

SPANISH REGIONAL ANALYSIS

**Building
regional resilience
to industrial
structural change**

**Murcia Region /
Cartagena - Spain**



Spanish Partner
Project Partner: Business Innovation
Centre of Cartagena - CEEIC



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Introduction



Introduction

FOUNDATION is an Interreg Europe funded SME Competitiveness project that brings together nine partners in a consortium led by Cork Institute of Technology from 1/08/2019 to 31/07/2023. Presently, across Europe, public bodies are pressed by an increasing need to provide preparatory support to the economic ecosystem in advance of the closure of anchor firms in their region which act as significant employers. The impacts of a closure of course go beyond direct employees and ripple, wave like throughout the regional services sector and economy. Management of such anticipated structural change requires proactive renewal of business approaches and policy supports. Regions are encouraged to introduce pilot projects based on their own strengths and to provide appropriate business supports for the re-alignment of the regional industrial base. This proactive approach by regional stakeholders is critical to building the resilience of these regions and enabling them to adapt to change.

The importance of SMEs and start-ups to the regional economy is widely recognised in terms of the provision of employment, contribution to GDP, driving innovation and supporting regional resilience. It is imperative that the relevant regional stakeholders keep informed, inspired and equipped to provide the appropriate SME and start-up supports, particularly in regions anticipating structural change.

FOUNDATION links its project partners to develop Regional Action Plans and an overall Framework and Roadmap for Anticipated Structural Change. It is imperative that industry players, business support organisations and policy makers understand how their ecosystems work and when faced with shocks (firm closures) to collaboratively develop alternative growth and employment through supportive policies and programmes to boost SME competitiveness. Key project activities included the exchange of experience and learning through interregional events (4 workshops, 4 seminars and 9 study visits).

Foundation Project partners



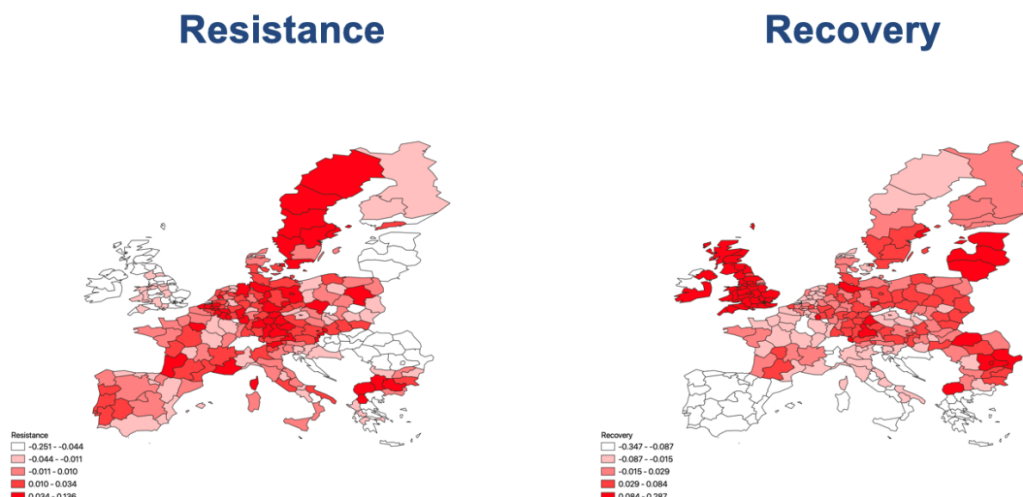
Economic Resilience across Europe

The 2007/8 economic crisis was the most severe shock to global financial markets since the great depression in the 1930s (Bordo and Landon-Lane, 2010; Barranco and Sudrià, 2012). Following the crisis, there was a re-emergence of interest in how regional economies respond to and recover from economic shocks (Martin, 2012; Fingleton, Garretsen and Martin, 2012; Martin and Sunley, 2015; Doran and Fingleton, 2016). The term resilience in economic geography refers to the ability of a region 'to anticipate, prepare for, respond to and recover from a disturbance' (Foster, 2007; 14). There are three main conceptualisations of resilience: engineering, ecological, and evolutionary. Engineering resilience is an equilibrium based notion of how an entity or system is plunged into disequilibrium, and off its steady state, following a shock and can be defined 'how fast the variables return towards their equilibrium following a perturbation' (Pimm 1984: 322). The concept of ecological resilience can be defined as the 'the persistence of relationships within a system and is a measure of the ability of these systems to absorb changes of state variables, driving variables, and parameters, and still persist' (Holling 1973: 41). The region may settle on an inferior path post-shock or recover and assume a superior path post-shock.

However, these two forms of resilience have been criticised as too limiting and evolutionary resilience has gained significant focus in recent years. Martin and Sunley (2015) introduced such a conceptualisation of resilience defining it as a changing process that is adaptive. The adaptive capacities are based on the ability of the region to resist, reorientation, and recover following shocks. Martin and Sunley (2015:13) defined 'adaptive resilience' as 'the capacity of a regional or local economy to withstand or recover from market, competitive and environmental shocks to its developmental growth path, if necessary, by undergoing adaptive changes to its economic structures and its social and institutional arrangements, so as to maintain or restore its previous developmental path, or transit to a new sustainable path characterized by a fuller and more productive use of its physical, human and environmental resources'.

There are four broad ways of measuring resilience: (i) case studies, (ii) indices of particular regions in a descriptive discussion, (iii) Time series analysis focusing on the evolution over time, (iv) causal economic models. In this overview of regional resilience, it is the final approach, causal economic models, which is employed. The conceptualization of Martin and Sunley (2015:13) and Martin et al (2016) is employed to assess the resistance and recovery of regions following the 2007/08 economic crisis.

Figure 1: The resistance and recovery of European Regions to the 2008 economic crisis



In Figure 1 the left hand side shows the resistance to the 2008 economic crisis while the right hand side shows the recovery following the 2008 economic crisis. In both instances the darker red colour shows that that region performed relatively better than the European average at resisting the shock (in the left figure) or recovering from the impact of the shock (in the right figure).

Spain (Cartagena) – NUTS2 Murcia

To provide insights into the impact of past shocks on this economy and its relative resistance and recovery following these shocks Figure 2 presents an analysis of the resilience of select Spanish regions. It appears that the Murcia region resisted the impact of the 2008 economic shock relatively similarly to the national average (the 0 axis) and also exhibited a slightly weaker than average recovery relative to the national average.

Figure 2 - NUTS2 Resistance and Recovery

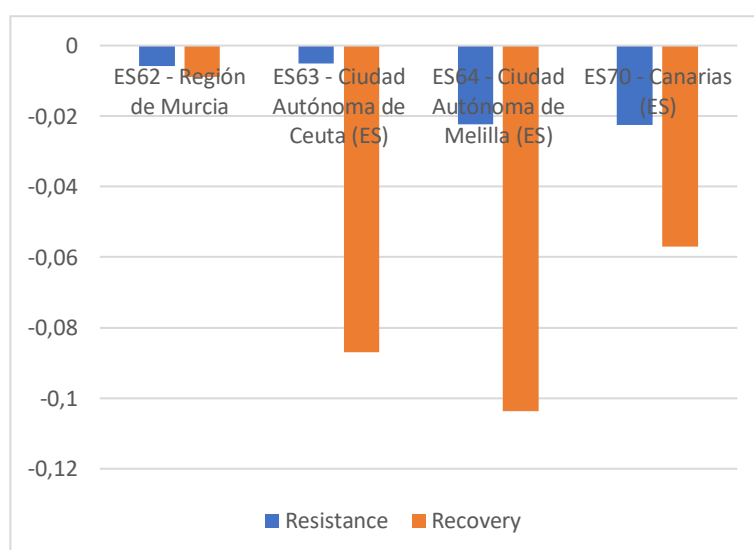
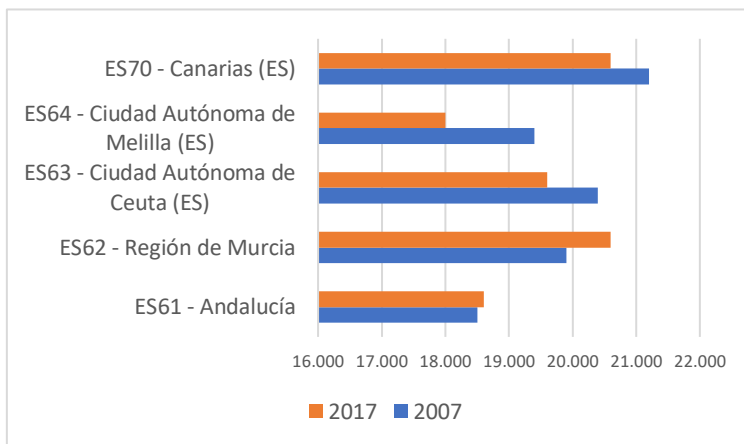


Figure 3 - GDP per capita in 2007 and 2017



The impact of this pattern of adhering close to the national average in resistance and recovery has resulted in the Murcia region seeing an increase in GDP per capita in 2017 relative to its 2007 value. GDP per capita in the region is approximately 82% of the national average.

The proportion of the workforce employed across sectors in the Murcia region is very similar to that of the overall Spanish economy. However, there are slightly more people employed in the agriculture, forestry and fishery sectors of the economy with a lower proportion employed in information and communication and financial and insurance activities.

Figure 4 - Proportion of employment by sector

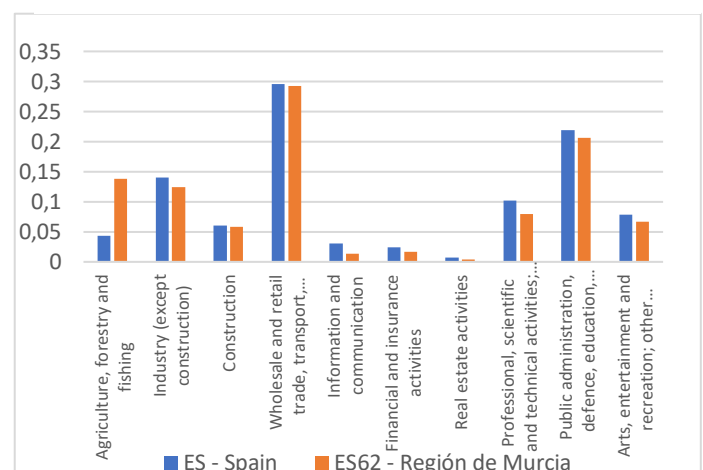
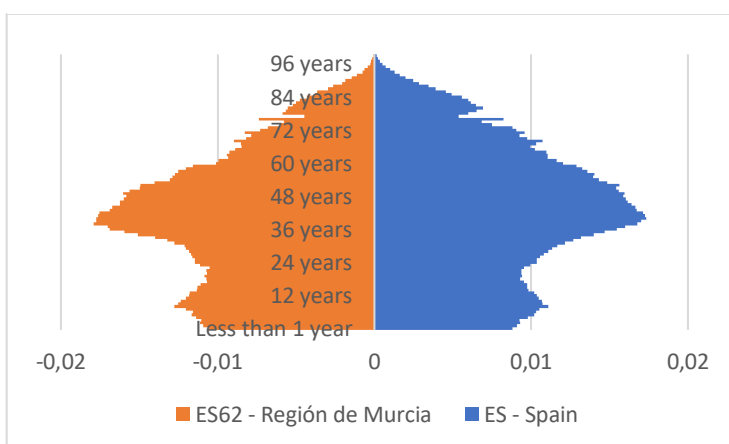


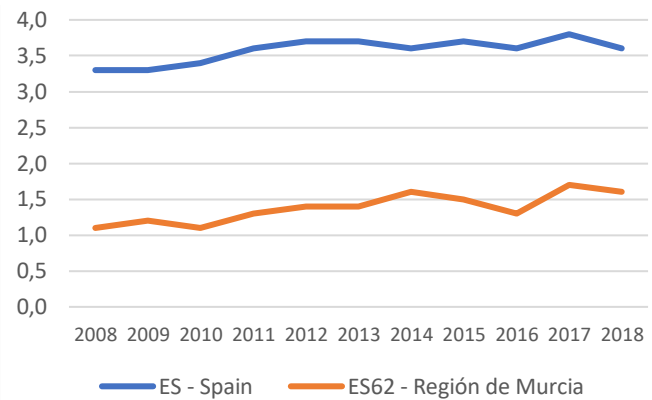
Figure 5 - Age profile of region



The age profile of the Murcia region is similar to the national one, with the average age only being two years younger than the national average of 40 years old. However, the region does display an aging demographic with a spike in the number of individuals aged around 40 to 45 years old.

Regarding the engagement of the region in high-technology employment, the graph from Figure 6 compares the Murcia region to the national average over the period from 2008 to 2018. It can be noted that the region has a significantly lower number of workers employed in high-technology sectors relative to the national average.

Figure 6 - Proportion employed in high-technology sectors



Spain – Cartagena, region of Murcia

The Business Innovation Centre of Cartagena is the Spanish partner of FOUNDATION Project representing the Region of Murcia.

<i>Table 1 - General Information</i>	
Capital: Murcia. Cartagena is the second biggest city in the Region of Murcia.	<p>A map of the Region of Murcia, Spain, divided into its five provinces: Ciudad Real, Albacete, Cuenca, Valencia, and Castellón. Major cities are labeled throughout the region, including Madrid, Barcelona, Valencia, Alicante, Murcia, and Cartagena.</p>
Size: 11,317 km ²	
Population: 1,480,000 inhabitants	
Regional GDP: 32.356 M.Euros (2019)	<p>A map of the Region of Murcia, Spain, with the city of Cartagena highlighted in orange. The word "Cartagena" is written in bold orange text above the city's location.</p>
% of Unemployment: 17.2 (2020)	

Located at the South-East corner of Spain, between the regions of, Andalusia, Castile-La Mancha and Valencia, the Region of Murcia occupies an area of 11,317 km² (2.2% of the total surface area of Spain), bordering the province of Albacete in the North, the province of

Alicante in the East, the provinces of Granada, Albacete and Almería in the West, and the Mediterranean in the South-East.

In terms of surface area, the Region of Murcia is the ninth largest of the Spanish regions.

The Region of Murcia is composed by 45 municipalities, being Murcia the capital of the Region with a population of 1,480,000 inhabitants. Cartagena, a city bordering the coast of the Mediterranean Sea, is part of the Region of Murcia and it is the second largest city of the region. According to 2019 official's numbers from the Municipality of Cartagena, the city possesses a population of 214, 802 inhabitants. The city, capital of the Campo de Cartagena region is the seat of the Regional Parliament of the Region of Murcia, the Regional Assembly of Murcia, the legislative body of the Region of Murcia.



Map of Cartagena neighbourhoods

• Economy

The main economic area in Cartagena is linked with agriculture, which is developed in the areas of the Campo de Cartagena region, comprised by the county councils located north of the municipal area and the neighbouring municipalities. The fishing sector is to be mentioned like in the neighbourhoods of Santa Lucía even though its presence is not as prominent as it previously was.

Shipbuilding also has a long tradition, linked to the city since the creation of the Cartagena Arsenal in the 18th century. Currently the Navantia company, whose mission is to build military ships, perpetuates this economic activity in Cartagena.

In 2011, Cartagena celebrated the opening of its modern and designed centre of congress El Batel Auditorium and Conference Center, that has since then attracted travellers to attend

regional, national and international events such as conferences and exhibitions boosting the image and importance of the city.

The military presence also has an outstanding influence on the economic life of Cartagena, although without reaching the levels of other times. At present, it is the headquarters, among other regiments or military functions, of the Admiralty of Maritime Action, the Submarine Base of the Spanish Navy, of the ships of mine-hunters and minesweepers, of the Tercio de Levante of the Marine Infantry or the Anti-aircraft Artillery Regiment.

Nevertheless, if there is a predominant sector in Cartagena's industry to be emphasized, it is that of energy companies. The Escombreras valley is home of several energy production and transformation companies, such as Repsol or Enagas. In April 2012, the Escombreras refinery was expanded and represents the largest industrial investment in the history of Spain.

Within the scope of industry, the company SABIC's plastics manufacturing complex is also noteworthy due to its volume.

In recent years, the tertiary sector, fundamentally linked to tourism, reached a notable development. Together with the hospitality companies of both the city and the beaches of Cartagena, the Puerto de Culturas organization was created to promote this sector since it has a growing presence in the economic life of Cartagena.

As a matter of fact, Cartagena is currently the fourth port nationwide in terms of freight traffic after Algeciras, Valencia and Barcelona and ahead of Tarragona, Bilbao or Huelva. 60% of exports and 80% of imports from the Region of Murcia are carried out through the Port of Cartagena. In recent years, the services' sector in the city has been growing due to the large number of cruise arrivals (109 stopovers and 138,000 cruise passengers in 2014), being the national ports that more are growing in this sense. On the other hand, with the inauguration of the El Batel Auditorium and Congress Center, the city intends to position itself in the incentive tourism sector by hosting national and international meetings, incentives, conferences and exhibitions welcoming another type of crowd to Cartagena and adding long-term valuable growth.

• Education

For the development of the area of Cartagena, it is important to stress that five universities are currently based in Cartagena: the Polytechnic University of Cartagena, the San Antonio

Catholic University, the National University of Distance Education, the Menéndez Pelayo International University and the University of Murcia.

The Polytechnic University of Cartagena (UPCT) plays a decisive role as a public university delivering degrees mainly of a technological and business nature and thus being an important actor in the generation of high technology knowledge directly creating an increase of competitiveness of the business sector in the area.

• Employment and work force

Following data of 2019, the total number of unemployed in the Campo de Cartagena area stood at 34,367 people, which represents an increase of 677 unemployed compared to October (+ 2%), slightly lower than the regional average (+ 2.3%) but, triple the national rise (+ 0.66%)

The total number of unemployed in the Campo de Cartagena area in November 2020 stood at 34,367 people, which represents an increase of 677 unemployed compared to October (+ 2%). By sectors, unemployment in November increased in industry especially (+ 7.4%) and also in services (2.6%), while it only decreased in agriculture (-6.1%).

By municipalities, the increase in La Unión (+ 5.1%) stands out compared to the decrease in Torre Pacheco (-3.3%). Cartagena shows a rebound in the number of unemployed (+2.6). By sex and age, unemployment in the County increased among women and men in all age groups, especially among women under 25 years of age (+ 8.0%), and men under 25 years of age also (+1.8 %).



Regional Population and Industrial Statistics



Regional Population and Industrial Statistics

According to the population figures from the Municipal Register of Murcia in January 2019, the population of the Region of Murcia amounted to 1,493,898 people, 3.18% of the national total population. The male population is slightly higher (50.04%), inversely to the total in Spain, and in recent years the number of men and women has converged.

<i>Table 2 - Population Evolution</i>					
Geographical scope	2015	2016	2017	2018	2019
Region of Murcia	1,467,288	1,464,847	1,470,273	1,478,509	1,493,898
Spain	46,624,382	46,557,008	46,572,132	46,722,980	47,026,208

The population has been growing continuously since 2006, but as of 2008 the rate of increase was reduced, until it reached a decrease in 2013 (0.16%) and continued to fall in 2014 (0.36%); and although in 2015 it experienced a slight increase (0.03%), in 2016 it decreased by 0.17%, but it increased again in 2017 (0.37%), in 2018 (0.56%) and in 2019 (1, 04%). The trend in the national total was similar, although in 2015 and 2016 it fell by 0.31% and 0.14%, respectively, and in 2017 it increased very slightly (0.03%), less than in this region, in 2018, 0.32% and in 2019, 0.65%, also to a lesser extent.

Foreigners had been increasing, going from 14.49% in 2007 to 16.54% in 2010, with respect to the total population of the region; However, since 2011 their presence began to decrease: they fell by 6.56% in 2014, and after decreasing decreases, they grew by 2.10% in 2018 and by 4.35% in 2019. In this last year they group 14.14% of the regional population.

Up to 55 years there are more men, but afterwards the trend in favour of women is reversed. Between the ages of 25 and 50, it was concentrated around 37% of the population. Specifically, the 40 to 44 age bracket stands out (8.75% of the population) and it is where there was a greater numerical difference between men compared to women, while these outnumbered men more intensely than those of women. 70 years.

The economy of the Region of Murcia represents 2.59 % of the entire Spanish economy. It grew by 2.8 % in 2018, compared to 3.6 % for the whole country. A growth of approximately 2.3 % was expected in 2019, surpassing the national figure of 1.9 %. Murcia stands among the regions with the most optimistic forecasts. However, a slowdown is expected for 2020.

Positive factors include domestic consumption, public spending and investment in infrastructure, all of which have increased, although export activity is slowing. The industrial production in the region is outpacing that in the rest of Spain, especially in energy production and metallurgy. After a positive start of the year, the construction sector has, however, slowed down. As for the services' sector, there are positive signs in trade and, to a lesser extent, tourism while the land transport, on the other hand, is showing some declining signs compared to the previous year.

The Region of Murcia has 43,973 companies. Among these, 98,41 % possess fewer than 50 employees, and 80,26 % employs five or fewer. Regarding the Region in its globality, the most important companies are EL POZO, HERO, J GARCIA CARRION, ALIMER and ESTRELLA DE LEVANTE in the food industry, REPSOL, SABIC and IBERDROLA in chemicals and energy, HEFAME in pharmaceuticals, NAVANTIA in the ship and boat building, FERROVIAL in civil engineering works, PC COMPONENTES in trade, and PRIMAFRIO in transport-logistics.

Cooperatives are definitely more established in the Region of Murcia in comparison to the national average. Cooperatives currently employ 25,000 people. In 2019, 150 new cooperatives, and more than a thousand new jobs, were created. The dominant sectors are agriculture, trade, hospitality, education, and healthcare. It should be highlighted that the industrial sector is presently growing in the Region.

Moreover, the number of employees paying social security contributions as of September 2020 is of 578,828, marking a year-on-year increase of 2.28 %. 68.11 % of these employees are registered under the general scheme, and 17.24 % as self-employed (the latter figure having risen by 1.01 %). The following are the most important activities based on the number of employees paying social security contributions: agriculture, trade, food and beverage services, healthcare, education, public administration, food industry, specialised construction, and land transport.

According to the figures provided by the National Statistics Office's Labour Force Survey, during the third quarter of 2019, there were 720 100 economically active people in the Region of Murcia, of whom 618,100 were employed and 102,000 unemployed. The activity rate reached 59.08 %. The unemployment rate, on the other hand, stood at 14.16 % above the Spanish average of 13.92 % and was higher for women than men. There was a 12.22 % year-on-year decline in unemployment four times the national average while the employed part of the population grew by 3.86 %. These employment figures increased in all sectors, especially in construction, followed at some distance by industry, and services. However, they decreased in agriculture. The unemployment fell for both genders and across all age brackets, particularly for the people over 55 years old.

As reported by the Jobs Observatory of the National Public Employment Service, in September 2019 there were 96,492 unemployed people registered at the employment offices, accounting for 3.13 % of the total nationwide. Of this portion, nearly 61 % were women, approximately 20 % were under the age of 30, approximately 48 % were aged over 45, 12.52

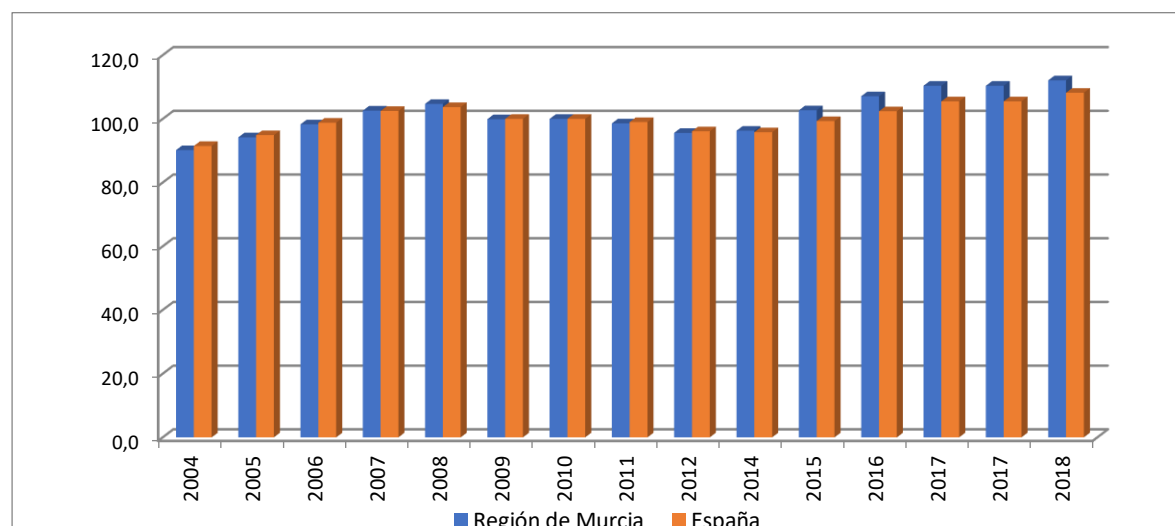
% were non-nationals, and 39.58 % had been unemployed for more than a year. Registered unemployment was down 6.31 % compared to September 2018, surpassing the national average of 3.83 %. A total of 1 091 263 contracts have been offered over the last 12 months, marking a year-on-year increase of 4.22 % and surpassing the national overall growth of 2.86 %. Only 33.20 % of contracts were awarded to women, but 44.09 % were awarded to non-nationals, the second highest percentage in Spain. Only 8.62 % of these were permanent contracts. Nevertheless, contract stability is on the increase in the Region of Murcia.

The year-on-year growth in terms of recruitment during that period was the highest for the following economic activities: manufacture of pharmaceutical products, manufacture and refined petroleum products, motion picture and video production, manufacture of motor vehicles, trailers and semi-trailers, employment-related activities, manufacture of electrical equipment, collection and treatment of waste water, library, archive, museum and other associated cultural activities, computer programming, consultancy and related activities, scientific research and development, architectural and engineering activities, technical testing and analysis, water -collection, -treatment and -supply, radio and television programming and broadcasting activities.

According to the experts consulted, the following sectors have a bright future ahead: agri-food, the chemicals and plastics industry, manufacturing of metal goods and capital goods, textiles and footwear industry, furniture industry, renewable energies, logistics and freight transport, telecommunications and information and communication technologies (ICTs), healthcare and education, architectural and engineering services, business consulting, and hospitality.

As presented in the following graph, both the growth of the Gross Domestic Product (GDP) in times of expansion, as well as its reduction in times of crisis, are more pronounced in the Region of Murcia than in Spain as a whole, highlighting the sharp growth experienced in 2015 and 2018.

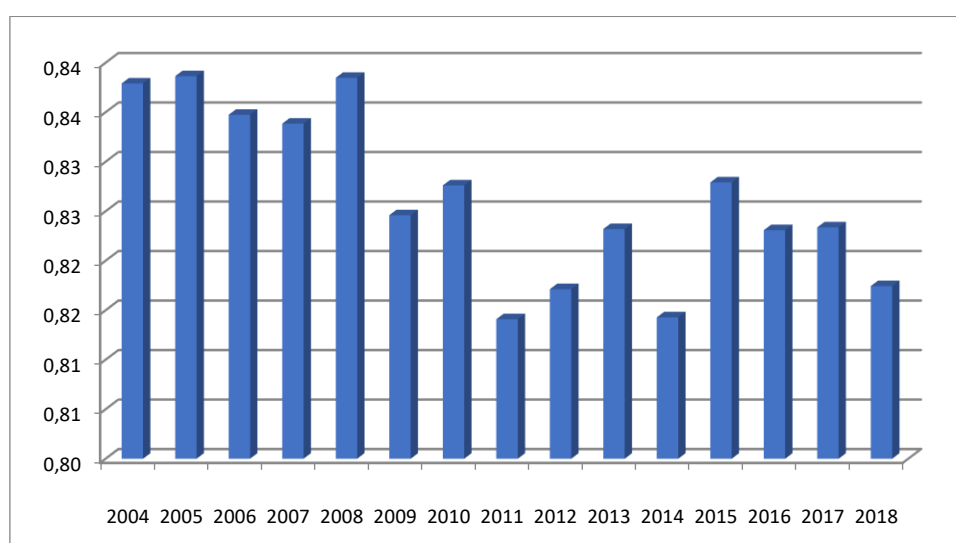
Figure 7 - Evolution of GDP (Base 100 in 2010)



Source: INE – National Institute of Statistics

In any case, the regional GDP per capita in the period analysed is between 81.4% and 83.7% of the national GDP per capita, as shown in the graph. The increases in absolute terms have been accompanied by population growth and it is reiterated that the variations are more marked, especially in times of crisis, in the Murcia economy than in that of the whole of Spain.

Figure 8 - Evolution of GDP per capita. Reference Spain = 100



Source: INE – National Institute of Statistics

The gross domestic product (GDP) of the region has increased significantly from 2012 (€26,548m), being at €31,458m in 2018, which represents 2.6% of national GDP (Eurostat, 2020). According to Eurostat, the latest available figure for GDP per capita in purchasing power standards (PPS) was 23,200 in 2018, a figure which has been steadily increasing since 2013 (19,700). This ranks the region in the 13th position among the 17 Spanish regions, below both the national (28,100) and (31,000) EU averages (Eurostat, 2020).

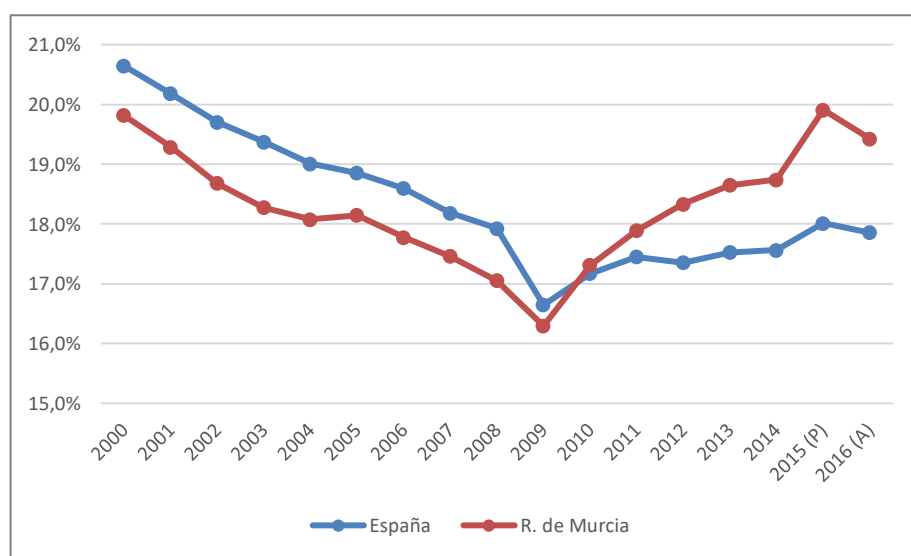
The services sector is the driving sector of the regional GDP, representing 69.4% of Murcia's GDP in 2018. The construction sector that had experienced high growth in the last decades, has been slowing down in the last years, partly due to the economic crisis, starting the economic recovery of the sector in 2015, representing 6.2% of GDP in 2018. For the same reason, the primary sector has suffered a progressive decline in the last years until 2015, representing 6% of GDP in 2018 (Eurostat, 2020). The region is a major producer of fruits, vegetables, and flowers for the rest of Spain and Europe. Wineries have developed near the towns of Bullas, Yecla and Jumilla as well as olive oil near Moratalla.

The industrial structure of the Region of Murcia is mainly formed by two types of industries. Firstly, there is industry initially formed with the help of regional capital, which works with the transformation of agrarian products and has also generated derivate industries of meat, wine and pepper. Secondly, furniture, wood and footwear industries are also important. The industry founded with the help of capital coming from outside the region is located in the area of Cartagena and is focused on chemistry, plastic, naval construction, etc. According to Eurostat (2020), unemployment has reached the lowest rate since 2008, being at 14.7% in 2019 (a total of 105,600 people). This is still above the national average (14.1%) and far above the EU average (6.3%). The active population in the Region of Murcia during 2019 was 613,800 people, with the tertiary sector standing out from the others, with 67% of the regional total, the secondary sector standing with 20.8% and the primary sector lagging behind with 12.2% (Eurostat, 2020).

Situation of the industrial sector

On a national scale, the weight of the industrial sector in relative terms of GVA with respect to economic activity as a whole has clearly decreased since 2000, when it represented 20.6%, with a minimum in 2009 of 16.6% and a slight recovery to 17.7% in 2016. On the other hand, in the Region of Murcia, after a decline parallel to the national one in the period between 2000 and 2009, from 19.8% to 16.3%, the industry has experienced a significant growth in relative terms since 2009, stabilizing since 2015 at values close to 20%, assuming 19.9% of the regional GVA in 2015 and 19.4% in 2016, almost 2 points above the national value in those years. These data are reflected in the following graph.

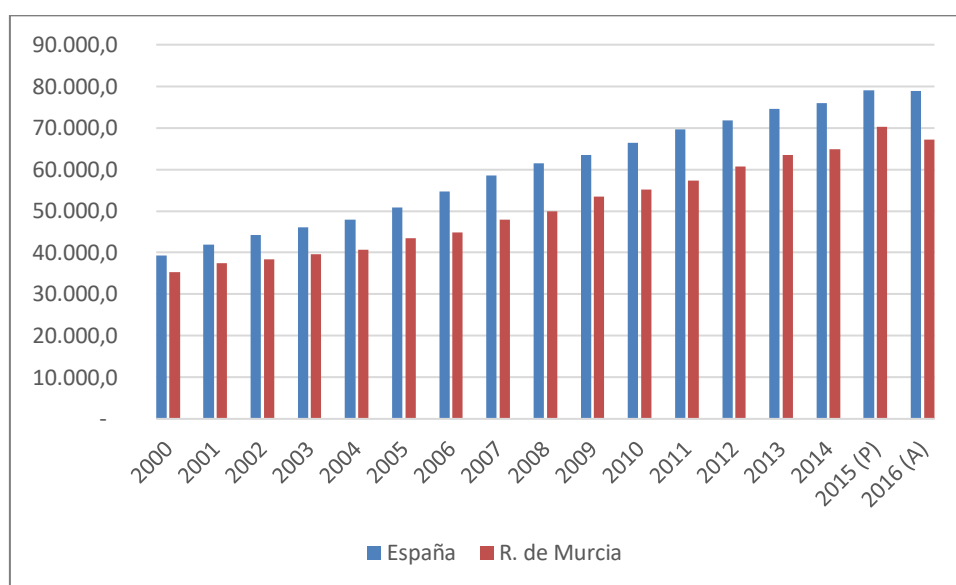
Figure 9 - Share of industrial GBA in relation to the total GVA



Source: INE – National Institute of Statistics

Productivity in the manufacturing industry nationwide and in the Region of Murcia, since 2000, is shown in the graph, in terms of gross added value generated by the industry, with respect to employment in the sector. It can be observed that regional productivity has historically remained in a margin between 10% and 15% below the national average.

Figure 10 - Industry Productivity (GVA/employment)



Source: INE – National Institute of Statistics

The two large regional industrial sectors have very different characteristics. Oil refining is concentrated in the Repsol plant in Escombreras (Cartagena) and the chemical industry has a large Sabic factory in La Aljorra (Cartagena) and a set of small and medium-sized industries. It is therefore a highly concentrated sector, in which most of the global values are contributed by very few companies.

The food and beverage sector is, on the contrary, highly fragmented with a large number of manufacturing industries in distinct product ranges (juices, jams and vegetable preserves, frozen vegetables, meat, wine, oil) found in the region has a high percentage of its raw materials (fruits, vegetables, livestock) and its supplies (containers, packaging, machinery, industrial refrigeration, transport, logistics, environmental management). This set of companies and activities forms a solid production system, gathering all the stages of the value chain in a reduced area, around which associations, training, scientific and technological centres have been generated and innovative technological subsectors have appeared.

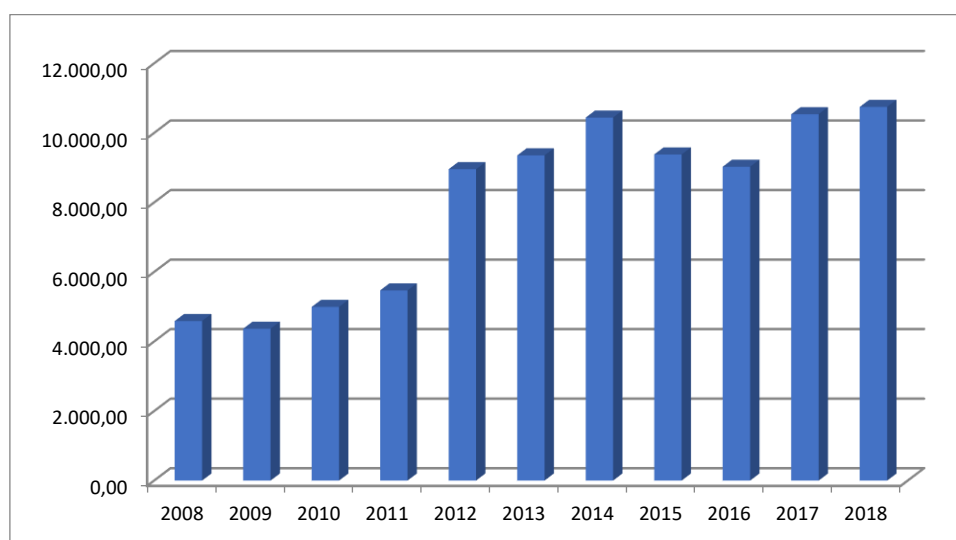
The other three sectors that experienced growth are: footwear with 57%, plastics with 25% and paper and graphic arts with an accumulated 24%, while the rest have suffered a reduction in their sales.

In addition, a recovery trend was noticeable in electrical and computer materials, with sales equivalent to 95% of those of 2008. The metal and machinery, furniture and wood and textile sectors have rebounded after the crisis, but still maintained its sales values around 73% of 2008. The energy production sector, mainly due to the reduction of tariffs for renewable energies, and the non-metallic minerals sector respectively record sales volumes below 45% and 30%, in comparison to 2008 numbers.

Internationalisation of the regional economy

The Region of Murcia is traditionally an exporter. In the following graph, which represents the export volume in recent years, it appears that in the last decade Murcia exports have doubled in volume. After a period of slight growth between 2008 and 2011, there was a notable increase in 2012, which peaked in 2014 with more than 10,000 million euros exported, to later consolidate again above 10,000 million euros in the years 2017 and 2018.

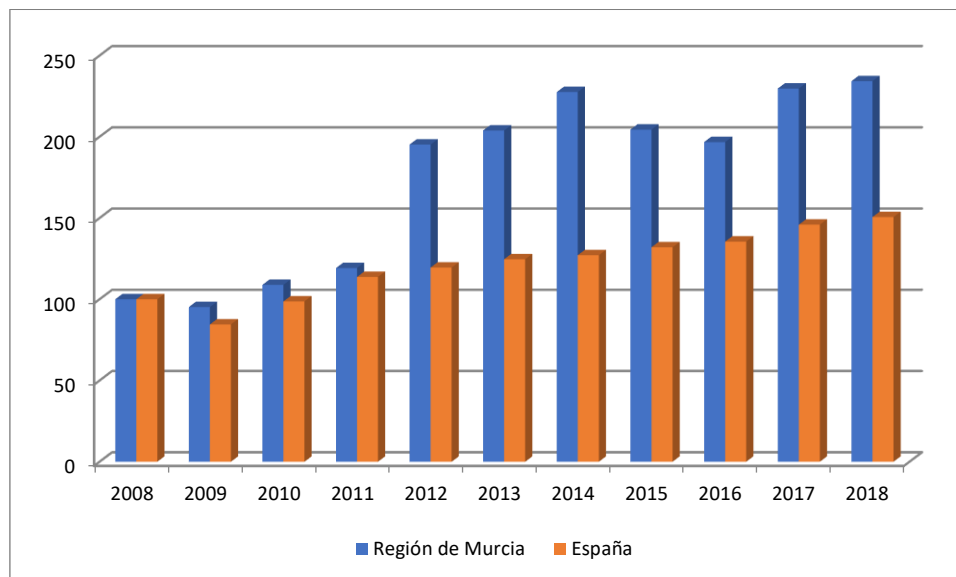
Figure 11 - Volume of exports from the Region of Murcia. (M €)



Source: CREM. Trade with Foreign Countries

As represented in the graph, the comparison between regional exports and national exports shows that the growth rate for the period between the years 2012 and 2018 is much higher in the region than in Spain as a whole.

Figure 12 - Comparative evolution of exports. Benchmark 2008 = 100



Source: INE. Spanish National Institute of Statistics.

In view of the evolution of the macro-magnitudes identified in the previous sections, the coherence they present with the Research and Innovation Strategy for Intelligent Specialization of the Region of Murcia (RIS3) can be verified as the Agenda for the Industrial and Technological Boost of the Region of Murcia 2021, programmatic documents in which economic activities are prioritized in which the Region of Murcia shows greater competitiveness or has the necessary potential to generate economic growth based on knowledge, thus favouring the necessary transformations to face social and environmental challenges.

It is not so much about supporting entire sectors or groups of companies, but about encouraging the growth of new activities. Hence the importance of discovering activities in which innovative projects complement existing production assets.

Analysis of the innovation regional system



Analysis of the innovation regional system

Regional investment in R&D&I has traditionally been low, below 1% of GDP, and thus below the national average. In the period between 2014 and 2016, the trend switched with a significant increase in regional investment in R&D&I with respect to GDP, while at the national level, it has been decreasing every year. The industrial sector clearly was the leading contributor to the growing tendency in regional business investment in R&D&I during that period of time.

The regional agri-food sector constitutes a solid productive system, with all the stages of the value chain located in a small geographical area, with an outstanding scientific-technological production and a wide and complex network of linked entities and organisations. This system occupies an important position in the regional smart specialisation strategy.

On the other hand, an important element of the regional science, technology and innovation structure is the region's highly developed infrastructures for promoting technological entrepreneurship, covering all stages of the process from the creation to the launch of new technology-based companies. The Game Hub coworking centre for videogame developers and the Carthago coworking centre, part of the Telefónica Open Future initiative, complement the private coworking centres and the network of municipal business incubators, to give concrete form to business ideas in the "preseed" stage.

For the seed stage, two European Business and Innovation Centres, one located in Murcia (CEEIM) and the other one in Cartagena (CEEIC) exist. CEEIM coordinates technology communities such as Makers of Murcia, AMUDEV - Video Game Development and AMURBIT-Blockchain Development. While CEEIC is an expert in Industry 4.0 training programmes and coordinates the Industry 4.0 ecosystem in the area of Cartagena.

Once the first years of incubation are done, technology companies can be housed in the Scientific Park of Murcia and the Technology Park of Fuente Álamo.

The regional science, technology and innovation structure is completed by the regional public administrations (related general directorates, Regional Development Agency (INFO) and the Foundation Seneca), the three universities (UMU, UPCT and UCAM) with their corresponding offices for transfer of research results (OTRIs) and the Mare Nostrum international campus of excellence, the IMIDA (Institute of the Region of Murcia about research on agri-food sector) and CEBAS-CSIC (Public research centre of edaphology and applied biology of the River of Murcia), both with their OTRIs, the technology centres and the innovative business clusters

(agri-food AGROFOOD, naval and marine NYM and agri-food machinery, equipment and technology META, PIEDRA, AMUEBLA, TIC BioMed and citizeM).

Within the Technology Centres of the Region of Murcia, the Technology Centre for Information and Communication Technologies (CENTIC) aims to improve technology and competitiveness of companies in the ICT sector through the development of R+D+i in projects, training, technological and regulatory counsel and so on. It possesses technological competences in sensors, cloud computing and the Internet of Things.

As for the universities in the Digital Innovation Hub (DIH) from the Region of Murcia, there is the University of Murcia through its the Faculty of Computer Science and the Polytechnic University of Cartagena through its School of Industry.

In addition, the Region of Murcia counts a multitude of companies developing Industry 4.0 solutions with strong links to innovation agents. In this area, CEEIC plays an important role in the regional ecosystem to support high technology startups.

As reported by Eurostat (2020), in 2017 the research and development (R&D) expenditures have been at €280.00m, which represents 0.92% of the regional GDP. This falls below the national average (1.21 %) and below the EU average (2.08%). The breakdown of the total expenditure in R&D by sector of performance in Murcia is the following:

Companies and private non-profit institutions (PNPI) sector: €144m – 1.7% of the total Spanish expenditure by this sector.

- Public administration: €33.3m - 1.3% of the total Spanish expenditure by this sector; and
- Higher education: €125m – 3.2% of the total Spanish expenditure by this sector.

In 2018, Murcia had 6,148.6 employees in R&D in full-time equivalents (FTE), 65.9% of these employees are researchers (4,051.8). Murcia possesses 2.7% of the total Spanish employees in the R&D sector. The records show that there were 59 companies of high technology services and 60 of medium and high technology services. Regarding the high-tech sector employment, the region registered 9,700 people, which represents 1.3% of the national employment in this sector and 1.6% of the total employment (Eurostat, 2020). As stated by to Eurostat (2020), 2.5% of human resources in science and technology (HRST) in Spain were located in the region. The population aged between 30-34 with tertiary education reached 35.6% in 2019, ranking the region in the 15th place among the Spanish autonomous communities, a figure below the national and EU average of 44,7% and 41,6%, respectively (Eurostat, 2020). The region submitted 30 patent applications to the EPO in 2019, representing 1.6% of total Spanish applications. In Murcia, 91% of the households have internet access at home which is the same as the national average (Eurostat, 2020).

According to the Regional Innovation Scoreboard 2019 (RIS 2020), Murcia has achieved the classification of “Moderate Innovator”, with innovation performance increasing over time. The Regional Innovation Index (RII) in 2019 was 0.287 (normalised score), 89.9% relative to Spain and 59.0% relative to the EU. The RII change between 2011 and 2019 was of 8.7 (normalised score). The RIS 2019 also provides an analysis of Murcia’s performance in each innovation indicator, allowing the identification of the region’s relative strengths and weaknesses when compared to Spain and the European Union. Thus, the region presents its best performances in the following indicators:

- Trademark applications (normalised score of 0.753, 132 relative to Spain and 166 relative to the EU);
- R&D expenditures public sector (normalised score of 0.474, 95 relative to Spain and 83 to the EU);
- Design applications (normalised score of 0.453, 121 relative to Spain and 92 relative to the EU).

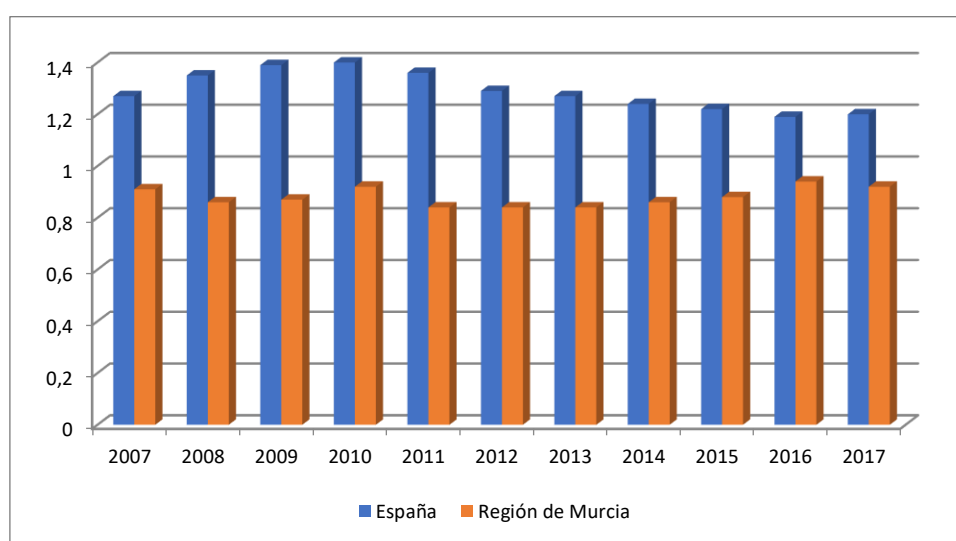
On the contrary, the region’s worst performances both relative to Spain and the EU are related to the indicators that follow:

- Public-private co-publications (normalised score of 0.143, 49 relative to Spain and 35 relative to the EU);
- SMEs innovating in-house (normalised score of 0.194)
- PCT patent applications (normalised score of 0.214, 91 relative to Spain and 50 relative to the EU);
- Innovative SMEs collaborating (normalised score of 0.220);
- Product/process innovations (normalised score of 0.225)
- Employment in medium-high-tech (MHT) manufacturing and KIS services (normalised score of 0.235, 56 relative to Spain and 47 relative to the EU);

Innovation indicators in the Region of Murcia

Historically, regional investment in R&D&I has been low compared to the national average. The below graph highlights the national and regional percentages of R&D expenditure with respect to Gross Domestic Product (GDP) at market prices over the last decade, with low values in both cases: 1.2% Spanish average and 0.92% for the region, in 2017.

Figure 13 - R&D expenditure as a percentage of GDP

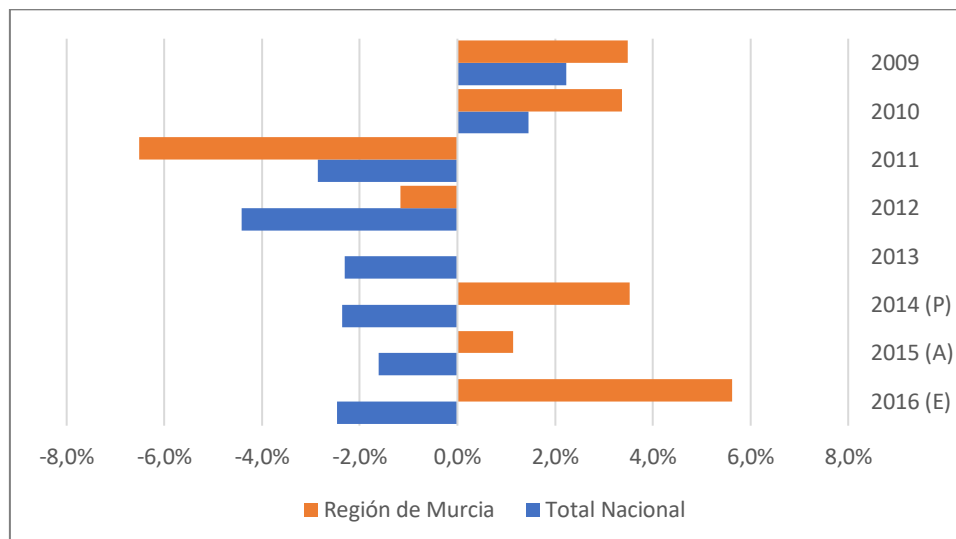


Source: INE. Spanish National Institute of Statistics.

Over the last few years, there has been a trend towards a rapprochement between regional and national values in this regard. By analysing the annual fluctuation rates of this variable in recent years, it appears that during the period of 2012-2016, Murcia's trend switched and increased while the national R&D expenditure as a percentage of GDP faced a reduction.

Consequently, it would take several years of continued acceleration of this trend for the region to reach the national average and to position itself in R&D expenditure percentages above 1.2% or 1.3% of GDP.

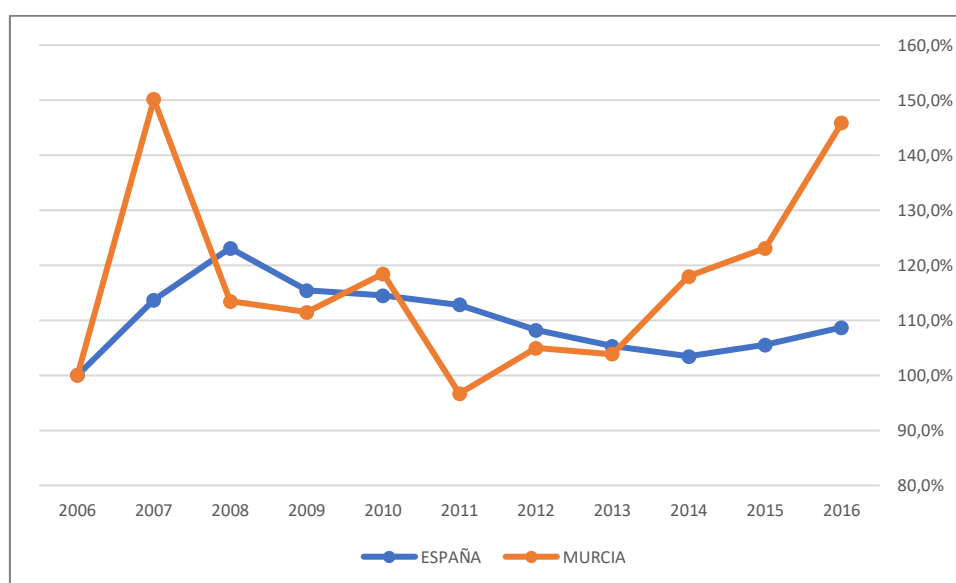
Figure 14 - Annual change in R&D expenditure as a percentage of GDP



Source: INE. Spanish National Institute of Statistics.

In absolute and relative terms, internal R&D expenditure by regional companies is qualified as low. In 2016, it amounted to 122.5 million euros, slightly exceeding 0.42% of GDP, compared to the national average of 0.64%. The trend of this variable increased over the last 5 years for the Region of Murcia that presents growth rates higher than the national ones.

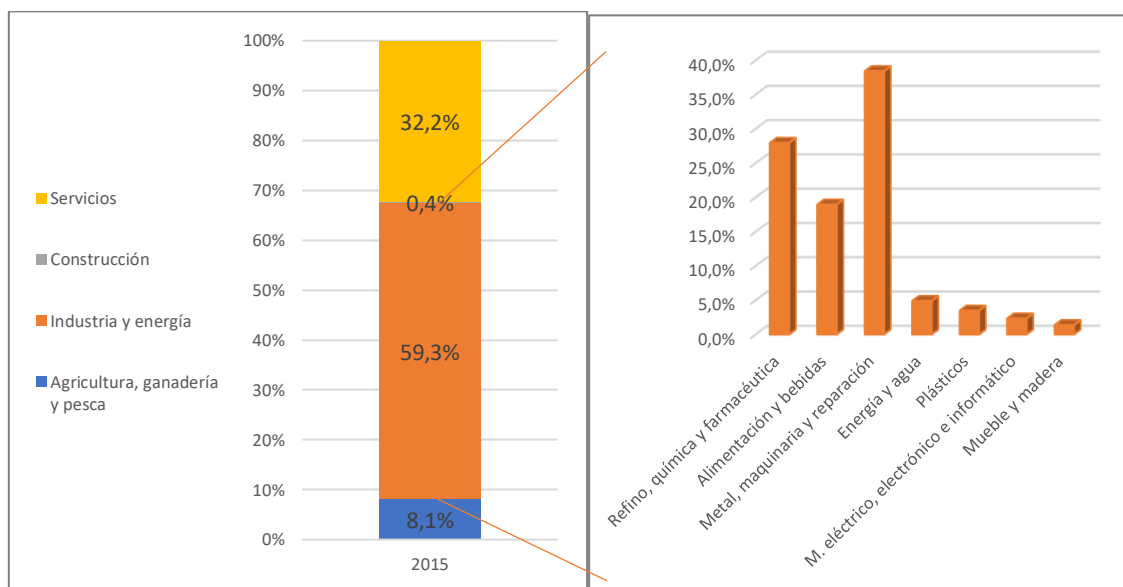
Figure 15 - Internal business R&D expenditure. Base 2006 = 100



Source: INE. Spanish National Institute of Statistics.

As presented in the graph on the internal business expenditure on R&D among the major branches of the economy with data from 2015, the industrial sector appears to be the one that assumes the largest share of business expenditure on R&D at regional level, with 59.3% of the total.

Figure 16 - Distribution of domestic R&D expenditure and sectoral distribution of industry



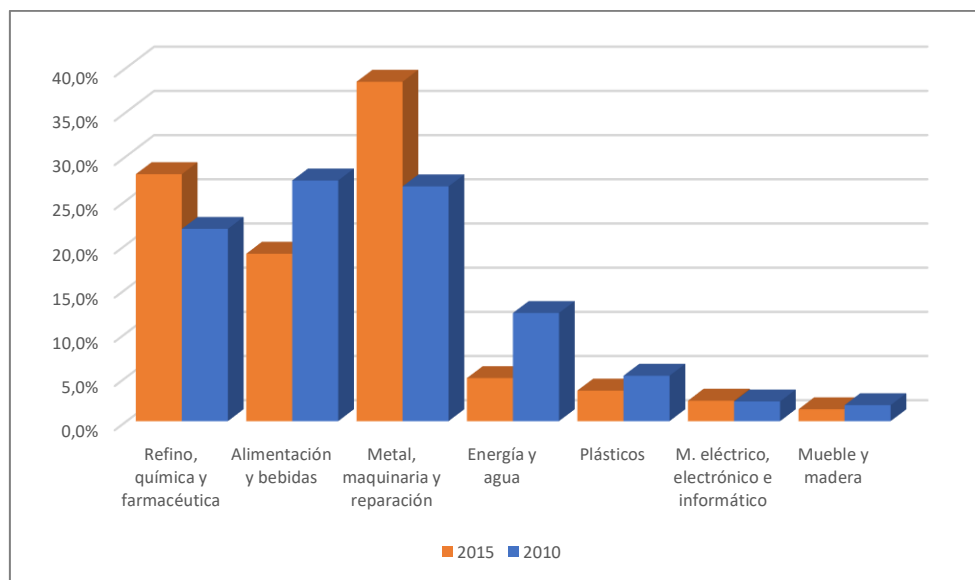
Fuente: CREM Source: CREM

This expenditure can, in turn, be subdivided by sector of activity within the regional industrial system, as per result shown in the graph. The metal and machinery possess the highest R&D expenditure, with the transport equipment manufacturing subsector standing out. The two large regional industrial sectors: refining, chemicals and pharmaceuticals, and food and beverages are following. These three sectors together account for 85.3% of the industrial sector's R&D expenditure and more than 50% of the total R&D expenditure of regional companies.

In terms of evolution, R&D expenditure by regional industrial companies increased by 6.8% between 2010 and 2015.

During the same time period, the food and beverage sector has reduced its R&D expenditure compared to previous years, while both metal and machinery and refining, and chemicals and pharmaceuticals sectors' R&D expenditure have increased, as per representation in the graph. The energy and water sector significantly reduced its spending. As for the rest of the sectors, they have maintained a relatively stable evolution, at very low levels.

Figure 17 - Sectoral evolution of industry's internal R&D expenditure. Region of Murcia



Source: CREM

In the process of drawing up the Research and Innovation Strategy for the Smart Specialisation of the Region of Murcia (RIS3), the economic development priorities based on innovation and knowledge were identified. It was established that the intensity in the use of R&D expenditure was a criterion that helps define the priority sectors and activities.



Key policy players in the Region of Murcia



Key policy players in the Region of Murcia

This section describes how the policy ecosystem is connected in the Region of Murcia and how collaboration occurs regarding different schemes, initiatives and programmes.

The Regional Public Administration integrates several regional Ministries that, through General Directorates and other bodies, are involved in the planning and execution of the R & D & I policies of the Region of Murcia.

The Regional Ministry of Employment, Research and Universities, through the General Directorate of Scientific Research and Innovation assumes the competencies in the promotion and general coordination of scientific and technical research and development, scientific and cultural academies of the Region of Murcia, as well as scientific innovation and the promotion of knowledge transfer, the generation of value from science towards society, promoting the connection of research results from public and private R&D bodies with society and the market through scientific and technological R&D.

The Regional Development Agency called Instituto de Fomento of the Region of Murcia (INFO) mission is to promote regional development and growth and employment, and especially to improve the productivity and competitiveness of companies, through the development of infrastructures, funding schemes, promotion of innovation and technology transfer, diversification of the business fabric, search opportunities and promotion of internationalization. In the area of development of companies, they are responsible to provide companies in the Region, especially SMEs, financial resources in optimal conditions, so that they significantly improve the execution of their projects or activities, with greater guarantees of success and balance of their financial structure; Relations with Local Corporations; Development and implementation of activities related to entrepreneurship. In the field of business competitiveness, they have the following competences: Support SMEs in the Region of Murcia in their internationalization process; Attract and maintain private investment in the Region of Murcia in order to contribute to the competition, competitiveness, employment and economic development of the Region; Carry out activities related to projecting, organizing and directing the areas of logistics, industrial land, private companies and real estate projects of the INFO, to support the economic growth of the Region of Murcia; Coordination of the Regional Network of Technology Centres.

The Seneca Foundation, Science and Technology Agency of the Region of Murcia, as part of the Ministry of the Presidency, is the managing body of the Science, Technology and Innovation Plan of the Region of Murcia. It contributes to the planning, implementation and

monitoring of regional policies for scientific and technological research. The Seneca Foundation is entrusted with the mission of promoting scientific and technical research of excellence in all areas of knowledge and the transfer and application of its results, the promotion of innovative activity and social appreciation for science and technology as means to achieve socially and economically relevant research, attentive to the needs of its regional context. To this end, it works in collaboration with multiple organizations to improve the quality of the Regional System of Science, Technology and Business and its internationalization, increasing the capacity of its institutions, supporting the activity of its researchers and tightening the links between the business and the research system. It also develops extensive work aimed at the training, retention and attraction of research talent, their mobility and the access and participation of citizens in science. Likewise, to contribute to a better understanding of the Regional System of Science, Technology and Business and to the orientation of public policies for research, development and innovation, the Observatory of Science and Technology of the Seneca Foundation prepares studies and reports on scientific and technological prospects.

On the other hand, The Integra Foundation is a foundation promoted by the Region of Murcia, whose fundamental mission is to accelerate the process of implementation of the Information Society in the Region of Murcia through the creation and management of Information Society infrastructures, implementation of advanced telecommunications services and conducting pilot experiences in these areas. The Foundation also acts as the managing body of the communication infrastructure for Red CTNet research and development.

The Regional Ministry of Health, through the General Directorate of Planning, Research, Pharmacy and Citizen Services and the Murcia Health Service, carries out activities related to health training and research.

The Foundation for Health Training and Research, FFIS is the instrumental entity of the Ministry of Health and the Murcia Health Service, for the management and promotion of training programmes, research in the health field of the Region of Murcia. In addition, the FFIS acts as the management body of the Murcia Institute for Biosanitary Research (IMIB), whose objectives are to bring together biosanitary research, promote collaboration and contact between research groups and provide necessary human and material resources for development of the aforementioned activity.

The Regional Ministry of Water, Agriculture, Livestock, Fisheries and Environment assumes, through the Regional Institute of Agrifood Research which has the following competences: Design, develop and implement research projects; Transfer the research results; Promote and foster scientific and technological relations with other regional, national or international institutions, in the aforementioned sectors, as well as organize congresses, forums or scientific meetings, related to the sectors, on topics of interest to the Region and promote the training on research issues.

On the other hand, in the Region of Murcia, there are two Business Innovation Centres: CEEIM, located in Murcia and CEEIC which is located in Cartagena. They are support organisations for innovative small and medium sized businesses (SMEs) and entrepreneurs and they contribute to the socio-economic growth in the Region of Murcia. In the case of CEEIC, they play an important role in the whole incubation process of high technology startups.

In the Region of Murcia, there are also Technological Centres in different sectors. They arise as a response to the difficulties posed by the transfer of knowledge from the scientific to the productive environment in an industrial fabric structure made up mostly of small and medium-sized companies, SMEs. They are private, non-profit organizations that actively contribute to economic and social development, supporting and promoting innovation and technological development processes as competitive strategies in the business environment. Its mission is to provide services to their associated companies.



Economic Restructuring

The case of Mecánicas Bolea




Economic Restructuring - the case of Mecánicas Bolea

CEEIC presents **Mecánicas Bolea**, as the case study of economic restructuring in the Region of Murcia. Mr. Eladio Valcárcel Sánchez, current general director of the company was interviewed and highlighted the different crisis of the company, the actions undertaken to overcome the crisis as well as the lessons learned.

Industry in transition – Case study

The case of Mecánicas Bolea

Table 3 - Mecánicas Bolea, S.A	
General description of the company:	 <p>Mecánicas Bolea, S.A.</p> <p>It is a family SME, with five business divisions focused to provide global solutions to our customers wherever they require our knowledge, capacity production and personalized services.</p>
Main products / services:	Air Coolers, Heat Exchangers, Pressurized tanks, atmospheric high-capacity tanks, Jigs and tools, autoclaves, Manufacturing of special machines and components.
Date of creation:	1985
Annual turnover:	20 M€
Number of employees:	<p>The average workforce in production is 230 people distributed in:</p> <ul style="list-style-type: none"> Higher and Technical Graduates (Industrial, Naval, Aeronautical Engineers, etc.) Medium Technical Graduates (Chief Naval Mechanic, Naval Motorists, etc.) Industrial Masters branch Mechanics, Mechanical Manufacturing, Metrology and Verification, Welding)

	Industrial Officials branches Mechanics, Mechanical Manufacturing, Boiler making, Tubers, Welders.
Main markets:	Oil & Gas; Food & Pharma; Petro-chemical; Special jigs, tools and equipment
Contact details:	Eladio Valcárcel Sánchez
Company website:	https://mecanicasbolea.com/

Background to Structural Change

Mecánicas Bolea S.A. was founded in 1985 in Cartagena and initially owned a workshop with an extension of 1.800 m². The company offered services in the iron and steel-metallurgical sector and now possesses an experience exceeding 25 years in this sector.

The company emerged as a direct consequence of other companies' crisis when some of its founders lost their jobs and decided to join forces and knowledge to transform this challenging time into a business opportunity. Consequently, its initial management and professional manpower came from employees belonging to companies that had to close, that is to say "Talleres BALCO" and "WORTHINGTON ESPAÑA S.A.". Both of businesses were recognized for their prestige in the manufacture of engines and maintenance at the international level. As a matter of fact, the current President of **Mecánicas Bolea** was their technical Director.

Due to the quality of the work carried out, and its customers and sectors becoming further established, the company experienced a consequential business growth and expansion. Nowadays, **Mecánicas Bolea** counts 230 employees and owns facilities of more than 15,000 m².





Industry situation

The great industrial crisis happened in the years 1992-1994 and its causes were due to the change in the structural model and socio-political developments. The 1990s were a period in which several crises affected different countries and regions around the Globe. In Spain, GDP stagnated in 1992 and 1994, and fell by 1,03% in 1993. Unemployment rose from a 16,93% in 1991 to a 24,1% in 1994. In Cartagena, the number of unemployed grew up to 11.106 in 1994, over a 50% increase since 1990. The crisis was caused by international and domestic factors, such as lower global growth, Peseta currency devaluation, growing public deficit, and the end of a period of large public investments. In Cartagena, the effects of the crisis were magnified by the economic importance of industry sectors in decline, such as heavy industry, shipyards and mining. As a result, large companies closed or restructured in the Cartagena's area, (Bazán-shipbuilding; Peñarroya – mining and metallurgical and Fesa-Enfersa – Fertilizers) which had a dragging effect on auxiliary companies and sectors, multiplying the loss of employment and economic activity. In 1992, the situation was so serious and after months of maximum tension due to the closure of companies in the naval, mining and chemical sectors, the city of Cartagena witnessed an unprecedented revolt led by the Bazán shipyards (now Navantia), the workers in the street fought against policy and burnt the building of the Parliament of the Region of Murcia which is located in the centre of Cartagena.

Several elements that came together are to be considered, many of which have been maintained and all of them have contributed to the good evolution of the company.

To understand the evolution of the company, it is important to take into account that **Mecánicas Bolea** is a service company that does not possess a specific product, but works on the basis of its clients' current needs. The company began working outside of Cartagena's area and with clients from other sectors and to overcome the crisis, **Mecánicas Bolea** spread its possibilities to new markets and new activities such as boiler making and port repair service

for instance. Nevertheless, the core base of the company remained the same: a service company. **Mecánicas Bolea** believes that each crisis needs to be tackled as an opportunity to spread and open up to new activities, products and new customers.

In terms of job losses, 5-7% of the workforce was affected by the crisis. However, in order to overcome the crisis, new measures were adopted internally, and new services arose. Indeed, as a repercussion of the crisis, a great need of new resources was noticed such as suppliers for the new activities to be developed and new departments had to be created to match the needs' requirements like purchasing.

Consequently, the company tried to transfer as many employees as possible to other departments where they could be useful and train them to acquire new skills instead of firing them as losing a worker means losing an opportunity.

Initially, the profiles working within the company had mechanical, boiler making and welding skills and came from a more mechanical sector, such as ship or equipment repair. Given the capacity of the petrochemical plants in the area, the company assessed the staff's knowledge and check where it could be applied. They realized that it could be applied to piping, valves and pumps for instance and decided to combine these capabilities with the petrochemical sector, taking advantage of the fact that it was available in the same area and thus did not require a large investment. They began approaching this sector and became interested in subcontracting due to the versatility and capabilities of their workers, who always solved any problem, no matter how long it took them. As a result, they realised that apart from repairing pumps, they could as well install them, as it was the case of Repsol or the large petrochemical plants located in Escombreras. These advances created an increasing need for jobs.

In addition to trying transferring employees to other pertinent departments, the company also made a point about analysing its manpower to detect the "masters" that were present in the workplace and assigned them a number of apprentices in order to share knowledge and trained employees that were lacking a certain competency and possess a greater manpower. Little by little, and always learning from the past of the company, employees became increasingly versatile and skilled, living up to the phrase "they can because they believe they can". **Mecánicas Bolea** strongly believes that its employees are a solid and very important part of the company. As a matter of fact, 80% of the employees of the company remain within the company.

Lastly, the company also took into consideration external manpower and part of the staff for the new departments came from neighbouring companies that were closing down and thus offering an opportunity to people losing their jobs. This is the case of the company Tamar, whose staff was absorbed by **Mecánicas Bolea** in 2012-2013. As a result, a new business unit was created and is presently considered as one of the most important units of the company with a turnover of 35%.

Auxiliary companies were also needed for support work such as painting, maintenance or manufacturing. A kind of industrial network was thus created to deal with the challenging

situation. Even today, the company still remains in contact and maintains a good relationship with the suppliers that helped the company during difficult times and made it possible for the company to be where it stands today.

Communication wise, the company highlights that good transfer of information between all departments and employees, but also with external entities is essential to any business, and more so in time of crisis. The company mentions that its communication means became more fluid with the local key institutions as from the 2000s onwards.

Transition

At that time, Mr. Pedro Saura joined the management of the company and brought with him a more structured mentality in terms of foresight, organization, and communication. And it greatly helped the company to grow from a small entity with few employees to a large one.

Mecánicas Bolea, being used to create from scratch, did not receive any public aid during that time of crisis. All efforts were based on its own reserves. Indeed, the idea of creating a business has evolved a lot, but **Mecánicas Bolea** became a relevant key player as a company because of all the labor put in so as to achieve the business that it is nowadays, it became strong thanks to its ability to react to challenges and adapt.

In order to be prepared to face new crises and structural changes, resilience is the keyword.

Three lines of actions were highlighted by the company: The first one would be broadening the horizons of the company and amplifying the search for new potential clients' profiles. As a matter of fact, the current clients of the company might belong to sectors that are on stand-by or not relevant for the moment and opening up to new markets and internationalize would be a course of action. In addition, resulting necessary commercial actions should be taken into consideration to achieve such a goal.

Another course of action is to analyse and assess the company's employees' profiles and their competences and line of specialties in parallel with the markets requirements and what might be missing in the near future. It appears a crucial step for the business in question to assess and be aware of whom might be transferred to another unit because of their aptitude, knowledge and adaptation's skills. People's resilience is here a key element.

The last line of action lays in the means of production that the company possess, that is to say the machines. How the actual machinery can be used for other purposes that are not available on the market for example. It leads to a path towards new products in a market already well-known, offering an all-in-one solution within the same company, a greater service which is very useful and attractive to clients.

Several simulations can be carried out to find out the more adapted line of action for each case scenario/situation. However, **Mecánicas Bolea** emphasises that the company's finances should not be a stopping factor in the analysis as the future does not only depend on this sole aspect, even if of consequence in the process.

As for success factors for emerging from the crisis, the company highlights aspects to take into consideration.

The first one to be emphasized is that all crises are different and do arise for a particular reason linked to a certain context and conditions. Consequently, the measures taken in order to deal with one crisis might not be applicable for another one but might be worth considering and valued accordingly. It is a crucial reasoning to follow.

Secondly, companies should not be afraid of changes in general. Situation and circumstances evolve all the time and companies must be prepared to adapt to it in order to still be relevant.

The COVID-19 pandemic is a good example to an unforeseen situation where employees have been constrained to work remotely and/or to work respecting social distancing measures, and companies have to adapt offering solutions for employees working from home such as equipment, guidance and flexibility amongst other things so as to continue running in a pandemic that requires social distancing for instance.

Some situations are temporal and other are not; and affect each sector and level of society on different level and with distinct impact but can also benefit other ones. In consequence, **Mecánicas Bolea** is used to prospecting the market and assessing it on a regular basis to take any opportunity coming its way like food companies which are parts of a fundamental sector as a result of the COVID-19 crisis because it supplies a basis need.

Thus companies have to embrace changes and flexibility to be versatile, multitalented and resourceful and train their workforce accordingly. New skills are required in new areas which make the market even more competitive and it must be considered as a positive aspect.

Lastly, even though **Mecánicas Bolea** is a local company from Cartagena, it possesses a global way of thinking that is one of its greatest assets. It is no longer a small company that provided services to a small group of customers in the industrial environment of Cartagena and within the province, but is involved in other markets such as Iceland, United Kingdom, or the Middle East. It is continuously expanding and evolving on all levels. It has become the modus vivendi of **Mecánicas Bolea**.

Resilience is thus closely linked to action. According to the company, standing still is not a solution and it is far more productive to act analysing the problem and the new possibilities that can emerge from the situation in question.



Conclusions – Goals for Policy Learning



Conclusions – Goals for Policy Learning

All the data provided in the previous sections show that the socioeconomic situation in the Region of Murcia has changed dramatically as a result of the appearance of Covid-19.

Taking into account the data published by the Economic and Social Council of the Region of Murcia (Indicators of the economic and labour situation, September 2020), the Region of Murcia faces an unprecedented crisis situation as a consequence of Covid-19 and the exceptional measures taken by the central government during the state of alarm. The serious global health crisis has caused an economic and social crisis of similar levels to previous times of war, with effects at mid-term.

After this current picture of the situation in the Region of Murcia and to strengthen our region as an investment destination, it would be necessary to adopt a set of measures that support the stimulus and recovery, strengthening those areas in which the Region of Murcia already has a competitive advantage over other territories and finding new areas of opportunity that make the Region of Murcia an attractive destination for companies and investors.

The Policy recommendations for the future Plans in the Region of Murcia needs to be in line with the New Industrial Strategy for Europe, the twin ecological and digital transitions will affect every part of our economy, society and industry. They will require new technologies, with investment and innovation to match. They will create new products, services, markets and business models. They will shape new types of jobs that do not yet exist which need skills that we do not yet have. And they will entail a shift from linear production to a circular economy.

And, following the same logic, these Policy recommendations will also follow the Spanish National Plans based on the EU strategies for the years to come. In the case of Spain, the economic and social impact has been particularly intense since mid-March 2020, due to the containment measures adopted and the significant weight of the sectors most directly affected. All forecasts are marked by high uncertainty until an effective remedy or vaccine is achieved. The impact of the COVID-19 crisis will be determined essentially by the duration and structural impact of health response measures around the world, by the intensity of the reactivation of activity and employment at the international level in the second half of the year 2020 and for the real and potential growth that will be achieved from 2021.

And this is where the Recovery and Resilience Facility (the Facility) from European Commission will make €672.5 billion in loans and grants available to support reforms and

investments undertaken by Member States, especially important in the case of Spain. The aim is to mitigate the economic and social impact of the coronavirus pandemic and make European economies and societies more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transitions.

Therefore, taking into account the European and Spanish National framework, the Region of Murcia, in order to become more competitive as it becomes greener, more circular and resilient, the business sector of the Region of Murcia will invest in digitalisation, innovation, clean and more efficient use of energies.

In this sense, the following action measures are proposed grouped into the following axes:

Participatory Governance Axis

- Improved coordination between all actors of the regional ecosystem: public administrations, business sector, business support organisations and individual citizens.
- Development of public-private consortia.
- Improved governance - Simplification of administrative procedures.
- Increase in citizen participation in decision-making and future strategies.

Business Growth Axis

- Increased investment in innovation and knowledge.
- Boost to digitization.
- Commitment to internationalization and sustainable economy.
- Investment in the industrial sector with a high technological component.
- Commitment to strategic sectors that generate employment.
- Development of business strengthening and scaling programmes - Open innovation.
- Development of specific support programmes for SMEs and the self-employed, especially for the case of technology startups.
- Promotion of entrepreneurship and re-entrepreneurship in competitive sectors, with a high innovative, knowledge and technological component.
- Development of specific measures for the most affected sectors such as commerce, hotels and tourism.
- Development of a strategic Plan for the culture and creativity sector with the participation and coordination of public administration, companies in the sector and professional associations of the sector in the Region of Murcia.

Sustainability axis

- Commitment to the circular economy, linked to the Sustainable Development Goals.
- Approval of the Mar Menor Law. Reactivate economic activity in the Mar Menor environment, implementing maximum protection measures and making activities compatible with the environment. Improve its promotion as a Responsible and Sustainable Tourism destination.
- Development of Urban Agenda Plans at the municipal level for sustainable urban development.
- Implementation of the Efficiency Plan and Bioclimatic Reconversion of the Region of Murcia.
- Development of new measures to improve energy efficiency and the use of renewable energies both in the public and private spheres.

Socio-economic Inclusion Axis

- Reorient training and employment stimulus programmes and entrepreneurship in the short and medium term to meet current needs.
- Promote training for employment and professional requalification programmes, especially in those sectors most affected by the reduction in economic activity.
- Create business incentives for hiring and maintaining employment.
- Concrete actions in the most vulnerable groups.
- Local employment plans.
- Strengthening the public system of social services; designing support mechanisms for the unemployed, the elderly, families with people with disabilities, unemployed people, etc.
- Increase in funds to fight against [poverty].
- Activation of mechanisms that guarantee access to housing within a situation of economic vulnerability.

The priorities for the Region of Murcia are structured around the activities in which it has a clear leadership, such as those related to the food and agriculture value chain, in which are included, the nuclear activities of agriculture (the livestock, fisheries and food industry), in addition the water cycle (treatment, purification and management), environment and logistics and transport are included. All these activities, systemically prioritized, coordinated, focused, and transformed through intensive use of advanced technologies will allow the region to gain competitive advantages. Moreover, the Region of Murcia bet on the future by a number of potential activities: tourism, health, and habitat, grouped under the heading of

quality of life, as they contribute to the welfare of its inhabitants. They will ensure, with the intensification of technology, a future generator of wealth and employment specialisation.

This development should be based on knowledge and innovation in strategic areas, public and private cooperation and stable support for innovation. To achieve this vision for Murcia, seven overall objectives have been defined:

- Stimulate creation and knowledge transfer;
- Reinforce entrepreneurship and companies creation by valuing knowledge;
- Promote qualification and specialisation of human resources;
- Support economic and knowledge related capacities of Murcia region and its incorporation in the global economy;
- Promote cooperative and multi-disciplinary R&D&I among all public and private agents;
- Stimulate creation and network participation;
- Encourage innovative culture and social innovation.

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