a list of priority sectors and discussions on challenges and opportunities for each of these sectors. However one new element in the strategy is that the diversification and innovation of the tourism sector will be engendered through its links with supporting sectors such as ICT, energy, logistics and transport, green industries, including the management of energy, water and waste, and the agro-food sector. This element will focus on cross-sectoral links with the tourist sector and seems to hit the right note in terms of the assessment outlined above. It is the most focused and systemic measure so far for promoting service innovation, as it will assist in the restructuring of all of the business sectors and emerging industries that have links with tourism and thus, it is aiming to produce a large-scale impact.

The focus of the strategy on tourism is fully justified. It is not only the dominant sector, representing around 27% of the regional gross added value and almost 33% of the employment, but it is also considered to be the most important factor in the growth of the economy. It has an average of 12.5 million tourists per year and thus, it also demonstrated resilience in the face of the economic crisis, but it still needs to become more competitive, innovative and better qualified, if it is to ensure sustainable economic growth for the archipelago. Another justification for this focus is that, as a horizontal sector, tourism touches upon a number of other sectors and the joint actions and coordinated strategies that might be instigated could produce a process of systemic transformation.

There are, however, several obstacles hampering the implementation of the strategy. Some of them, such as youth unemployment accompanied by low educational levels, as well as the distance from the mainland that causes extra-costs for infrastructure and services, have been acknowledged in the strategy. A few others have been identified by ESIC.

Key points:

- The focus of the large scale demonstrator strategy is on tourism and on increasing its competitiveness, innovativeness, diversity and sustainability;
- Cooperation and knowledge exchange are not that common in tourism or within other sectors contributing to tourism – the new approach calls for a strengthening of these links;
- The systemic elements as well as the scale of the approach are a good basis for future development, but there are also several barriers hampering the implementation of the strategy.

\(^{31}\) Priority 4.1 in the Canary Islands RIS3 "Intelligent leadership in tourism"
Sectors that have enabling links with tourism

Sustainability (Energy, water and waste) and Tourism: The innovative management of energy, water and waste in tourism facilities contributes to the development of the Canary Islands as an excellent and sustainable destination. Since tourists are becoming more and more environmentally conscious, the sector should become more aware of the economic benefits of addressing environmental issues. Therefore the vision "Canarias = A natural, sustainable and low-carbon Laboratory" also contributes to the transformation of the tourist sector.

The Canary Islands’ Concept Note rightly claims that "Due to its geographic position, to its richness in terms of biodiversity, to the knowledge and experience gained in some sectors like biotechnology, and energy, the Canary Islands gathers all the conditions to be a laboratory for the production and first application of innovative technologies. However, the Canary Islands cannot and should not aim to become leading in all the many possible applications. Smart specialisation choices need to be made. Focusing on the cross-sectoral linkage with the tourist sector can serve to make such smart choices."

This choice is also justified by the additional environmental stress caused by the extra 250,000 tourists inhabiting the islands in the course of each year. Due to this high number, much more waste is produced and 2-3 times more energy and water is consumed.

A lot could be done to improve energy efficiency as well as water and waste management in hotels as mentioned in the Concept Note: "the region will invest in sustaining the innovation and the creation of new business opportunities in the field of water management and waste disposal". The current incentives and regulations are important barriers to such investment. It is, for instance, prohibited for hotels and other private actors to install solar-panels on their roofs, and the tax for waste is fixed per hotel-bed instead of the amount of waste produced. Consequently, there is basically one energy producer in the region. A great opportunity is not being exploited as there are beneficial natural conditions for producing wind and solar energy. Although the islands were among the first to invest in wind energy, this has not led to first-mover advantages. An interesting example of existing IT application linking IT, energy and the tourism sector is presented in the Box 3.

**BOX 3 - EFFI-E**

Effi-e is a pilot development project that targets the needs of enterprises in the tourism sector and aspires to affect the experience of the visitors and consumers. The key objective of the project is to reduce the carbon footprint of the visitors to the Canary Islands. Effi-e is built on a virtual platform (Effi-e Play Green), which can be used by mobile devices. Effi-e brings added value to the environmental commitment of tourist accommodation, communicating the measures it takes to improve environmental management and it enables the tourists to get involved in saving energy and water resources during their stay.

Through the application, the visitors can participate in the resource-saving measures taken by the hotels and apartments in which they are staying and acquire other relevant information such as knowledge of real-time water and energy consumption through the CO₂ calculator. The important feature in this context is the transparency of commitment to reducing the environmental and ecological footprint.

The application also rewards visitors’ respectful behavior towards the environment by bonuses that are exchangeable for complementary leisure facilities. Additionally, the bonuses can be invested in projects increasing environmental awareness, sustainability and efficiency allowing the visitor to mitigate or eliminate his or her carbon footprint.

The overall goal of Effi-e is to brand Tenerife as a carbon neutral world destination through a network of companies that are committed to involving their clients in promoting energy efficiency and a smaller carbon footprint. The project is in line with the efforts being made by local and regional authorities in the rehabilitation of tourist destinations and in mitigation measures, as well as the investments made by the industry in energy efficiency and renewable energy.

Key points:

- There are clear links between energy provision, waste management and tourism, as well as the need to decrease the additional environmental stress caused by tourists;
- Due to its geographical location and biodiversity, the region could act as a test bed for new innovative technologies and related applications;
- There are no incentives for companies, however, and regulation in the energy sector is more protective than enabling.

Transport and Logistics and Tourism: The peculiar position of the Archipelago and its dependence on transport services obliges the region to address connectivity barriers. One of the successes has been the increase in people, from 2 to 5 million, being transported between the islands by sea. This is mainly due to the introduction of high-speed vessels. The strategy aims to improve the efficiency and predictability of the transport system through better coordination of the different modes of transport and ensuring their environmental sustainability. Technical solutions exist, for example, providing real time information to travellers and developing technologies for traffic management and the production and use of new types of fuels, such as bio-fuels or natural gas. Success in all these areas depends on the transformation and integration of novel service systems and these will be supported in the framework of the (RIS3) regional innovation strategy. Furthermore, as indicated in the previous chapter, the current legislative framework does not encourage the production of renewable energy in the forms of bio-fuels and natural gas.

During the ESIC study visit, the options and ideas for improvements in the sector were discussed. A major problem in assessing the potential impact of the possible joint initiatives in the tourist sector is the lack of communication between the tourist sector and other sectors. The introduction of high-speed vessels to and from Morocco and the development of the cruise sector both seem relevant subjects for cross-sector collaboration. Also the ideas developed under the previous EU-funded ‘single-ticket project’ might still be relevant for tourism, but it seems that the sector is not aware of the project (see Box 4). Apparently, the tourist industry has not been involved, or is maybe not even interested in the outcomes. By adopting a more demand-oriented innovation policy, these kinds of situations could be prevented.

**BOX 4 - SINGLE TICKET SYSTEM**

For several years a single ticket system has been developed on the Canary Islands. The idea of the single ticket system is very good, and it contains systemic elements. The aim is to create a coordinated system of transport that allows passengers to travel using a single ticket regardless of the form of transport – be it train, bus, boat, tram or even taxi. The method of payment would be a chargeable ticket onto which money could be loaded for instance by a mobile device. The price of the ticket would depend on the vehicle used.

An important part of the system would also be a database containing timetables, routes and other necessary information. There is also a link to the optimisation of transit times. The establishment of such a system would require the installation of new reading device in each of the vehicles. While the first stage of the project received EU funding, the project is currently on hold, due to the lack of further funding but aspirations to put it back onto the agenda were expressed by the representatives of the Canary Islands Government during the study visit.

Key points:

- Connectivity issues need to be addressed in a region consisting of seven islands;
- The introduction of high speed vessels has significantly increased the number of people travelling between the islands;
- Better coordination of the different modes of transport should result in improvements in efficiency, predictability and sustainability;
- Technical solutions already exist, but their introduction requires changes in related framework conditions.
**ICT and Tourism:** Strengthening the links between the ICT sector and tourism will serve to develop the Canary Islands as a ‘smart destination’, offering support to the companies in the tourist sector and other supplying sectors. This basically comes down to enabling the transformation towards new business models.

The availability of a proper ICT infrastructure, with broadband internet access and mobile network services, is an important factor in the provision of more advanced services to tourists. Visitors should at least be provided with the same level of services they have in their home countries or regions. Such services will enhance the holiday experiences of tourists by enabling them to plan and customise their stays. Improving added value mobile services and applications should result in real-time information on the offers available in leisure, gastronomic, cultural and environmental services and complementary services such as transport and health. On the other hand, the use of new ICT solutions should improve the management of companies in terms of efficiency and sustainability, new methods of marketing, digital promotion, customer relationships, the value-chain, logistics and cross-sectoral cooperation.

During the ESIC study visit, it became clear that the connections between the ICT sector and tourism could be improved. Large hotels have their own providers and it is difficult for small, local ICT companies to enter this market. New action should, therefore, focus on joint initiatives between SMEs and the small emerging segments of the tourism sector which develop new services and niche-markets. Web-based platforms are needed to cluster these small-scale, fragmented innovative initiatives in the Canary Islands, and to provide marketing channels to interact with tourists. These would also be helpful in reducing the dependency on international tour operators. Thus, tourism should become a ‘test-bed’ and a ‘living lab’ for small innovative ICT companies.

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**BOX 5 - DISTRICT INNOVATION MANAGERS IN THE TOURISM SECTOR**

The competence centre for tourism (GICTUR) ran a six month project in 2011, with the aim of bringing Information and Communications Technologies closer to companies in the tourism sector. This project considered the needs of the central, as well as the peripheral, areas of the Archipelago, to make businesses more competitive and sustainable. The more specific objectives included diagnosing the needs of the tourism enterprises in the field of ICT and identifying the actions that would enhance their abilities to relate to their customers and to overcome barriers in the use of ICT to achieve a more competitive business, a better position in new tourism markets, an enhanced presence on the Internet and an increased marketability. In terms of numerical targets, it was expected that the 13 GICTUR agents would visit, advise and develop services in 1,000 regional companies.

The rationale for establishing the project was the inadequate incorporation of ICT into other business activities on the Canary Islands. Enterprises have not used the Internet to sell their products or to interact with their (potential) clients and the entrepreneurs have not been aware of the advantages, which the use of IT can bring. Lack of advice, as well as aid for implementation, were also identified as challenges to be overcome.

Consequently, two kinds of services were established: basic services and advanced services. The former consisted of general support such as creating a free e-mail account, search engine optimisation and social networking through via Facebook and Twitter. The latter included the creation of a business website and domain registration, integration into online platforms related to tourism and learning about business formulae.

There seem to be more cross-sectoral links between the non-profit organisations such as Turisfera and the Chambers of Commerce. It may also be that these organisations, by nature, are more open to networking and new approaches.

Key points:
- The availability of a proper ICT infrastructure is a prerequisite for the provision of advanced services to tourists;
- The introduction of new ICT solutions should also improve related skills in companies;
Despite evident synergies, there seems to be lack of collaboration between the ICT and tourism sectors. This requires joint initiatives, of which Effi-e is a good example, to develop new services and niche-markets.

**Agro-food, Agriculture and Farming and Tourism:** The Canary Islands have a unique bio-diversity, which enables the agricultural and food-industry to produce unusual and, often remarkable, products such as wines from a variety of species of grapes that only exist on the Canary Islands. However, due to a lack of skills, capacities and willingness to innovate in the tourism sector, the use of local agricultural products and processes for tourism purposes is very limited. Tax issues also play a significant role in hindering such developments. In many hotels, for example, it is not possible to order local wine and the hotel owners prefer their guests to stay at the hotel and don't encourage them to discover and experience the bio-diversity. The agro-food sector could contribute to, and benefit from, a more competitive business model for the tourist sector, by offering unique and differentiated experiences to tourists. Developing a gastronomic asset could increase the demand for Canary cuisine which, in turn, could create more demand for local products.

This ‘tourist showcase’ or ‘test-bed’ could not only lead to more sales to tourists during their holidays but with the use of digital channels, tourists might also be able to buy the products that they liked best, when they return to their home countries. ICT platforms have also to be set up for organising local producers of, for instance, tomatoes, herbs and fruit, to meet the logistical requirements of hotels. Besides producing and selling local agricultural products, the primary sector entrepreneurs should also integrate services into their business model by, for example, organising wine tours, visits to banana plantations, excursions to cactus-nurseries and demonstrations of the added value of organic farming. It is also possible to multiply the price of a fish that a tourist might buy for dinner by adding on an experience that enables the tourist to catch his/her own fish. Besides increasing the cooperation between the agricultural sector, tourism and other service sectors, it is also necessary to strengthen the associations in the primary sector and their cooperation with the industrial sector, in order to expand the range of processed products, which can subsequently be offered to the tourism sector.

The bio-diversity in terms of the nature and landscape is mainly marketed by the government, but it can also be a source of private entrepreneurial activities. Besides the lack of quantity of activities offered to tourists there is also a lack of quality, as tourists often do not receive answers when they ask for more in-depth information. Some entrepreneurs have taken the opportunity to embrace ‘locality’ as described in Box 6 below. Lopesan, the hotel group that is featured in this case study, is also interesting in the way in which it is addressing environmental issues and turning them into assets.

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**BOX 6 - THE LOPESAN HOTEL GROUP**

Lopesan is a hotel group that has turned around the more traditional approach of international hotel chains acquiring properties in Spain. The company, established in 1972 as Hijos de Francisco López Sánchez, is now known as the Lopesan Group. In the early 1990s, the group made its first acquisition in Germany. In 1999, the group acquired a majority stake in the German chains of IFA Hotels and Touristik. Currently Lopesan operates in Austria, the Dominican Republic, Germany and Spain. Instead of only providing accommodation, the group offers golf, wellness, wedding and conference services. To distinguish the service offering on the Canaries, the restaurants in Lopesan hotels have extended their menus to feature local products, which is not a common practice on the Islands.

The Lopesan Group also works to become a more eco-friendly business. During the past four years, energy consumption has decreased by 30% and this has been accompanied by a drop of 4,000 tonnes in CO₂ emissions. Investments in green technology have been made since 2007 to generate 7 GWs of clean energy without consuming fuel, gas or electricity. This is a result of solar panels being installed on hotel roofs, and the increased attention being paid to waste management through the “3 Rs” concept - reduce, reuse and recycle.

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Key points:

- The rich bio-diversity of the Canary Islands could be a source of unique products and experiences, but there is lack of demand in the tourism sector on the part of service providers such as hotels and restaurants;
• Changing this approach could enable a more versatile offering from the agro-food sector to tourism, as well as the introduction of new business models or ‘servitisation’ in the agro-food sector;
• Certain framework conditions such as taxation hinder future development.

**Innovative entrepreneurs in the tourist sector**

It became clear from the ESIC study visit, that a major obstacle to the regional strategy is the fact that the traditional mass-tourism sector is ‘locked-in’, stuck in competition to offer the standard “sun, sea and sand” holiday-packages at the lowest possible price. Therefore a large part of the sector is not interested in, or is not capable of, introducing innovation into their services or business models. Communication and cooperation of this part of the tourist sector with the enabling sectors mentioned above is minimal.

The situation and behaviour of companies that are active in the ‘mass-tourism’ part of the sector is difficult to change because many, inter-related aspects hamper innovation and transformation. Several of these aspects are related to the dependency of international tour operators namely:

• A (large) part of the income stays or goes abroad and margins for the local entrepreneurs are small;
• Management is undertaken abroad and skills and innovations are not being developed locally;
• Local companies hire low-educated staff and offer low-wage jobs;
• Tour operators know the end-user, which is not always the case with actual local service providers;
• There is no true willingness to change, since many companies are content with regular income and change would require additional upfront costs;
• There is no flexibility, since negotiations and contracting takes place months in advance;
• Most companies are small and lack the capacity and resources to innovate.

Some past innovation policy schemes have tried to change some of these aspects, but after participation in the policy schemes, the activities stopped. For example, a scheme was mentioned through which companies could hire a young graduate to solve an innovation issue, but after the project came to an end, so did the scheme and no further investments were made. In the case of cluster policy initiatives, the lack of willingness to cooperate with competitors often reduces the potential impact of the policy instrument.

For a regional innovation strategy, aimed at promoting innovative and transformative initiatives at cross-sector level with the tourist sector, it is important to work with those entrepreneurs who are innovative and have experience in transformation and new business models. It is therefore better to work initially with the fringe of innovative entrepreneurs who are not involved in mass-tourism and especially entrepreneurs who are active in the emerging tourist industries. This is because they are innovative entrepreneurs, they can demonstrate what works and they are more likely to collaborate with the enabling sectors in unlocking and demonstrating the service innovation potential of their joint initiatives. These new niche-markets are small but growing and include, amongst others: Rural Tourism, Green Tourism, Adventure, Nature and Sports-Tourism, Wellness & Medical Tourism and LGBT (lesbian, gay, bisexual and transgender) Tourism. There is also scope for cooperation with those working in the cruise-industry and those extending their tourist offers to Morocco.

Each of these niche markets or sub-sectors has specific characteristics and presents its own challenges. Instead of forming micro-clusters of firms competing in the same niche, it would be more interesting and profitable to engage companies from several niches in cross-sectoral initiatives, since it increases the likelihood that when successes are demonstrated they will be applied more widely. It also increases the transformative power as even companies from the mass-tourism sector may, at a later stage, be persuaded to join the initiatives.

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32 Nor should there be a contest to select the most promising niche and subsidise one niche specific project
For the same reason, this group of innovative firms from the emerging industries should involve companies from all seven different islands. Each island has, and should retain its specific local strengths and service portfolio. However, to increase the scale and the transformative power of cross-sectoral activities, it is more relevant to focus initially on common interests and initiatives.

Key points:

- The regional strategy has, for a long time, been resting on the basic strengths of “sun, sea and sand,” and, as a consequence, a large part of the tourism sector is ‘excluded’ from introducing innovation into their services or business models;
- The level of communication and collaboration within the sector is not adequate;
- It is difficult to change the existing structure built by international tour operators, which makes many local actors overly dependent on these large operators;
- It could be beneficial to initiate change with those who are not so closely linked to mass tourism activities, and thus “too close” to see the windows of opportunity;
- Potential new niche markets are the following: Rural Tourism, Green Tourism, Adventure, Nature and Sports-Tourism, Wellness and Medical Tourism and LGBT (Lesbian, gay, bisexual and transgender) Tourism.
5. Conclusions

Conclusions:

- The traditional "sea, sun and sand" business model has to be transformed, at regional, system and firm levels. Diversification is necessary to escape from low-cost competition;
- Additional experiences offered to tourists add value, also for other sectors and the wider society, and increase long-term sustainability;
- There is a lot of potential to diversify the tourism sector in new, emerging industries on the Canary Islands, yet it is difficult to innovate in the traditional core of the tourism sector;
- Big players and those depending on tour operators hamper innovation and have few transformative powers;
- ICT, Agro-food, Green industries, Logistics and ICT can promote innovation in tourism, but there are notable barriers in these ‘supportive or enabling’ sectors that hinder future development;
- Promoting cross-sector links is hampered by limited cross-sector communication and the sector specific approaches of some existing policies, such as cluster policies. Getting people around one table, as is often suggested, is probably not enough to engender joint initiatives. Appointing 'business developers' could help in this respect;
- Within the current innovation policy mix, the policies promoting the technological and supply-side innovation are still dominant;
- Emerging industries are the entrepreneurial transformers within the tourist sector, in contrast to the traditional sector, they are interested in innovating together with the other sectors, in order to add value and social return;
- Most promising are ICT enabled platforms which create synergies between green and agro-food activities and the emerging rural tourism and green tourism industries;
- There are, however, also many gaps in:
  - Knowledge and skills;
  - Cross sectoral co-operation, public-private cooperation. As the sector approach is dominant, opportunities for cross-sector links are missing;
  - The culture of innovation
  - Flexibility in regulation, level of bureaucracy and taxation;
  - Incentives to change, mainly due to a dependence on tour operators.

Suggestions:

The need to implement measures to support firms in reviewing their business structures and pricing/revenue policy, which is acknowledged in the Concept Note, is welcomed. This could be done, for instance, via activator or facilitator services that could be used for testing, boosting and improving the quality of business models. Furthermore, in terms of the current policy mix, more demand-side innovation policy instruments that involve users, such as demonstration tools, living-labs, and thematic innovation platforms, should be developed.

The Concept Note contains number of good ideas and also identifies many of the related barriers, illustrating an appropriate understanding of the challenges that face the regional innovation eco-system. However, the Concept Note is still somewhat general, and more focus is required. More focus should be placed on current strengths/spécialisations which mean that choices have to be made. An option could be to build regional specialisation on three pillars:

- Tourism - Creative industries, activities and rural tourism;
- Sustainable Region - Locally produced food, water and energy, waste management and transport system;
- Gateway to (Western) Africa - Education, logistics and the extension of ‘local’ markets.
Appendix A – Bibliography

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Regional Innovation Monitor. Canary Islands. Support Measure. Grants to promote the creation and expansion of innovative technology based companies. 


RIS3 Canarias draft, March 2013
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http://www.sodecan.es/microcredits/?lang=en

SODECAN. Presentation
http://www.sodecan.es/presentation/?lang=en

SODECAN Private co-investment programme
http://www.sodecan.es/co-investment/?lang=en

SODECAN Warranties programme
http://www.sodecan.es/portfolio/warranties-program/?lang=en


Turisfera
http://www.turisfera.es/?page_id=1145
Appendix B - Stakeholders consulted

a) Juan Ruiz Alzola, Director, Canary Islands Government (05.06.2013).
b) Carlos Portugués, Director, Canary Islands Government (05.06.2013).
c) Beatriz Amigó, Director, Canary Islands Government (05.06.2013).
d) María Méndez, CEO, PROMOTUR (05.06.2013).
e) Raquel Lucia Perez, CEO, Science Park Tenerife (05.06.2013).
f) Rodrigo Trujillo, Vice Rector, University of La Laguna (05.06.2013)
g) Jose Manuel Padrón, Director, University of La Laguna (05.06.2013)
h) Isabel Quevedo, CEO, Chamber of Commerce of Lanzarote (05.06.2013)
i) Héctor Pulido, Vice President, ASOLAN (hotel business association) (05.06.2013)
j) Roberto Aguilar Duque, AEI Turismo Innova Gran Canaria (cluster) (05.06.2013)
k) Carmelo León, Director, University of La Laguna (05.06.2013)
l) Alonso Arroyo, Viceconsejero Agriculture, Canary Islands Government (05.06.2013)
m) Fernando Segura Cebada, Head of Unit, Canary Islands Government (05.06.2013)

Appendix B - Stakeholders consulted

n) Carina Vega Ramirez, Cluster CLUVICAN (05.06.2013)
o) Rafael Zárate, CEO, Cluster Biotifarm (05.06.2013)
p) Manuel Caballero, ICIA (05.06.2013)

Appendix B - Stakeholders consulted

q) DR Andres Borjes Rodriguez, investigator, IPNA – CSIC (05.06.2013)
r) Raguel Marin, Director, University of La Laguna (05.06.2013)
s) Gerardo Morales, CEO, SODECAN (05.06.2013)
t) Patricia Fraile, CEO, Cluster Excelencia Tecnológica (06.06.2013)
u) Miguel Montestdeoca, President, Cluster ingeniería y colegio telecommunication (06.06.2013)
v) Jacques Bulchand, ULPGC, (06.06.2013)
w) Eduardo Parra López, Professor, FGULL
The Canary Islands had a steady increase in per capita GDP until 2007, the start of the current economic crisis. From 2007 to 2009, per capita GDP decreased marginally before showing a small upturn, in 2010. The GDP per capita increased by almost € 5,000 in the time period 2000-2010. The change over time has followed a similar pattern as in the most similar regions.

Long-term unemployment followed a reverse trend to that of per capita GDP with a decreasing trend up until 2008 and sharp increases in 2009 and 2010. Over the years, relative performance has been worse compared to all other regions.
Labour productivity increased steadily by 26%, over the time period 2000-2010, similarly to the trend for Spain. The fact that labour productivity has increased in the most recent years despite a decrease in GDP can be explained by the increase in unemployment. The Canary Islands have been able to keep GDP per capita levels relatively constant with fewer employed people becoming more productive.

The share of employees with a completed tertiary education has been growing continuously for most of the period. Small declines are observed in 2003, 2006 and 2011. It seems that the general increase will continue and converge with the level of Spain. The share of employees with a completed tertiary education has also been above that of, the most similar regions, the demonstrator regions and the EU27, for most of the time period considered.
Total expenditures on Research and Development (R&D) have been steady over time and constantly been below expenditure levels in the EU27, Spain and the demonstrator regions. The expenditure levels in the Canary Islands have, however, been comparable to those of the most similar regions.

The share of total R&D spent by the business sector has also been relatively stable over time and constantly below that of other regions. The share is relatively low compared to Spain, the EU27 and other demonstrator regions. As has already been noted this is most likely due to the touristic character of the Canary Islands.
The share of employment in knowledge-intensive services is above the levels for all other regions and has demonstrated an increasing trend since 2008, as have the most similar regions and Spain.

The share of employment in service innovation intensive fell from 1.7% in 2000 to 1.0% in 2007, after which it increased towards 2.4% in 2010. The share of employment in service innovation intensive has been below that of all other regions.

Note:

Demonstrator regions: AT31 Oberösterreich (Upper Austria), ES7 Canarias (Canary Islands), ITD5 Emilia-Romagna, LU Luxembourg, NL42 Limburg, UKN Northern Ireland

Most similar regions: BE33 Prov. Liège, DE41 Brandenburg - Nordost, DK02 Sjælland, NL12 Friesland, NL13 Drenthe, UKC1 Tees Valley and Durham, UKC2 Northumberland and Tyne and Wear, UKL1 West Wales and The Valleys, UKL2 East Wales.
## Service innovation actors at regional level

<table>
<thead>
<tr>
<th>Name of organisation</th>
<th>Type of organisation</th>
<th>Principal activity related to SI</th>
<th>Annual budget (in euro)</th>
<th>Number of employees (FTE) and of which SI specialists</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Canary Islands Cluster on Transport and Logistics (CCTL)</strong></td>
<td>Cluster</td>
<td>The industrial members of the cluster are production (2), distribution (4) and service (26) companies, most of them SMEs. The few big companies belong to the maritime and air transport subsector, while road transport is dominated by SMEs. On the research side, the two universities (Universidad de La Laguna, Universidad de Las Palmas de Gran Canaria) contribute with their research activities to the cluster’s progress, covering several aspects of transport and logistics (e.g. ICT solutions, environmental efficiency of transport modes). Currently, in the two universities, 15 Research Groups work on themes related to transport and so far 9 patents have been registered. The two universities have a track record with reference to FP6 and FP7 research projects such as AMASS - Autonomous maritime surveillance system, HILAS - Human integration into the life-cycle of aviation systems, B-VHF - broadband vhf aeronautical communications system based on mc-cdma.</td>
<td>€ 4.5 million has been invested as part of RTDI Plan to fund projects supporting innovation, development and the adoption of new technology and inter-modality concepts. Further to these regional plans, the Department of Public Works and Transport of the Spanish Minister earmarked around € 120 million for transport in Canary for 2011-2013. The Regional Government is planning to focus its effort on strengthening the internal transport cohesion, supporting the public transport by bus and tram in order to discourage private car use and promoting the Canary Islands as tri-continental (Europe, Africa, and America) Transport Hub.</td>
<td>1.200 companies and 30,000 employees</td>
</tr>
<tr>
<td><strong>Cluster Biotifarm</strong></td>
<td>Cluster</td>
<td>Biotifarm encourages the use of biotechnology and innovation as attractive tools to stimulate business creation and advancement of the Knowledge-Based Economy for the Canaries. The services provided include business incubator, business collaboration, event organisation, advice on funding, promotion of RDI as well as training.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Cluster Technological Excellency</strong></td>
<td>Cluster</td>
<td>According to its mission statement, the cluster offers alternatives to the traditional business model, proposing new projects in order to encourage masses of Canarian businesses to invest in new technologies. One of the key</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
features is promotion of innovation in all sectors combined with increased RDI investments

| Cluster AEI Turismo Innova Gran Canaria | Cluster | The cluster supports new organisational model of tourism, based on networks, allowing both SMEs and the Canary Islands as a tourist destination, opt for continuous innovation that reflects in the sustainability-economic, social and environment, and improving the competitiveness and productivity of the tourism system and, therefore, of the population and Islands’ economy. Services of the cluster include advice, means, resources and partners for the generation and coordination of innovative initiatives based on cooperation | N/A | N/A |

| Science and Technology Park Tenerife | Intermediary organisation | The park contributes to creation of a new economic schemes based on knowledge or promotion of training in RDI. Cross-sectoral collaboration is a key, favouring cooperation between scientific-technological-business systems and agents, and the transfer of knowledge, developing transverse actions directed at innovation and new technologies. The priority sectors include innovation in tourism, information technology, software, telecommunications, and digital services. | N/A | N/A | N/A |

| SODECAN | Funding agency | SODECAN is the investment corporation of the Government of the Canary Islands and aims to promote business development by providing a co-investment public-private partnership | JEREMIE Holding Funds (€ 23 million). Through this agreement SODECAN do not finance nor invest in operations directly, but establishes ‘Calls for Expression of Interest’ for the management of each programme. Selected applicants are financial intermediaries who finance or invest in final beneficiaries | N/A | N/A | N/A |
### Appendix E - Policy measures for service innovation

<table>
<thead>
<tr>
<th>Title (in English)</th>
<th>System function</th>
<th>Start year</th>
<th>End year (if applicable)</th>
<th>Public funding (latest figure available)</th>
<th>Private co-financing</th>
<th>Short description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technological Vouchers</td>
<td>Entrepreneurial activities</td>
<td>2008</td>
<td>2013</td>
<td>€900,000 (regional public funds); €5,100,000 (EU structural funds)</td>
<td>€6,000,000</td>
<td>Technological Vouchers for SMEs’ innovation and ICT projects developed by homologated providers</td>
</tr>
<tr>
<td>Loans to promote the creation and expansion of innovative technology based companies</td>
<td>Entrepreneurial activities</td>
<td>2007</td>
<td>2013</td>
<td>2010: €11.5 m</td>
<td></td>
<td>Loans for SMEs to capitalise the innovative companies, to increase the creation and consolidation of technology companies.</td>
</tr>
<tr>
<td>Support to innovation in SMEs</td>
<td>Entrepreneurial activities</td>
<td>2010</td>
<td>2012</td>
<td>2010: €2.3 m (FEDER)</td>
<td></td>
<td>Innovation projects for SMEs</td>
</tr>
<tr>
<td>R&amp;D projects for research groups and enterprises</td>
<td>Collaboration &amp; networking</td>
<td>2008</td>
<td>2010</td>
<td>2010: €2,811,644</td>
<td></td>
<td>Research and technological project for research groups</td>
</tr>
<tr>
<td>The Technology Park Network</td>
<td></td>
<td>2013</td>
<td>2015</td>
<td>€75 m</td>
<td></td>
<td>Promoting of technology parks spaces in the Canary Islands.</td>
</tr>
<tr>
<td>ACIISI (SODECAN) fund</td>
<td>Financing innovation and growth</td>
<td>2013</td>
<td>2015</td>
<td>€1.3 m</td>
<td></td>
<td>JEREMIE framework</td>
</tr>
<tr>
<td>Microcredit programme</td>
<td>Financing innovation and growth</td>
<td>2013</td>
<td>2015</td>
<td>€4.3 m</td>
<td>€25 m</td>
<td>Up to €50,000 without any warranty, guarantee or guarantor. JEREMIE framework</td>
</tr>
<tr>
<td>Warranties programme</td>
<td>Financing innovation and growth</td>
<td>2013</td>
<td>2015</td>
<td>€5 m</td>
<td>€30 m</td>
<td>For entrepreneurs and SMEs. Soft loans of from €50,000 with financing costs below market and reduced bank endorsements.</td>
</tr>
<tr>
<td>Initiative</td>
<td>Funding objectives</td>
<td>Year 1</td>
<td>Year 2</td>
<td>Funding</td>
<td>Explanation</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>---------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>European Service Innovation Centre - JEREMIE framework</td>
<td>Project financing, private co-investment programme</td>
<td>2013</td>
<td>2015</td>
<td>€ 8.7 m</td>
<td>€ 3.72 m</td>
<td></td>
</tr>
<tr>
<td>Private co-investment programme</td>
<td>Financing innovation and growth</td>
<td>2013</td>
<td>2015</td>
<td>€ 5 m</td>
<td>€ 5 m</td>
<td></td>
</tr>
<tr>
<td>Training of innovation managers (innovation managers and GIE)</td>
<td>Knowledge development and transfer</td>
<td>2009</td>
<td>2011</td>
<td>€ 3 m</td>
<td>Four-levels training innovation managers (from agents to auditors) Business Innovation managers working in SMEs. JEREMIE framework.</td>
<td></td>
</tr>
<tr>
<td>Managers of Innovation in Business (DILO)</td>
<td>Collaboration &amp; networking</td>
<td>2010</td>
<td>2011</td>
<td>€ 1,060,000</td>
<td>Dissemination of innovation in companies located in areas away from urban centres.</td>
<td></td>
</tr>
<tr>
<td>Demonstrator projects</td>
<td></td>
<td>2009</td>
<td>2011</td>
<td>€ 1,266,666</td>
<td>Implementation of projects with innovative effect in the Information society.</td>
<td></td>
</tr>
<tr>
<td>Centres for Innovation and Business Development (Red CIDE)</td>
<td>Collaboration &amp; networking</td>
<td>2009</td>
<td>2013</td>
<td>€ 1,896,391</td>
<td>The Network of Centres of Innovation and Business Development Network (CIDE) consists of a set of coordinated entities working for the promotion of innovation and business development in Canary companies.</td>
<td></td>
</tr>
<tr>
<td>Cluster</td>
<td></td>
<td>2009</td>
<td>2010</td>
<td>€ 1,266,666</td>
<td>Promote the creation and consolidation of innovative clusters in competitiveness, exchange knowledge between companies.</td>
<td></td>
</tr>
<tr>
<td>RED UPEs</td>
<td></td>
<td>2009</td>
<td>2013</td>
<td>€ 880,000</td>
<td>The Promotion Network Business Units (Red UPE) was established as a business.</td>
<td></td>
</tr>
<tr>
<td>Innovative staff</td>
<td>Knowledge development and transfer</td>
<td>2003</td>
<td>2010</td>
<td>€ 1,650,400 (estimated Budget)</td>
<td>Support to SMEs to co-finance the incorporation of PhD and technologist to promote innovation in enterprises</td>
<td>€ 944,072</td>
</tr>
</tbody>
</table>