SMART SPECIALISATION STRATEGY OF NAVARRE

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UPDATE 2016-2030
# Updating and Governance Process

1.1 Contextual Framework ................................................................. 5
1.2 Updating Process ........................................................................ 6
1.3 Governance System ..................................................................... 7

# Diagnosis of Regional Competitiveness

2.1 Structural Conditions of Navarre ............................................... 10
2.2 Regional Comparison of Navarre ............................................... 12
2.3 Sector Specialisation of the Economy of Navarre ....................... 16
   Specialisation by Technological Fields in the PCT Patents ............. 16
   Commercial Specialisation of the Economic Sectors ................. 17

# SWOT Analysis of the Economy of Navarre

# Strategic Vision, Objectives and Principles

4.1 Vision of Navarre 2030 ............................................................... 23
4.2 General Objectives ................................................................. 24
4.3 Principles .................................................................................. 25

# Thematic Priorities

5.1 Economic Areas ......................................................................... 27
   Automotive and Mechatronics .................................................... 28
   Food Chains .............................................................................. 28
   Renewable Energies and Resources .......................................... 28
   Health ..................................................................................... 29
   Comprehensive Tourism ........................................................... 30
   Creative and Digital Industries ............................................... 30

5.2 Factors of Competitiveness ....................................................... 31
   Business Development ............................................................ 32
   R&D ..................................................................................... 32
   Infrastructures ....................................................................... 32
   Public Administration and Taxation ......................................... 32
   Education and Training .......................................................... 32

# Implementation and Monitoring System

6.1 System for Implementing the Strategy ....................................... 35
6.2 Monitoring System ................................................................. 38
6.3 Auditing and Transparency ..................................................... 40

# Annexes

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1. UPDATING AND GOVERNANCE PROCESS
1.1 CONTEXTUAL FRAMEWORK

The Europe 2020 Strategy, developed by the European Commission in 2010, has come about from the need to promote a “smart, sustainable and inclusive” economic growth and it establishes a number of objectives for the EU, as well as a framework for action in terms of innovation, employment, education, social inclusion and energy, highlighting the concept of Smart Specialisation for development at regional level.

The Smart Specialisation Strategies (or S3) are a model for economic development that involves concentrating the resources in the economic areas where each region has significant competitive advantages. To do this, the S3 requires a shared vision of the future to be developed and the identification - via a process called “entrepreneurial discovery” - of a set of thematic priorities considering the economic, scientific and technological potential and global competitiveness of the region, and of its stakeholders, especially companies. Finally, the S3 puts forward the use of smart policies that focus on these priorities to maximise the potential of regional development, to progress towards a knowledge-based economy.

“Smart specialisation sets out to place greater emphasis on innovation and concentrate the scarce human and financial resources of R+D+i and regional development in a few globally competitive areas”

(European Commission COM 2010-553)

Therefore, the strategies for smart specialisation consist of integrated agendas of economic and territorial transformation that deal with five key criteria:

- Their central element is focusing on the policy and investments in the key priorities, challenges and needs of the country or region.
- They make use of strong points, competitive advantages and potential for excellence of each country or region.
- They back up both technological and non-technological and social innovation, and encourage investment of the private sector.
- They involve stakeholders and further innovation and experimentation.
- They are evidence-based and include solid systems of supervision and evaluation.

One final aspect of the smart specialisation strategies as part of the EU framework is that they can help to deal with the major European social and environmental challenges (health, nutrition, energy, transport, climate change, inclusion and security), and modernise the role of the public sector within the framework of economic development, and work with the new challenge of global governance.

“The entrepreneurial discovery process is defined as one in which the areas of specialisation in a region are identified via a dynamic vision, based on bottom-up decisions, that involves all stakeholders”

(Dominique Foray)
1.2 UPDATING PROCESS

In this context, this document contains the update of the smart specialisation strategy of Navarre (Modern Plan) 6 years after its approval in June 2010 in accordance with a set of improvement criteria and adaptation to current reality, in each of the relevant areas of the plan:

**Diagnosis**
The existing diagnosis with data from the 2000-2007 period has been updated and includes the new feature of a comparison with other European regions that above all seeks aspects of specialisation.

**Governance**
The new proposal divides the functions of governance and participation in the Smart Specialisation Strategy of Navarre into three working areas: a broad platform for participation, a public coordination committee and a steering committee; and integrates the technical office of the Moderna Foundation into the regional economic development agency, Sodena.

**Strategic priorities**
The update limits the number of priorities selected and guides the strategy towards a more industrial profile, based on the existence of a manufacturing sector that encompasses almost 30% of the regional VAB, and in the areas where more technological specialisation is observed.

For the first time the Strategy links a number of public instruments and plans of the economic development area of the Government of Navarre to bringing about the objectives set out in the strategy, furthering alignment of the call for grants and incentives; which include the first call for clusters support in 2016, to develop the prioritised economic areas through the logic of collaboration between companies.

**Tracking and monitoring model**
The tracking and monitoring model, which partly follows the macro structure and objectives established in 2010, adapts many of the indicators selected at the time to the sources that are really available and to the needs observed in the diagnosis, and adds the new feature of ongoing tracking of sectorial specialisation of the economy and its territorial deployment.

The updating process was carried out from December 2015 to October 2016. The meetings of the working bodies (twelve in total) were held simultaneously and were complemented with encounters with smaller groups, specialists and voluntary participants that focused on different areas of the diagnosis and strategy, in line with the phases below:

**Implementation of the strategy**

<table>
<thead>
<tr>
<th><strong>DIAGNOSIS PHASE</strong></th>
<th><strong>STRATEGY PHASE</strong></th>
<th><strong>IMPLEMENTATION PHASE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Compared Regional Competitiveness Diagnosis</td>
<td>Shared strategic vision</td>
<td>Monitoring and Evaluation System</td>
</tr>
<tr>
<td>Scientific-Technological Potential</td>
<td>General Objectives and Development Axes</td>
<td>Development of Economic Areas: clusters</td>
</tr>
<tr>
<td>Exporting economic areas</td>
<td>Strategic Economic Areas</td>
<td>Development of Competitiveness Factors: Public Policies</td>
</tr>
<tr>
<td>SWOT Analysis of Territory</td>
<td>Cross-cutting Competitive Factors</td>
<td>S3 Challenges 2017-2020</td>
</tr>
</tbody>
</table>
1.3 GOVERNANCE SYSTEM

The fact that the smart specialisation strategies seek to influence regional development means that involvement and coordination of all the stakeholders is required for it to be effectively implemented, which likewise means that they should participate in their design and governance, and in their implementation at the different working levels and areas. The most common governance model for the S3 is the so called quadruple helix for regional development, based on participation of the economic-productive sector, the knowledge-related sector (education and university research), public administration and civil society.

This model implies that government no longer plays a role of a lone omniscient planner, but rather takes on the role of facilitator and driver of participatory leadership, as a guarantee of the ongoing process of strategic reflection and the development of proposals that come from this bottom-up process via public economic development policies.

The Smart Specialisation Strategy of Navarre is therefore the outcome of a participatory process in which differentiated spaces have been generated to enable key development stakeholders to intervene in each phase of the strategy, then transferring this work to society by opening the strategy to all citizens via public consultation.
Thanks to the background and learning from previous years, a new governance system has been defined in three working areas:

**Strategic Platform S3-Navarre**
A broad-based, flexible and variable consultation body that represents the quadruple helix of regional development, but without any decision-making capacities. It is a space for communication and creativity with regard to the general strategy from which ideas are taken.

**Public Coordination Committee**
Body formed by the interdepartmental commission of Economic Development of the Government of Navarre and public companies. Its functions are to coordinate and align public policies; ensure resource allocation and budget approvals and track the strategy with special emphasis on public plans, strategies and actions.

**Steering Committee**
Made up of the Vice-Presidency of Economic Development of the Government of Navarre, along with companies from the prioritised sectors, universities and technology centres and business and workers representatives, thereby ensuring representation of the quadruple helix in the main body of governance of the S3. This is the steering and executive body of the S3 of Navarre, which gives shape to the concept of "public-private collaboration", via the commitment of its members to implementing the strategy.

Finally, the **Technical Coordination Team**, integrated into the Regional Strategy Area of Sodena, is responsible for permanent tracking and updating of the strategy and for providing support to government bodies and key stakeholders (clusters, public services, research and knowledge centres, etc.) in implementing and monitoring the S3.
2. DIAGNOSIS OF REGIONAL COMPETITIVENESS
The competitiveness of a territory is a concept that by its very nature cannot be measured in absolute terms. **How competitive we are at a given moment and how competitiveness has varied** have to be assessed in comparison to others. Therefore, a general vision is firstly given of the competitiveness of Navarre in comparison to other European regions that share certain initial structural conditions. Then the economic specialisation of the territory is studied using an analysis of the scientific-technological (patent production) and commercial (export by economic sectors) capacities.

### 2.1 STRUCTURAL CONDITIONS OF NAVARRE

The table below contains, for these structural conditions, the comparative values seen in Navarre, the 15 benchmark regions, the average of regions in the EU and the average of Spanish regions. As regards geodemographic elements, Navarre is even smaller than the average of its benchmark regions, much more urban and more poorly connected. It also shows a level of education of its human resources (measured in terms of upper secondary and higher education) that is higher than the Spanish average, but rather lower than that of the benchmark regions and the European average.

As regards technological specialisation, the benchmark regions show quite a similar profile to that of the European average. The low percentage of patents in electrical engineering in Navarre is noteworthy, especially in instruments, which is offset by the high percentage of patents in mechanical engineering and other fields.

The sectorial structure of the economy shows sector specialisation in industry, while other sectors show a similar weight, except for the public and primary sectors, with less weight than the European average. Within this area, what is notable is the specialisation in food, machinery and especially in transport equipment, and under-specialisation in extractive industries, chemicals, textiles and electric and computer equipment.

A relevant factor is company size (exclusively in the manufacturing industry). It is somewhat higher in the benchmark regions than in the European average, and in Navarre it is close to the benchmark regions and way above the Spanish average. Trade opening shows that the export percentage of Navarre is slightly higher than the European average, double the Spanish average, but it is below the benchmark regions.

As regards institutional variables, Navarre, with the rest of Spain, stands out for its high level of decentralisation. It also shows higher levels than the European average of company and institutional capital (although it scores lower in comparison to the benchmark regions in terms of institutional quality). The levels of variables that measure entrepreneurial and innovative attitudes are close to the values of the European, Spanish and benchmark regions.

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1. This section contains a summary of the complete diagnosis, approved in April 2016 and which can be downloaded from [www.sodena.com](http://www.sodena.com)

2. For these indicators we analysed Navarre’s position against the 192 European regions and a group of 15 benchmark regions: Tyrol, Trent, Karnten, Limousin, Northern Netherlands, Bremen, Vorarlberg, Western Netherlands, Wallonia, Bratislava, Emilia Romagna, France Comté, Basque Country, Aragon, Northern Ireland. To select the benchmark regions, a study was used to find regions that share similar structural characteristics on which to construct a strategy.
Profiling of the structural conditions of Navarre and its benchmark regions in comparison to the average of the EU and Spain.

<table>
<thead>
<tr>
<th>DIMENSIONS</th>
<th>ELEMENTS</th>
<th>VARIABLES</th>
<th>Navarre</th>
<th>Reg. Eu</th>
<th>EU</th>
<th>Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Geodemography</td>
<td>Regional size</td>
<td>Total population (million)</td>
<td>0.6</td>
<td>1.3</td>
<td>2.4</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>Aging</td>
<td>Population &gt; 65 years (%)</td>
<td>14.1</td>
<td>18.3</td>
<td>17.6</td>
<td>18.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Population &lt; 15 years (%)</td>
<td>16.3</td>
<td>16.7</td>
<td>16.4</td>
<td>15.6</td>
</tr>
<tr>
<td></td>
<td>Urbanization</td>
<td>Population in urban areas (%)</td>
<td>71.2</td>
<td>52.4</td>
<td>53.8</td>
<td>70.6</td>
</tr>
<tr>
<td></td>
<td>Accessibility</td>
<td>Multimodal Accessibility Index</td>
<td>79.4</td>
<td>101.7</td>
<td>86.0</td>
<td>68.9</td>
</tr>
<tr>
<td>2. Level of schooling of human resources</td>
<td>Level of schooling of human resources</td>
<td>Population with Secondary, Higher and Tertiary Education (%)</td>
<td>62.1</td>
<td>73.7</td>
<td>73.6</td>
<td>54.8</td>
</tr>
<tr>
<td>3. Technology specialization</td>
<td>Technology Distribution (patents)</td>
<td>Electrical engineering (% of total)</td>
<td>31.8</td>
<td>16.3</td>
<td>19.0</td>
<td>12.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Instruments (% of total)</td>
<td>9.0</td>
<td>14.7</td>
<td>13.4</td>
<td>12.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chemistry (% of total)</td>
<td>28.4</td>
<td>26.9</td>
<td>27.5</td>
<td>29.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mechanical engineering (% of total)</td>
<td>34.0</td>
<td>70.2</td>
<td>23.2</td>
<td>29.6</td>
</tr>
<tr>
<td></td>
<td>Technology concentration (patents)</td>
<td>GINI Index of 35 sub-areas</td>
<td>56.9</td>
<td>51.4</td>
<td>55.1</td>
<td>52.2</td>
</tr>
<tr>
<td>4. Sectorial structure</td>
<td>Distribution of the economy by sectors</td>
<td>Agriculture, livestock, forestry and fisheries (A) (%)</td>
<td>3.6</td>
<td>3.5</td>
<td>6.6</td>
<td>5.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Industry (except construction) (B-C) (%)</td>
<td>25.6</td>
<td>17.2</td>
<td>17.4</td>
<td>16.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Construction (D) (%)</td>
<td>6.7</td>
<td>7.1</td>
<td>7.3</td>
<td>7.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Commerce, transport, hospitality (G-H) (%)</td>
<td>23.4</td>
<td>23.4</td>
<td>23.8</td>
<td>28.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Information and communications (I) (%)</td>
<td>2.6</td>
<td>2.3</td>
<td>2.4</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Financial and insurance activities (J) (%)</td>
<td>2.2</td>
<td>2.8</td>
<td>2.5</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Real estate activities (L) (%)</td>
<td>0.4</td>
<td>0.6</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Professional, scientific, and technical activities (M-N) (%)</td>
<td>10.0</td>
<td>7.9</td>
<td>7.9</td>
<td>8.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public admin., education and health (O-P) (%)</td>
<td>22.1</td>
<td>25.8</td>
<td>24.4</td>
<td>22.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arts, entertainment and leisure (R-U) (%)</td>
<td>6.8</td>
<td>5.0</td>
<td>5.0</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>Concentration by sector</td>
<td>Top 5 sub-sectors (2 digits) (% total employment)</td>
<td>7.9</td>
<td>8.8</td>
<td>8.4</td>
<td>9.1</td>
</tr>
<tr>
<td></td>
<td>Distribution of industry by sector</td>
<td>Extractive industries (05-09) (%)</td>
<td>5.5</td>
<td>9.6</td>
<td>12.0</td>
<td>11.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Food, drinks and tobacco (10-22) (%)</td>
<td>21.5</td>
<td>13.3</td>
<td>15.4</td>
<td>20.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Textile, clothing and leather (13-19) (%)</td>
<td>2.5</td>
<td>7.1</td>
<td>6.0</td>
<td>5.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wood, paper and printing (16-18) (%)</td>
<td>6.4</td>
<td>8.3</td>
<td>8.1</td>
<td>7.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chemistry, pharmaceutical, rubber, plastic and refined oil (19-22) (%)</td>
<td>6.9</td>
<td>9.8</td>
<td>9.6</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-metal mineral products (23) (%)</td>
<td>4.9</td>
<td>5.5</td>
<td>4.1</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Basic metals and metal products (24-25) (%)</td>
<td>10.9</td>
<td>14.0</td>
<td>13.2</td>
<td>14.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electrical, electronic, computer and optical equipment (26-27) (%)</td>
<td>5.4</td>
<td>8.2</td>
<td>6.8</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Machinery (28) (%)</td>
<td>7.2</td>
<td>7.2</td>
<td>6.3</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transportation equipment (29-32) (%)</td>
<td>23.3</td>
<td>11.3</td>
<td>8.4</td>
<td>9.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other manufacture (31-35) (%)</td>
<td>6.1</td>
<td>8.8</td>
<td>10.0</td>
<td>10.3</td>
</tr>
</tbody>
</table>

| 5. Size of enterprises      | Size of enterprises               | Average size of manufacturing enterprises (number of employees) | 19.2    | 19.6    | 16.6 | 11.3  |
| 6. Openness                 | Trade openness                    | Total exports (% of population) | 25.6    | 34.7    | 27.9 | 14.6  |
| 7. Institutions             | Multi-level government            | Decentralization index | 98.0    | 52.9    | 47.4 | 58.0  |
|                             | Social and institutional capital  | Institutional quality index | 0.2     | 0.7     | 0.0  | 0.2   |
|                             |                                   | Sense of security when walking alone in local area/local after dark (1 Very safe - 6 Very unsafe) | 1.5     | 2.0     | 2.0  | 1.9   |
|                             |                                   | Most people can be trusted (1) or one can never be too cautious (0) | 5.2     | 5.2     | 4.8  | 5.0   |

Sources: Eurostat, DG.Regio, ESPON, OECD REGPAT, Assembly of European Regions (2009), Charron et al (2012)
End results

Navarre started at position 38 (30,614 € in 2008) of the European regions in terms of per capita GDP, an in middle position with the benchmark regions, but this has worsened, going down to position 48 (30,900 € in 2015).

Disposable income per capita. Navarre started in a favourable position (18,570 € in 2008) which decreased as a result of the crisis (17,800 € in 2014).

The poverty risk rate started at 5.8 in 2008, and the most notable deterioration occurs when it is compared with the benchmark regions, although when it is compared with the EU it remains in the top 20% of the regions to place it at 11.9 in 2014.

As regards the life satisfaction index, Navarre commenced with a worse situation when compared with Europe and it can be seen that the situation has worsened and is now in the middle range of European regions in 2014.

Long term unemployment. This has multiplied from 0.9 (% active pop.) in 2008 to 7.6% in 2014.

Radar charts: This section uses radar charts for comparison: all the regions compared to Navarre are placed in each graph axis in a sequence of best to worst performance. Therefore, the outer line of the pentagon marks the result of the best of the compared regions; the inner one represents the worst one. The closer the line is to the outer edge, the better the position of Navarre with regard to the regions it is compared with, with each border representing 20% of the regions. The source of the charts is Orkestra, using Eurostat and the European Social Survey.
Intermediate performance

Apparent productivity per worker (61.7 m€ per worker in 2008) improved in Navarre (70.1 m€ in 2014) and shows a slight improvement in comparison to the benchmark regions.

The exports ranking (10,450 M€ in 2008) remained stable (11,314 M€ in 2014) in comparison to Europe, but gradually descended in comparison to the benchmark regions.

The situation with regard to patents, (435 in 2008) remained stable (438 in 2014), at a high level of the ranking in the European context and in intermediate positions when compared to the benchmark regions.

The unemployment rate has increased from 6.8% in 2008 (UE28 7%) to 15.7% in 2014 (UE28 10.2%).

The rate of youth unemployment (18.8% in 2008) increased to 45.2% in 2014 in Navarre.

As regards companies that introduce technological innovations (product or process), Navarre is above the average of European regions and near the average of the benchmark regions, but it is lower down in non-technological innovations (organisational or marketing) and below those that correspond to innovation levels in product or process.
Determinants of competitiveness: company behaviour and specialisation

R&D expenditure in companies dropped from 1.32% of the GDP in 2008 to 1.17% in 2014 although Navarre occupies a very good position, keeping the proportion of 2/3 over the total investment of the region. R&D personnel in companies (1.04% in 2008) went down very slightly (0.94% in 2014).

Despite the positive indicators in patents, the poor indicator in patents with foreign collaboration and in co-invention (somewhat better) stands out, which indicates a certain degree of endogamy in the innovation system. Navarre increased employment in medium-high and high technology manufacturing (8.6% in 2008 to 9.4% in 2014) but major weaknesses were observed in intensive knowledge services (27.2% in 2008 to 34.1% in 2014), in comparison to other European regions.
Determinants: business environment

The indicators where Navarre is most poorly positioned in comparison to Europe are population of 25-64 years of age with upper secondary or higher education and students in vocational training, although both improved in relative terms: 58.6% in 2008 to 65.3% in 2014; and from 27.2% of the population between 15-19 years in 2008 to 31.2% in 2014 in Students of vocational training.

The relative position of Navarre dropped significantly in the area of population that participated in long-life learning. There was poor performance in Part-time employment from 13% in 2008 to 17% in 2014 and in the indicators that measure sophistication of demand via broadband access from 44% in 2008 to 76% in 2014 and e-commerce from 22% in 2008 to 40% in 2014.

With the indicators of inputs of R&D from 191% in 2008 to 173% in 2014, Navarre remains in a relatively good position in comparison to the benchmark regions in terms of staff, but the situation worsens in terms of total R&D expenditure. Navarre has a good position amongst the 20 first regions in R&D staff in public organisations.
2.3 SECTORIAL SPECIALISATION OF THE ECONOMY OF NAVARRE

Specialisation per technological area in PCT patents

IPC, or International Patent Classification is carried out according to management of technologies. The five major technological areas are: electrical engineering, instruments, chemistry, mechanical engineering and other sectors.

Navarre shows notable technological specialisation in other sectors, and to a lesser extent in mechanical engineering and chemistry. It also shows considerable under-specialisation in electrical engineering (including the area of ICT).

<table>
<thead>
<tr>
<th>Technology</th>
<th>No. of patents</th>
<th>% Distribution</th>
<th>Specialization Index (SI)</th>
<th>Index Variation (SI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTHER SECTORS</td>
<td>33-35</td>
<td>475</td>
<td>170</td>
<td>212.0</td>
</tr>
<tr>
<td>OTHER SECTORS</td>
<td>25-32</td>
<td>927</td>
<td>34.9</td>
<td>126.1</td>
</tr>
<tr>
<td>CHEMISTRY</td>
<td>14-24</td>
<td>789</td>
<td>28.1</td>
<td>111.2</td>
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<tr>
<td>INSTRUMENTS</td>
<td>05-13</td>
<td>273</td>
<td>9.7</td>
<td>63.3</td>
</tr>
<tr>
<td>ELECTRICAL ENGINEERING</td>
<td>01-08</td>
<td>24.8</td>
<td>10.3</td>
<td>43.5</td>
</tr>
<tr>
<td>Other consumer products</td>
<td>34</td>
<td>27.9</td>
<td>9.9</td>
<td>439.2</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>15</td>
<td>23.4</td>
<td>8.3</td>
<td>265.0</td>
</tr>
<tr>
<td>Other special machinery</td>
<td>29</td>
<td>24.4</td>
<td>8.7</td>
<td>258.1</td>
</tr>
<tr>
<td>Pharmaceutical products</td>
<td>16</td>
<td>27.2</td>
<td>9.7</td>
<td>227.2</td>
</tr>
<tr>
<td>Furniture, sets</td>
<td>33</td>
<td>12.6</td>
<td>4.3</td>
<td>207.1</td>
</tr>
<tr>
<td>Food chemistry</td>
<td>18</td>
<td>5.9</td>
<td>2.1</td>
<td>202.8</td>
</tr>
<tr>
<td>Thermal processes and devices</td>
<td>30</td>
<td>11.3</td>
<td>4.0</td>
<td>201.7</td>
</tr>
<tr>
<td>Motors, pumps and turbines</td>
<td>27</td>
<td>24.1</td>
<td>8.6</td>
<td>188.8</td>
</tr>
<tr>
<td>Machine tools</td>
<td>26</td>
<td>11.6</td>
<td>4.2</td>
<td>165.3</td>
</tr>
<tr>
<td>Microstructure technology and nanotechnology</td>
<td>22</td>
<td>0.8</td>
<td>0.3</td>
<td>154.6</td>
</tr>
</tbody>
</table>

Sources: Orkestra (base Regpat OECD)
An analysis of technological sub-areas shows that the major specialisation in other sectors is based mainly on strengths that already exist in “other consumer products, furniture and games” for household appliances.

Although the level of specialisation in mechanical engineering is lower, there are some sub-areas where Navarre shows high levels: other special machinery, thermal processes and devises, motors, pumps and turbines and machine tools. While Navarre shows little specialisation in the overall group of the area of chemistry, this is due to a rather imbalanced situation from some sub-areas to others, where in this regard it shows notable strengths in biotechnology, pharmaceutical products, food chemistry, and micro-structure technology and nanotechnology.

The greatest weaknesses can be found in the area of electrical engineering, which is made manifest by the fact that out of the 10 areas where Navarre shows greatest sub-specialisation, 7 belong to electrical engineering, followed by telecommunications.

**Commercial specialisation of the economic sectors**

To analyse the evolution of the sectors in the period 2008-2014, three elements are taken into consideration: the importance of each sector (weight in exports from Navarre), their competitive position (quota of international exports) and dynamism (increase in the quota of exports). In the graphic representation, the more important an economic area is, the bigger the bubble, the more competitive it is, the higher it is in the graph and the more dynamic it is, the further to the right it is placed.

Sources: Orkestra (NU, Base comtrade and DG Tributaria)
Hat Tricks are those sectors that are at the same time important in Navarre, competitive (good international quota) and dynamic (positive evolution of the 2008-2014 quota): automotive, food processing and manufacture and production technology and heavy machinery.

The lighting and electrical equipment sector was regarded as a threatened motor for having a high level of exports in Navarre (not so much at international level) but it has lost a share in recent years. Another threatened value is the paper and packaging sector, with a certain degree of stagnation in growth. The “emergent stars”, (notable for their dynamism) in this case are livestock processing, which is the fastest growing sector, followed by non-metallic mining and forestry.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>RELEVANT</th>
<th>COMPETITIVE</th>
<th>DYNAMIC</th>
<th>DEFINITION</th>
<th>CLUSTERS</th>
<th>STARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAT-TRICK</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Well positioned across three indicators, i.e., it is within the first 10 clusters in each of the indicators.</td>
<td>Automotive</td>
<td>2: Size, specialization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Food processing and manufacturing</td>
<td>2: Size, specialization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Production technology and heavy machinery</td>
<td></td>
</tr>
<tr>
<td>INCREASING VALUE</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Although its weight in exports of Navarre is not large, its quota of global export is above the rest of clusters of Navarre and also, that quota is growing.</td>
<td>Household appliances</td>
<td>1: Specialization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>metallurgical technology</td>
<td></td>
</tr>
<tr>
<td>THREATENED MOTOR</td>
<td>✓</td>
<td></td>
<td></td>
<td>Although its quota of global export is not one of the largest in Navarre, its weight in total exports is significant, but that position can be threatened as it is not one of the most dynamic sectors.</td>
<td>Lighting and electrical equipment</td>
<td></td>
</tr>
<tr>
<td>THREATENED VALUE</td>
<td></td>
<td>✓</td>
<td></td>
<td>Although its weight in Navarre exports is not large, its quota of global export is above the rest of Navarre clusters, but this position can be threatened as it is not one of the most dynamic sectors.</td>
<td>Construction products and services</td>
<td></td>
</tr>
<tr>
<td>EMERGENT STAR</td>
<td></td>
<td></td>
<td>✓</td>
<td>Its weight in Navarre exports and global quota are not yet very significant, but it is interesting to take them into account due to its dynamic nature in the last few years.</td>
<td>Livestock processing</td>
<td>1: Specialization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Footwear</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Forestry</td>
<td>1: Specialization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Non-metal mining</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aerospace vehicles and defense</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Orkestra (UN, Base comtrade and DG Tributaria)
3. SWOT ANALYSIS OF THE ECONOMY OF NAVARRE
STRENGTHS

1./ High rate of industrial activity and competitive and dynamic industrial sectors: automotive, food, machinery and equipment, renewable energies and bio-health technologies.

2./ Population with a high level of university profiles thanks to the presence of three universities, which attract students from outside.

3./ High number of companies that introduce technological innovations and the sale of new products.

4./ Export profile of the region, moderate growth of exports in 2008-2014.

5./ Quality of entrepreneurship: high percentage of companies that survive into the mid-term.

6./ Closeness and accessibility of regional administration, with important legislative competences and its own differentiated tax regime.

7./ High export share of products of medium-high and high technological level.

8./ High scientific-technological capacities (infrastructures and personnel).

9./ Presence in Navarre of more than 125 multinationals from more than 20 countries that act as a catalyst of change and introduction of innovations.

10./ Increased productivity per employee in recent years (compared to similar regions).

WEAKNESSES

1./ Lack of culture of cooperation and clustering, both at local level and outwards.

2./ Broadband and company energy infrastructures of insufficient quality; lack of industrial floor space in some areas of Navarre, including the Pamplona Region (plenty in others).

3./ Atomised business fabric, with very small companies and self-employed workers (except in manufacturing companies).

4./ High levels of unemployment, especially long term, and in profiles with low qualifications.

5./ Gradual worsening of indicators of life quality, poverty risk and prosperity rates, although there have been signs of improvement in the last two years.

6./ Insufficient number of companies with decision-making centre in Navarre.

7./ Low performance in non-technological innovation (such as innovation in marketing and organisational).

8./ Gradual decrease in investment in R&D and patents; innovation system not very geared towards the market and with weak levels of collaboration between stakeholders for the innovative position of Navarre.

9./ Shortage of human capital with vocational training (Medium and Upper Level Vocational Training) and negative evolution of the population that participates in long-life learning.

10./ Poorly developed ICT sector for the 4.0 industry challenge and difficulties in attracting companies and professionals with high technological profiles.

11./ Little entrepreneurial dynamism (according to total rate of entrepreneurial activity – TEA – of the GEM report).

12./ High level of Government debt and legislative limits that reduce the scope of action in public policies.

13./ Inside the territory, demographic and labour inequalities between different areas have worsened during the crisis.
OPPORTUNITIES

1. Improvement of cooperation between companies, technological centres and universities as a way to increase commercial and industrial development of existing intellectual property.

2. Coordination of the public sector around a common strategic vision.

3. Boosting of the bio-economy and circular economy, making use of knowledge from agrifood, energy efficiency and waste and resource management.

4. Foster and develop clinical and bio-medical research, making use of the industrial capacity in bio-medical engineering, with special emphasis on health and active aging needs.

5. Further dual vocational training, geared towards the strategic sectors.

6. Improve the regional image abroad by placing value on strengths, attracting tourism and investment.

7. Possibility of leverage from business capacities of trailblazing-exporting companies.

8. Foster rail corridor for international goods.

9. Water management and distribution to south, to improve agricultural and industrial productivity, and to guarantee urban supply.

10. Based on the advances made in social dialogue, continue to progress with the greatest possible involvement of economic and social stakeholders in furthering and consolidating a new company culture of the 21st century.

11. Commitment to stable, mid/long-term pluri-annual financing of R&D

12. Foster digitalisation and the 4.0 paradigm in the Economy.

THREATS

1. Relocation of companies to developing countries with low labour costs.

2. Aging workforces in industry, lack of labour incorporation of young people and brain drain.

3. Risk of complacency.

4. Productivity evolution model that is passive, based on traditional or scaled sectors that are not very competitive or innovative.

5. Loss of tax competitiveness in comparison to other European regions and countries.

6. Future risk from early secondary school drop-out higher than in the best regions.

7. Lack of a common project.

8. Need to improve recognition of the role of entrepreneurs and their social contribution.

9. Distance and poor connections to international decision-making centres (difficulties in exporting and attracting investment).
4. STRATEGIC VISION, OBJECTIVES AND PRINCIPLES
4.1 VISION OF NAVARRE 2030

We are committed to a socially and territorially cohesive Navarre, open and interconnected, made up of creative and entrepreneurial persons engaged in a modern and competitive economy, that stands out for its industrial strengths, its commitment to the environment, health and quality of life, in a setting of transparency and trust, to become a benchmark in sustainable development.

The vision of the future is contained in the following 5 development themes of Navarre:

- **Cohesive Navarre**, socially and territorially, as a final objective of the strategy.
- **Healthy Navarre**, with healthy products and services, taking care of people.
- **Sustainable Navarre**, environmentally responsible and efficient in the use of resources.
- **Industrial Navarre**, increasing our productivity with 4.0 technologies.
- **Competitive Navarre**, improving the global position of our companies.

These themes act as transversal criteria or themes for future regional development that are applicable to different business sectors and public policies, such as fostering focused innovation, actions of diversification or hybridisation of opportunities, new lines for providing value to products and services, actions for awareness raising or clustering, etc.
4.2 GENERAL OBJECTIVES

The smart specialisation strategy of Navarre seeks the following end objectives, in accordance with the lines of sustainable economic development and the so called “triple line of results”: economic, social and environmental. The same model can be found in the Europe 2020 Strategy, which favours smart, inclusive and sustainable growth, and the 2030 Agenda of the United Nations for universal sustainable development.

- **Better quality of life**, by means of a system of social cohesion, health care of the best quality and an excellent education as the major strengths of Navarre.

- **Greater sustainability**, respecting and placing value on the natural environment of Navarre, protecting natural resources and promoting efficient use of them so as to maintain and improve environmental quality.

- **Greater prosperity**, based on the development of the industrial and business fabric, integrating and boosting people’s talent, and promoting innovation and entrepreneurship to make Navarre highly competitive.

<table>
<thead>
<tr>
<th>GENERAL OBJECTIVES</th>
<th>STARTING POINT</th>
<th>OBJECTIVE 2020</th>
<th>OBJECTIVE 2025</th>
<th>OBJECTIVE 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quality of life</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution of wealth</td>
<td>32.64</td>
<td>30</td>
<td>28</td>
<td>26</td>
</tr>
<tr>
<td>Gini Index (equal distribution of wealth)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty Risk Rate</td>
<td>9.6%</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>% population in risk of poverty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sustainability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy efficiency</td>
<td>1.799</td>
<td>1.700</td>
<td>1.650</td>
<td>1.600</td>
</tr>
<tr>
<td>Final energy consumption in thousand TEP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduction of greenhouse emissions</td>
<td>22.8%</td>
<td>-20%</td>
<td>-30%</td>
<td>-40%</td>
</tr>
<tr>
<td>Total reduction of emission of greenhouse gases from 1990 levels</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prosperity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP per capita</td>
<td>113%</td>
<td>120%</td>
<td>125%</td>
<td>130%</td>
</tr>
<tr>
<td>Percentage above European average (GDP in PPPs. EU28=100%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term unemployment</td>
<td>5.1%</td>
<td>4%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>% active population seeking employment for more than 2 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.3 PRINCIPLES

The strengths, weaknesses, opportunities and threats identified in the analysis phase and expressed in the SWOT above, define the guiding principles on which the S3 Navarre is based.

1./ Commitment to **people and social cohesion** as a principle and ultimate objective of development.

2./ Create a **respectful, flexible and open society**, which is always connected and outward looking.

3./ Using current strengths, **progress towards acquiring the productive competences** of the future.

4./ Facilitate **cooperation and collaborate with the best**.

5./ Be **entrepreneurial** and perseverant.

6./ **Value the social contribution of the entrepreneur**, who takes on risks in activities geared towards generating wealth and employment.

7./ **Know how to sell and communicate our strengths**, providing design and creativity.

8./ **Detect, include and boost talent**.

9./ **Construct a company model** based on trust and negotiation, maintaining a good labour climate.

10./ **Be a technologically advanced society**, that fosters knowledge, research and innovation in future areas.

11./ **Be a solvent regional community**, with solid and sustainable public accounts.

12./ **Responsibly manage our environment** in a balanced manner.

13./ **Seek the long term socio-economic improvement of Navarre**.
5. THEMATIC PRIORITIES
The issue of thematic priorities refers to the methodological core of the S3: the commitment to a concentration of resources in the areas of development that can give the most drive to the regional economy to deal with future challenges. The regional diagnosis has analysed the specialisation, showing the capacities and the areas requiring improvement, and providing a series of observations that have guided the selection of priorities in the economic-business sphere and in competitiveness factors.

### 5.1 ECONOMIC AREAS

Using the five themes of the strategic vision: a cohesive, healthy, sustainable, industrial and competitive Navarre, **six high priority economic areas** are proposed. Via the development of these areas of specialisation and the search for synergies between them, the idea is to **generate new opportunities for diversification and entrepreneurship** during the implementation phase, creating “bridges” between current strengths and future niches.

<table>
<thead>
<tr>
<th>THEMATIC PRIORITIES S3</th>
<th>NAVARRE DEVELOPMENT AXES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COHESIVE</td>
</tr>
<tr>
<td>Automotive and Mechatronics</td>
<td></td>
</tr>
<tr>
<td>Food chain</td>
<td></td>
</tr>
<tr>
<td>Renewable energy and resources</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td></td>
</tr>
<tr>
<td>Comprehensive Tourism</td>
<td></td>
</tr>
<tr>
<td>Creative and Digital Industries</td>
<td></td>
</tr>
</tbody>
</table>
AUTOMOTIVE AND MECHATRONICS

PRIORITY KEYS:
Navarre has a sizable number of companies in the automotive sector (5.9% of the VAB), with growth in the period 2008-2014 of 27%, and increase of 31.56% in productivity per employee (with job losses of 3%, much lower than the average of the region in the period). It is also by far the largest exporting sector in the region (45% of the total), with a growth of 38% of sales to the exterior in the last six years. As areas of growth and innovation, what stands out is the development of manufacturers of components and their advance in the value chain; as well as the promotion of sustainable mobility, the electric vehicle and the self-driving car, as future trends.

The region also has special capacities for advanced manufacturing based on machinery, electronics and production system companies that we group together under mechatronics (machinery and equipment + electronics and hardware; 6.9% of the VAB). This area includes manufacturers of specific appliances and machinery that integrate mechanical and electrical solutions (e.g. domestic appliances and vending solutions) and which, furthermore, offer manufacturing and machinery systems for other manufacturing sectors, which is a key factor for competitiveness. The highest level of technological specialisation appears in this sector with almost 39% of the total number of patents in recent years and 24.4% of exports from Navarre.

In this regard, outstanding companies include Volkswagen Navarre, Fagor Ederlan, Delphi Packard, SKF, MTorres, BSH, Azkoyen, Jofemar, GM Vending, etc.

OBJECTIVES OF THE AREA:
Transformation and specialisation of the manufacturing industries via greater investment in R+D+i to develop own products, and the application of 4.0 technologies and advanced manufacturing to achieve the European objectives of the “factory of the future”: more efficient, optimised, intelligent and automated.

VISION 2030:
Navarre stands out for its industrial performance, improving its global competitiveness, increasing its contribution to regional wealth and creating highly qualified jobs thanks to the integration of 4.0 technologies in the automotive and mechatronics sectors.

FOOD CHAIN

PRIORITY KEYS:
A food ecosystem exists in Navarre that covers practically all the value chain, from the primary sector to the food industry with aggregate growth data of the contribution to the VAB of Navarre (+11.2%), productivity (+16.6%) and exports (+78.9%) that have grown in recent years, and with job losses that are lower than the average for the region. It has technological centres specifically given over to development in the different phases, the Institute of Agrobiotechnology (IdAB, which belongs to the CSIC), the National Centre of Food Technology and Safety, (CNTA) and the Institute of Food Infrastructure Technologies (INTIA). At present it is the second largest area after the automotive sector in terms of revenue from operations and the third largest in exports. Navarre has a number of large and important companies, such as Viscofan, which is a multinational with a worldwide presence and production plants on three continents, Grupo AN, which integrates the value chain from agricultural cooperatives up to transformation, and other major exporters such as Ultracongelados Virto o Congelados de Navarre, Berlys, Florette, General Mills, Urzante, IAN, Iberfruta Muerza, UVESA, etc.

OBJECTIVES OF THE AREA:
Gain company scale, increase exports, strengthen internal collaboration within the value chain to bring about the incorporation of more products from Navarre into transformation and export processes, and increase the contribution of added value via R+D+i (in products and processes) and the implementation of advanced manufacturing technologies.

VISION 2030:
The agrifood sector of Navarre is highly competitive and specialised thanks to its products, which are healthy, natural, delicious and/or convenient, and it competes in international markets and contributes to the GDP and employment in Navarre with a greater percentage than the current one, integrating agricultural, livestock and territorial policies with the industrial policy of territory specialisation.
RENEWABLE ENERGIES AND RESOURCES

PRIORITY KEYS:
Navarre is a benchmark in European best practices in terms of production of renewable energies, with a long-standing technological and industrial commitment to its development, as it has in conservation and exploitation of natural resources and environmental management; and it has made the fight against climate change one of its major commitments.

The region achieved the European objectives of H2020 several years in advance, generating more electric energy than it consumes internally. Navarre has a percentage of renewable energy production of over 80% of its electrical consumption. Furthermore, in 2008-2013 it established itself as the third economic area per volume of patents, reaching 6.4% of the total, with support from the National Renewable Energies Centre (CENER). As regards company capacities, major companies include Gamesa, Acciona, Ingeteam and Gas Navarre, as well as the network of supply industries, especially in the wind sector, with major potential for growth. The considerable experience in energy efficiency and natural resource management make new applications possible for sectors such as sustainable construction and the circular economy, especially when applied to the industrial sector.

OBJECTIVES OF THE AREA:
Reduction of consumption of fossil energy (fuels) and raw materials, by increasing the production of renewable energies, improving energy efficiency, and consolidating emerging sectors based on the management of natural resources and waste.

VISION 2030:
Navarre progresses to become a region in 2050 that consumes no fossil fuels, continues to be an international leader in the renewable energy sector, and is committed to energy efficiency and the management and valuation of natural resources as a transformational theme of the territory.

HEALTH

PRIORITY KEYS:
Navarre is recognised for the excellent health care services it has in Spain, with an attractive private sector for patients outside the region (University of Navarre Clinic); there is also a notable area of opportunity in care services for dependents and active senior citizens, included in the SWOT diagnosis as an opportunity and future challenge; and in the improvement in the efficiency of the health system to ensure sustainability, addressing the demographic evolution of Navarre. Besides, thanks to the level of integration and availability of population data it constitutes an ideal ecosystem to develop community services that generate jobs, sustainability projects for the health system and for prototyping and starting up new products and services in the market.

With input from the health sector and future trends, the bio-pharmaceutical sector is of major scientific-technological importance in Navarre, with a very high specialisation index, of 265 and 227 (of the 100 that is the European average) in bio-technology and pharmaceutical products respectively, and with a distribution of patents from 2008 to 2014 of 8.3% and 9.7% of the total number of patents respectively (second patenting sector).

Evolution from 2008 to 2014 was favourable, highlighted by the appearance of new technology-based companies making use of the drive of the largest pharmaceutical company per sales of generic medicines in Spain (CINFA) and the ecosystem generated around it (3P Biopharmaceuticals, Idifarma, etc.).

In the same respect, Navarre has a dozen medical equipment and health technology manufacturing companies. The sector is undergoing a growth in exports and potential, although in 2014 the figure was scarcely 10 million euros. It produced 3.7% of the patents from 2008 to 2014, with a low specialisation rate (63.2%), but with a growth of 19% in the period.

OBJECTIVES OF THE AREA:
Boost efficiency of the innovative ecosystem in health to improve the transfer of existing knowledge to markets, increase sector exports, and to introduce opportunities for prototyping new products and services to improve the health care system.

VISION 2030:
Navarre is a benchmark in bio-medical research, development and services, as well as in the provision of specialised health care services that can attract patients and professionals from outside the community, with a young and innovative industry in the manufacture of medicines, medical devices and health care technologies.
PRIORITY KEYS:
Although tourism is not an industrial or export sector in the strict sense of the term, it provides benefits in terms of territorial cohesion and social development, and brings about the entry of exterior resources that improve the regional trade balance. This sector is notable for being one of the most important of many rural areas, and is linked to indirect benefits of conservation of the natural and cultural heritage. It generates 5.9% del of the regional VAB, gaining a share that ranged from 5.7% in 2008, being one of the few sectors that has increased in employment terms in the period 2008-2014, by 1.3%. In 2015 Navarre saw an increase in the number of tourists, as well as daily revenue and average stay per tourist in comparison to 2014, which is a trend that may well continue in the future.

OBJECTIVES OF THE AREA:
Commitment to professionalisation, diversification and personalisation of the offer to tourists, going beyond the holiday sector and exploring other high value niches such as cultural, rural, cycling and adventure tourism, and health or congress tourism to improve the touristic experience of visitors.

VISION 2030:
Navarre has consolidated as a unique benchmark destination, committed to comprehensive tourism based on its natural, cultural, gastronomic and social strengths, to make it a motor for balanced territorial development and international opening of the region.

PRIORITY KEYS:
Regarded as an emerging sector, the creative industries, especially those in the digital and audiovisual area, are important for giving value to the territory, heritage and traditions (in cinema productions), as well as for being a technological sector with future growth. In particular, the importance of the musical and recording sector stand out in the diagnosis for their share in European employment (7 per thousand). Creativity is also regarded as a key factor in competitiveness of other industrial sectors.

OBJECTIVES OF THE AREA:
Work to develop the sector, entrepreneurship, attract talent and create new opportunities by maximising territorial strengths.

VISION 2030:
Navarre is regarded as a creative community that moves towards digitalisation with participatory and shared leadership based on innovation and creativity.
In the area of competitiveness factors it is also necessary to establish a series of priorities to deal with the needs of the regional competitive context that have been detected and provide this facilitating environment to help companies. The following competitiveness tools are proposed for this area:

<table>
<thead>
<tr>
<th>S3 PRIORITIES</th>
<th>DEVELOPMENT POLICIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business development</td>
<td>• Industry 4.0 development.</td>
</tr>
<tr>
<td></td>
<td>• Clusters</td>
</tr>
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<td></td>
<td>• Business growth</td>
</tr>
<tr>
<td></td>
<td>• Internationalization</td>
</tr>
<tr>
<td></td>
<td>• Entrepreneurship</td>
</tr>
<tr>
<td></td>
<td>• New company model: organizational innovation and labor participation</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>• Research promotion</td>
</tr>
<tr>
<td></td>
<td>• Technology network aimed at priorities and results</td>
</tr>
<tr>
<td></td>
<td>• Digitalization of economy</td>
</tr>
<tr>
<td></td>
<td>• Creation of Innovative Companies</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>• Industrial Infrastructure</td>
</tr>
<tr>
<td></td>
<td>• Energy</td>
</tr>
<tr>
<td></td>
<td>• Connectivity and communications</td>
</tr>
<tr>
<td></td>
<td>• Transport of people and goods</td>
</tr>
<tr>
<td></td>
<td>• Water supply</td>
</tr>
<tr>
<td>Public administration and taxation</td>
<td>• Administrative modernization, simplification and streamlining</td>
</tr>
<tr>
<td></td>
<td>• Taxation as instrument of promotion of productive economy</td>
</tr>
<tr>
<td>Education and training</td>
<td>• Innovative Education</td>
</tr>
<tr>
<td></td>
<td>• Higher Professional Training</td>
</tr>
<tr>
<td></td>
<td>• University Education</td>
</tr>
<tr>
<td></td>
<td>• Life-long training</td>
</tr>
</tbody>
</table>
BUSINESS DEVELOPMENT

- **Objective**: Facilitate the transformation of the industrial fabric of Navarre to guide it towards the industry of the future: more competitive, more technological, more innovative, more sustainable and more committed to society and its surroundings. Boost company competitiveness via the cluster model, growth policies and internationalisation. Foster a new company model via organisational innovation and labour participation, establishing a labour climate of trust.

- **Main tools**: Industrial plan, clusters policy, company growth actions, entrepreneurship plan, internationalisation plan, social economy plan.

R&D

- **Objective**: Encourage the generation, enhancement and application of scientific and technological knowledge to provide greater value to companies in Navarre. Guide research and innovation of technological centres and universities to prioritised economic sectors and boost digitalisation of the economy and the creation of innovative companies.

- **Main tools**: Science, technology and innovation plan; entrepreneurship plan: creation of knowledge based companies (KBC).

INFRASTRUCTURES

- **Objective**: Provide Navarre with the infrastructures required for regional competitiveness, facilitating high quality access for companies to the resources required for their activity (industrial floor space, transport, water, broadband, communications and energy).

- **Main tools**: Energy plan, broadband plan, integrated waste management plan, others.

PUBLIC ADMINISTRATION AND TAXATION

- **Objective**: Work towards modernisation and innovation in Administration, introducing new technologies and other models of internal organisation. Advance in processes of administrative simplification and streamlining, strengthening the image of an administration that is close to companies in Navarre. Use the taxation and legislative autonomy of Navarre as a competitive advantage, promoting productive investment and attracting companies.

- **Main tools**: Tax and administrative legislation, procedures and processes, pilot projects for public innovation.

EDUCATION AND TRAINING

- **Objective**: Commitment to innovative education, geared towards future values and professional skills. Encourage good quality higher vocational training and university education, close to companies and focused on strategic sectors, likewise boosting skills for employability and training throughout life.

- **Main tools**: Educational innovation projects, vocational training strategy, specialisation of universities and professional development actions.
6. IMPLEMENTATION AND FOLLOW-UP SYSTEM

Aerial view of Cerco de Artajona. Zona Media
As a continuation of the work of diagnosis, strategy, and implementation 24 projects have been selected for the 2017-2020 period with links to both strategic areas and transverse factors of competitiveness. These Strategic Challenges have been chosen by the Government and the steering committee to determine the most relevant matters to be tackled up until 2020, in accordance with the results of the diagnosis and the priorities of the region. In some cases they will be included in the development plans of public policies, specifying in particular the incentives for investment and business innovation; in other cases they will be priority elements of the work of the clusters; and in some other cases, without being strategic plans they will be developed by the Government as preferential projects of its own (see the table on the following page).

6.1 SYSTEM FOR IMPLEMENTING THE STRATEGY

The instruments for the implementation of the S3 strategy are mainly the following:

**Work with the clusters** in the field of priority economic areas. The clusters group together the players of business and knowledge to promote the lines of business competitiveness and technological development established for each priority through projects of collaboration and of the improvement of the economic environment.

**Strategic plans** for the unfolding of the transverse factors of competitiveness (industrialisation, enterprise, internationalisation, social economy, science and technology, energy, broadband, vocational training, and climatic change) and in some cases also of some of the priority strategic areas (tourism and waste management).

The continuous process of the unfolding and monitoring of the strategy of smart specialisation
<table>
<thead>
<tr>
<th>CHALLENGE</th>
<th>DESCRIPTION - DEVELOPMENT LINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOMOTIVE AND MECHATRONICS</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Electric vehicle promotion</td>
</tr>
<tr>
<td>2</td>
<td>Transformation 4.0 of industry in Navarre</td>
</tr>
<tr>
<td>FOOD CHAIN</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Articulating food value chain</td>
</tr>
<tr>
<td>4</td>
<td>Opting for healthy food</td>
</tr>
<tr>
<td>RENEWABLE ENERGY AND RESOURCES</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Reduction of fossil fuel consumption</td>
</tr>
<tr>
<td>6</td>
<td>Strengthening of wind energy sector</td>
</tr>
<tr>
<td>7</td>
<td>Promoting circular economy</td>
</tr>
<tr>
<td>HEALTH</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Development of personalized medicine</td>
</tr>
<tr>
<td>9</td>
<td>Increasing efficiency of health services (e-Health)</td>
</tr>
<tr>
<td>COMPREHENSIVE TOURISM</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>New niches for comprehensive tourism</td>
</tr>
<tr>
<td>CREATIVE AND DIGITAL INDUSTRIES</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Creative and digital industries</td>
</tr>
<tr>
<td>CHALLENGE</td>
<td>DESCRIPTION - DEVELOPMENT LINES</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>12</td>
<td>Clusters for innovation and competitiveness</td>
</tr>
<tr>
<td>13</td>
<td>Increasing the average size of enterprises</td>
</tr>
<tr>
<td>14</td>
<td>New culture of business management</td>
</tr>
<tr>
<td>15</td>
<td>Improving funding of business projects S3</td>
</tr>
<tr>
<td>16</td>
<td>Supporting strategic projects in Navarre</td>
</tr>
<tr>
<td>17</td>
<td>Commitment to R&amp;D</td>
</tr>
<tr>
<td>18</td>
<td>Technology transfer to companies</td>
</tr>
<tr>
<td>19</td>
<td>Improving regional communication and competitiveness</td>
</tr>
<tr>
<td>20</td>
<td>Economic development of local areas</td>
</tr>
<tr>
<td>21</td>
<td>Administrative closeness and streamlining</td>
</tr>
<tr>
<td>22</td>
<td>Change in outer image of Navarre</td>
</tr>
<tr>
<td>23</td>
<td>Navarre Smart Region Project for public innovation</td>
</tr>
<tr>
<td>24</td>
<td>Vocational training close to companies</td>
</tr>
</tbody>
</table>
6.2 MONITORING SYSTEM

The Smart Specialisation Strategy is defined as a continuous process that requires monitoring tools on different levels in order to select the best options and projects that allow progress towards its three major aims: improved quality of life, sustainable development, and increased prosperity of the region and its inhabitants. The follow-up system must therefore be capable of:

- **Controlling the evolution of the region**, especially in those challenges that it must face or in those weaknesses detected in the diagnosis that must be overcome.

- **Validating the selection of theme priorities** of the S3 or of new emerging opportunities that must contribute towards the development of the region.

- And finally, serving as a **smart tool** for the model of governance facilitating decision-making and aimed at attaining the challenges marked in the S3 and the continuous updating of the strategy.

In order to monitor the S3 the following tools are put in place; they will be periodically updated and presented to the various government bodies of the S3:

- **“Control panel” tool** - It allows the controlling of the evolution of the region (profile indicators) with clear agreed objectives for the years 2020-2025-2030. It is divided into two parts:
  a) General objectives: six indicators for the major objectives of the S3: prosperity, quality of life, and sustainability.
  b) Intermediate objectives: 20 indicators in the transverse factors of competitiveness: education and employability, R+D+I, business development, infrastructures, and public administration.

  This control panel serves as a tool for analysing the evolution of the S3 Navarre in its regional Competitiveness Factors. In order to do so it includes not only the starting point and the objectives for 2020-2025-2030 but also the latest data available for each indicator and the record since 2008 as far as possible.

- **“Specialisation control” tool** - For each of the priorities defined the key economic magnitudes for each of them will be analysed (e.g. productivity, employment, exports...), comparing them with Navarre as a whole and with other regions or countries. The objective is a double one:
  a) Measuring the contribution (importance) of each priority to the region as a whole, emphasising in particular the weight of priority areas as a whole over non priority areas.
  b) Controlling the evolution of priority. In addition other non priority areas within the “enterprising discovery” process will be controlled (pinpointing areas to be made a priority in the future).

- **“Territorial unfolding” tool** - Given that one of the objectives of the S3 is territorial cohesion, the indicators of the control panel in minor geographical areas will be analysed (according to data availability). This project will be carried out in collaboration with Lursarea.

- **“Challenge monitoring” tool** - The S3 strategy will have actions of its own in the short/medium term known as “challenges”. The challenges consist of major projects that will also be monitored to establish indicators of execution and result.

- **Other tools**. In addition to the tools for monitoring the S3, the public plans unfolded will include their own monitoring tools that aim to control the development of each plan (input and execution indicators) and its impact (output indicators).

  In order to do so, both the plans and their indicators will be aligned with the S3 as far as its control panel and the theme priorities chosen are concerned.
# S3 NAVARRE - DASHBOARD

## GENERAL OBJECTIVES

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
<th>Starting Point</th>
<th>Objective 2020</th>
<th>Objective 2022</th>
<th>Objective 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution of wealth</td>
<td>Gini Index (equal distribution of wealth)</td>
<td>32.64</td>
<td>30</td>
<td>28</td>
<td>26</td>
</tr>
<tr>
<td>Poverty Risk Rate</td>
<td>% population in risk of poverty</td>
<td>9.6%</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Sustainability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy efficiency</td>
<td>Final energy consumption in thousand TEP</td>
<td>1.799</td>
<td>1.700</td>
<td>1.650</td>
<td>1.600</td>
</tr>
<tr>
<td>Reduction of greenhouse emissions</td>
<td>Total reduction of emission of greenhouse gases from 1990 levels</td>
<td>22.8%</td>
<td>-20%</td>
<td>-30%</td>
<td>-40%</td>
</tr>
<tr>
<td>Prosperity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP per capita</td>
<td>Percentage above European average (GDP in PPPs, EU28=100%)</td>
<td>113%</td>
<td>120%</td>
<td>125%</td>
<td>130%</td>
</tr>
<tr>
<td>Long-term unemployment</td>
<td>% active population seeking employment for more than 2 years</td>
<td>5.1%</td>
<td>4%</td>
<td>3%</td>
<td>2%</td>
</tr>
</tbody>
</table>

## INTERMEDIATE OBJECTIVES

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
<th>Starting Point</th>
<th>Objective 2020</th>
<th>Objective 2022</th>
<th>Objective 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education and Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational system</td>
<td>PISA Score</td>
<td>513</td>
<td>520</td>
<td>525</td>
<td>530</td>
</tr>
<tr>
<td>Higher degrees</td>
<td>% population between 25 - 64 with higher education</td>
<td>42.3%</td>
<td>45%</td>
<td>50%</td>
<td>55%</td>
</tr>
<tr>
<td>School dropout rate</td>
<td>% population between ages 18 - 24 who dropped out</td>
<td>10.8%</td>
<td>10%</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>VT graduates and labor insertion</td>
<td>No. of VT graduates (and % of labor insertion)</td>
<td>2.577</td>
<td>3.000</td>
<td>3.600</td>
<td>4.200</td>
</tr>
<tr>
<td>R&amp;D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment in R&amp;D</td>
<td>% investment in R&amp;D as part of GDP (GERD)</td>
<td>1.82%</td>
<td>2.20%</td>
<td>2.60%</td>
<td>3.00%</td>
</tr>
<tr>
<td>Science and Technology Staff</td>
<td>% active population with higher education degree and working in science/technology (HRSTC)</td>
<td>22.1%</td>
<td>24%</td>
<td>26%</td>
<td>28%</td>
</tr>
<tr>
<td>Patents</td>
<td>Patent applications per 100,000 inhabitants (national-European-PCT)</td>
<td>15.1</td>
<td>25</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Regional Innovation Scoreboard</td>
<td>RIS Score</td>
<td>Moderate</td>
<td>Strong</td>
<td>Strong</td>
<td>Leader</td>
</tr>
<tr>
<td>Business Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company size</td>
<td>No. of companies with &gt;50 employees</td>
<td>403</td>
<td>500</td>
<td>580</td>
<td>660</td>
</tr>
<tr>
<td>Labor Productivity</td>
<td>Average productivity of the region (euros/worker)</td>
<td>65.014</td>
<td>68.000</td>
<td>74.000</td>
<td>80.000</td>
</tr>
<tr>
<td>Experts</td>
<td>Volume of exports of Navarre companies (MC yearly)</td>
<td>8.460</td>
<td>9.500</td>
<td>11.000</td>
<td>12.000</td>
</tr>
<tr>
<td>Employment rate</td>
<td>% employment rate in population aged 20-64</td>
<td>68.8%</td>
<td>74%</td>
<td>78%</td>
<td>82%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renewable energy</td>
<td>% Contribution of RE in final energy consumption</td>
<td>24.7%</td>
<td>28%</td>
<td>40%</td>
<td>50%</td>
</tr>
<tr>
<td>Ultra-fast broadband</td>
<td>% population with 100 Mbps or more</td>
<td>69.2%</td>
<td>85%</td>
<td>93%</td>
<td>100%</td>
</tr>
<tr>
<td>Waste</td>
<td>% reduction of waste from 2010</td>
<td>6.4%</td>
<td>10%</td>
<td>11%</td>
<td>12%</td>
</tr>
<tr>
<td>Transport modality</td>
<td>% goods transported by railroad over total transport</td>
<td>0.71%</td>
<td>1.10%</td>
<td>1.60%</td>
<td>2.40%</td>
</tr>
<tr>
<td>Public Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S3 company funding</td>
<td>M€ invested and No. of SOENA participating companies</td>
<td>7.2 M€ (50)</td>
<td>14.2 M€ (70)</td>
<td>15.7 M€ (70)</td>
<td>17.3 M€ (70)</td>
</tr>
<tr>
<td>Public spending in R&amp;D</td>
<td>% public budget allocated to R&amp;D over total GNP</td>
<td>1.43%</td>
<td>1.80%</td>
<td>2.40%</td>
<td>3%</td>
</tr>
<tr>
<td>Financial solvency</td>
<td>Standard&amp;Poor's regional ratings over national rating</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Attraction of European Funds</td>
<td>Million euros from the European Research and Innovation program (H2020)</td>
<td>3.6</td>
<td>9</td>
<td>12</td>
<td>15</td>
</tr>
</tbody>
</table>
6.3 TRANSPARENCY AND AUDITING

Sodena will be the entity in charge of managing the monitoring model of the S3 in coordination with the various departments of the Regional Government of Navarre.

The control panel will be periodically updated (using the corresponding sources of information), analysing the timeframe evolution of the indicators and making comparisons with other regions with the aim of understanding the evolution of the region within an international context. All the information of the control panel and the specialisation panel will be made public on the website www.sodena.com, promoting transparency and facilitating the dissemination of the results achieved and thus allowing agents and civil society to make their contributions to the S3 in this way. As a final element an external auditing system is established that periodically carries out a technical analysis with a guarantee of independence and rigour on the deployment and monitoring of the strategy and the assessment of the related public policies.
7. ANNEXES
In recent years the car industry is and has been the largest exporter of the region with over 45% of total exports from Navarre. Mechatronics or advanced Manufacturing (electronics, ICT, and the manufacturing of equipment) accounts for some 30% of total exports. Mechatronics includes the greatest technological specialisation with almost 39% of the total of patents registered by companies in recent years. Business size exceeds the regional average and the turnover of car industry companies accounts for over 25% of the total for the region. Within the area of ICT and the manufacturing of machinery an important opportunity of specialisation towards the “Industry 4.0” paradigm is detected.

The transformation and specialisation of manufacturing industries by means of greater investment in R&D to develop their own products, and the application of 4.0 and advanced manufacturing technology so as to achieve the European objectives of the “factory of the future”: more efficient, optimised, smart, and automated.

Navarre stands out for its industrial performance, improving its global competitiveness, increasing its contribution to regional richness, and creating highly qualified jobs thanks to the integration of 4.0 technologies in the field of the automotive industry and mechatronics.

- Automotive
- Mechatronics

**NANOTECHNOLOGY**
Functional printing
Nanoparticles and nanolayers for the functionalisation of surfaces.

**MICROELECTRONICS**
Sensorics in process.

**PHOTONICS**
ADVANCED MANUFACTURING TECHNOLOGIES
3D printing
Cloud robotics
Virtual reality
Cyberphysical systems.

**MATERIALS**
New “printable” materials
Functional materials.

**ENVIRONMENT OF INNOVATION AND KNOWLEDGE**
Public University of Navarre (UPNA)
UNED CEMITEC

**KEY PLAYERS**
Volkswagen
SKF
MTorres
Fagor Ederlan
BSH
Mapsa

Azkoyen
Jofemar
Kybse
Car Industry Cluster
Atana ICT Cluster
Functional Printing Cluster
WORLD TRENDS

• The progressive electrification of transport, with the setting in place of infrastructures facilitating the progressive migration to electric propulsion.
• The establishing of tax subsidies and incentives to encourage this electrification.
• The development of vehicles incorporating a progressive degree of automation in their driving in the quest for personal safety and saving in consumption.
• The progressive introduction of the “Industry 4.0” concept, in particular in the value chains related to consumer goods.
• The particularisation of products for clients from countries with high or average purchasing power.
• The promotion of production processes with additive manufacture and “near to “shape technologies to speed up the above-mentioned particularisation.

PRIORITIES FOR TECHNOLOGICAL DEVELOPMENT IN THE EUROPEAN UNION REFLECTED IN THE H2020 FRAMEWORK PROGRAMME

• Advanced processes of manufacturing, in particular those related to additive manufacture, technologies for the manufacture of photonic materials, quick moulding and self-assembly technologies, coatings by laser techniques, and other advanced techniques.
• Mechatronics, in particular that affecting advanced control and smart technologies, person – machine interaction, continuous monitoring, and energy maintenance and predictive management systems.
• Information and Communications Technology, which seeks intra and extra factory connectivity with particular attention being paid to security in data transfer and storage.
• Simulation models for the designing of productive processes, including the complete life cycle of the products manufactured.
• Technologies for the training of workers specialising in the management and operation of new complex and highly automated productive environments.

FUTURE TRENDS AND OPPORTUNITIES

LINES OF COMPETITIVE DEVELOPMENT

LINE 1: Promoting cluster and collaboration models.
LINE 2: 4.0 industry transformation and specialisation.
LINE 3: Promoting the competitiveness of the car industry sector.
LINE 4: Putting faith in electric vehicles.
LINE 5: 4.0 strengthening and specialisation of the mechatronics sector.
LINE 6: Learning, training, and innovation.

LINES OF ADITECH TECHNOLOGICAL DEVELOPMENT

LINE 1: Smart and autonomous transport.
LINE 2: Electromobility and sustainable vehicles.
LINE 3: Robotics.
LINE 4: Genomics of materials. Development of new materials (alloys, composites, polymers, coatings, etc.) and advanced manufacturing processes (functional printing, 3D printing, near – net – shape, etc.).
LINE 5: Smart sensorics.
LINE 6: Development of the 4.0 product and biofactory.

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LINE 6: Development of the 4.0 product and biofactory.
• The primary and transformation sectors account for 8% of the Gross Added Value (GAV) of Navarre.
• The GAV has increased by approximately 11% during 2008-2014 which is above the average for the remaining sectors.
• Both sectors have a similar level of employment and together account for some 24,000 jobs (9.1%).
• The existence of a rich fabric of cooperatives and self-employed businessmen.
• The transformation sector stands out in Navarre’s total exports, with over 10% of the volume of the exports from the region.
• The growth in exports between 2008 and 2014 has been around 80% (which is much higher than the average growth rate of Navarre’s exports as a whole).
• It is the third sector in the number of patents and has a Technological Centre of national importance.

Scaling-up business size, increasing exports, strengthening internal collaborations within the value chain so as to allow more products from Navarre to have access to transformation and export processes, and increasing the added value contribution through R&D (in both product and process) and the implementation of advanced manufacturing technologies.

The agrifood sector of Navarre is highly competitive and specialised thanks to its healthy, natural, agreeable, and/or convenience natural products which compete on international markets and contribute towards the Gross Domestic Product (GDP) and the employment of Navarre with a more relevant percentage than the current one, integrating agricultural, stockbreeding, and territorial policies with the industrial policy of territory specialisation.
WORLD TRENDS
- Increasing crop productivity.
- Reducing the use of chemical products in the development and protection of soils and crops.
- Improved efficiency in the use of water resources.
- Improved soil quality.
- Development of products for specific sectors of the population.
- High quality prepared foods.
- Products encouraging health, healthy ageing, and the growth and development of children.
- Efficiency in the use of natural resources in the transformation processes.
- Control of physical and biological risks and also of allergens.

PRIORITIES FOR TECHNOLOGICAL DEVELOPMENT IN THE EUROPEAN UNION REFLECTED IN THE H2020 FRAMEWORK PROGRAMME
- Improved sustainability and soil resilience.
- Agricultural diversification, developing crops for sectors other than human and animal food.
- Improving the standard of living of farmers and stockbreeders by the development of new business models.
- Development of products with functions related to health.
- Food security by means of rapid and safe techniques.
- Development of the concept of bioeconomics.

LINES OF COMPETITIVE DEVELOPMENT
LINE 1: Development of products of higher added value that encourage differentiation and specialisation.
LINE 2: Generation of new businesses linked to the sector.
LINE 3: Development of new markets for agrofood companies.
LINE 4: Improved efficiency of the agrofood value chain.
LINE 5: Agrofood research and training.

LINES OF ADITECH TECHNOLOGICAL DEVELOPMENT
LINE 1: Protection of soils and crops.
LINE 2: Remote control of crops by remote sensing: sentinel and drones.
LINE 3: Robotics and geolocation for precision agriculture.
LINE 4: Advanced harvesting systems.
LINE 5: Development of new plant varieties.
LINE 6: Food security and that of farming and productive installations.
LINE 7: Animal food.
LINE 8: Efficient use of water and energy.
LINE 9: Healthy functional food.
LINE 10: New containers and smart labels.
LINE 11: Process engineering.
**STRATEGIC PRIORITY S3: RENEWABLE ENERGY AND RESOURCES**

**OBJECTIVES OF THE AREA**
Reduction of fossil energy consumption (fuels) and raw materials by means of the increased production of renewable energy, improved energy efficiency, and the consolidation of emerging sectors based on the management of natural resources and waste.

**VISION 2030**
Navarre advances towards becoming by 2050 a region that does not consume fossil energy and maintains itself as an international leader in the sector of renewable energy, committed to energy efficiency and the management and assessment of natural resources as the transforming axis of its territory.

**IMPACT ON THE MAIN AXES**

<table>
<thead>
<tr>
<th>Cohesive Navarre</th>
<th>Healthy Navarre</th>
<th>Sustainable Navarre</th>
<th>Industrial Navarre</th>
</tr>
</thead>
</table>

**TRAILBLAZING AREAS**
- Management of energy (photovoltaic, wind, water, biomass, geothermal...).
- Manufacturing of equipment (wind turbines and auxiliary equipment).

**KEY ENABLING TECHNOLOGIES (KETS)**

- **MATERIALS**
  Development of composed materials for the manufacturing of wind turbine blades and specialised coatings for these blades and PV cells.

- **BIOTECHNOLOGY**
  Development of products for animal and human food as from subproducts originating in agrofood transformation processes (circular economy).

- **ADVANCED MANUFACTURING TECHNOLOGIES**
  Development of specialised robotised machinery for the manufacture of wind turbines.

- **MICROELECTRONICS**
  Development of control systems for wind turbines and photovoltaic systems.

**ENVIRONMENT OF INNOVATION AND KNOWLEDGE**

- UPNA - University of Navarre - UNED
- INTIA - CNTA - CENER - CEMITEC - Cenifer - AIN - IdAB

**KEY PLAYERS**
- Acciona Energía y Windpower
- Gamesa Energía e Innovación y Tecnología
- Ingeteam
- Iberdrola Navarre
- Jofemar (Energy division)
- NILSA
- NASUVINSA
- Waste associations
- TRASA
- NAWECO
- Natural Gas

**STRENGTHS**
- Navarre achieved the 2020 European objective years in advance and has a percentage of renewable energy production of over 80% of the electric consumption of the region, with its production attaining 3% of the regional GAV.
- During 2008-2013 it became consolidated as the third economic area by volume of patents with 6.4% of the total. Among other institutions the region has the National Renewable Energy Centre (CENER), a reference centre of national importance, and the Public University of Navarre.
- As far as exports are concerned renewable energy is the second export sector in the region, based mainly on the manufacturing of wind turbines and their components.
- The area of resources has an important tradition in Navarre as the region is a pioneer in the management and conservation of natural resources, with the activities of the recycling of raw materials and water management (led by the government corporation NILSA) standing out among others.
- Navarre is highly specialised in food chemistry (202.8 compared with a European average of 100) and growth has been considerable in recent years; moreover it has a Technological Centre of national importance. (CNTA)
FUTURE TRENDS AND OPPORTUNITIES

WORLD TRENDS
- Reduction of the emission of CO2 and greenhouse gases with the objective of attaining the 2DS scenario, i.e. a maximum increase in the temperature of the planet of no more than 2°C by the year 2050.
- Massive technological and systematic application of energy efficiency, which will involve seeking a 25% reduction of current emissions.
- Strong development of offshore wind and photovoltaic energy. It is expected that at a European level wind energy will account for 15% of the generation of total electric energy in 2020, 22% in 2013, and 26% in 2050.
- Trend towards integrated smart electric systems that will administer in a distributed manner the resources deriving from all types of renewable sources and will have storage systems such as water pumping, electrochemical storage, and compressed air.
- In the medium term there is expected to be a strong interaction between variable renewable energy and the flexibility of natural gas to respond both to basic generation and compensation generation. However, in order to achieve the goals anticipated for the 2DS scenario, gas power stations will need to incorporate systems for the capture and storage of carbon.

PRIORITIES FOR TECHNOLOGICAL DEVELOPMENT IN THE EUROPEAN UNION REFLECTED IN THE H2020 FRAMEWORK PROGRAMME
- A 40% reduction in greenhouse gas emissions for 2030 compared with 1990.
- Achieving a 27% quota of the use of renewable energy.
- Increased energy efficiency of at least 27%, which will be revised in 2020 possibly to bring the objective up to 30% for the year 2030.
- Setting up a European internal energy market on reaching an electrical interconnection objective of 15% among EU countries in 2030, and promoting important infrastructure projects.

LINES OF COMPETITIVE DEVELOPMENT

LINE 1: Encouraging business/institutional collaboration and developing joint projects.
LINE 2: Increasing the production of renewable energy and supporting energy efficiency as a business niche.
LINE 3: Carrying out actions of circular economy to reduce the consumption of raw materials and energy in relation to the climatic change strategy of Navarre.
LINE 4: Encouraging the management and assessment of natural resources.
LINE 5: Encouraging the development of talent.

LINES OF ADITECH TECHNOLOGICAL DEVELOPMENT

LINE 1: Optimising the performance of generation systems.
LINE 2: Distributed generation.
LINE 3: Wind generation.
LINE 4: Photovoltaic solar generation.
LINE 5: Energy storage systems.
LINE 6: Energetically efficient building and town planning.
LINE 7: Injection of “renewable” gas to gas networks.
### Strategic Priority S3: Health

#### Priority Selection Keys
- Area with a high level of demand, of high added value and relevance to the population, highly qualified employment, and a high growth potential for exports.
- Important concentration of knowledge centres in the biotechnological area with a specialisation index of 265 (with 100 being the European average) and growth of 205 in recent years.
- Over 18% of patents from Navarre were registered by technological centres and universities in the field of biopharmacology, doubling the Spanish and European average.
- Complete structure and providing of both health and public health services with a very high level of administrative integration.
- Highly trained and specialised industrial sectors, ideal for the prototyping of new products and services.

#### Objectives of the Area
Encouraging the efficiency of the ecosystem innovating in health so as to improve the arrival on the market of existing knowledge, increasing exports of the sector, and in order to generate opportunities of the prototyping of new products and services to improve the healthcare system.

#### Vision 2030
Navarre is a point of reference in biomedicine research, development, and services, and also in the providing of specialised health services capable of attracting patients and professionals from outside the autonomous region, with a young and innovative industry in the manufacturing of medicines, medical devices, and health technologies.

#### Impact on the Major Axes
- Cohesive Navarre ✓
- Healthy Navarre
- Sustainable Navarre ✓
- Industrial Navarre ✓

#### Trailblazing Areas
- Pharmaceutical and biotechnological industry.

#### Key Enabling Technologies (KETS)
- **Biotechnology**
  - New medicines.
- **Nanotechnology**
  - Nanocoatings for surgical instruments.
  - Nanoparticles for medical treatments (especially cancer).
- **Materials**
  - Biocompatible materials.
- **Microelectronics**
  - Biosensors.
- **Advanced Manufacturing Technologies**
  - 3D printing of prostheses.
  - Small medical utensils.
  - Biomedical engineering.

#### Environment of Innovation and Knowledge
- **UPNA** - University of Navarre
- **UNED**
- **CIMA** - IDISNA - Navarrabioned
- **CEIMD** - CEMITEC - AIN

#### Key Players
- Grupo Infarco - Cinfa
- 3P Biopharmaceuticals
- Idifarma
- Albyn Medical
- University of Navarre Clinic
- San Juan de Dios Hospital
- San Miguel Clinic
- Navarre Health Service
- CNAI
WORLD TRENDS
- Growing citizen involvement in managing their health.
- Massive application of digital media for distance attention and telemonitoring, especially in the treatment of chronic illnesses.
- Needs related to the gradual increase in ageing of the population.
- Development of new medicines, especially those related to advanced therapies in international cooperation.
- Sustainability of public health systems.

PRIORITIES FOR THE TECHNOLOGICAL DEVELOPMENT OF THE EUROPEAN UNION REFLECTED IN THE H2020 FRAMEWORK PROGRAMME
- Devices and systems for making special diagnoses and personalised attention.
- More efficient and less invasive medicines and therapies.
- Robotised smart systems for medical care.

LINES OF COMPETITIVE DEVELOPMENT
- Line 1: Prevention and pilot projects in the area of ageing, chronicity, and people’s independence.
- Line 2: Development of the biopharmaceutical sector and opening-up to the outside world.
- Line 3: Integration of technologies applied to health.

LINES OF ADITECH TECHNOLOGICAL DEVELOPMENT
- Line 1: Fighting against major diseases.
- Line 2: Personalised and precision medicine.
- Line 4: Diagnosis and screening kits.
- Line 5: Medical appliances.
- Line 6: E-health: advanced medical services and telemedicine.
- Line 7: Science of data applied to health.

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- Growing citizen involvement in managing their health.
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- Line 5: Medical appliances.
- Line 6: E-health: advanced medical services and telemedicine.
- Line 7: Science of data applied to health.
Commit to the professionalisation, diversification, and personalisation of the tourist offer, going beyond the field of holidays and exploring other niches of value such as cultural, rural, cycling and adventure, health, or congress tourism with the objective of improving the visitor’s tourism experience.

Navarre is consolidated as an outstanding destination of reference that puts its faith in integral tourism based on its natural, cultural, gastronomic, and social strengths, constituting a balanced powerhouse of territorial development and of the international opening-up of the region.

Integral, sustainable, and responsible tourism

UPNA - University of Navarre - UNED
Marketing Club - ESIC

AEHN
ANAPEH
Sendaviva
Tourist consortiums
Rural development groups in Navarre

BIDEAK
Association of campsites
Rural Tourism Federation
NICDO

LINE 1: Innovative and differentiated tourism based on experiences.
LINE 2: Business strengthening.
LINE 3: Promotion outside the region and inter-regional collaboration.
STRATEGIC PRIORITY S3: CREATIVE AND DIGITAL INDUSTRIES

| PRIORITY SELECTION KEYS | • Cultural and creative industries in a wide sense account for 4% of the GAV of the Autonomous Region and generate 2% of the employment in Navarre (6,000 workers). Navarre stands out for the relevance of the music and recording sector as a result of its quota in European employment (7 per thousand) and for the movement that exists around audiovisual production. Creativity on the other hand, especially in its digital facet, is considered to be a key to the competitiveness of the remainder of the industrial sectors. • Navarre has the support of the Law on Cultural Patronage and there are tax incentives for investments in cinematographic productions and audiovisual works for both Spanish and international projects. |
| OBJECTIVES OF THE AREA | Working for the development of the sector, for entrepreneurship, for attracting talent, and for creating new opportunities by means of the highlighting of territorial strengths. |
| VISION 2030 | Navarre is considered a creative territory on the road to digitalisation with a participative and shared leadership supported by innovation and creativity. |
| IMPACT ON THE MAJOR AXES | Cohesive Navarre | Healthy Navarre | Sustainable Navarre | Industrial Navarre ✓ |
| TRAILBLAZING AREAS | • Audiovisual digitalisation. • Cinema and animation. |
| ENVIRONMENT OF INNOVATION AND KNOWLEDGE | UPNA - University of Navarre - UNED CreaNavarra (Higher Centre of Design) - Navarre Art School Higher Design Art School of Corella - Vocational Training in Graphic Arts and audiovisual |
| KEY PLAYERS | NICDO Navarre Museum University of Navarre Museum Navarre Film Commission Huarte Contemporary Art Museum Association of cinematographic and audiovisual production companies of Navarre |
| FUTURE TRENDS AND OPPORTUNITIES | WORLD TRENDS • Connectivity and digitalisation of the creative industries. • "Creation Factories": producing and creating in Navarre. The creation of prototypes from culture and art. • Big data from clients. • Collaborative economy and social networks. • New business models by means of intermediation platforms. |
| LINES OF COMPETITIVE DEVELOPMENT | LINE 1: Promotion and support of Cultural and Creative Industries. LINE 2: Towards the digital transformation of Cultural and Creative Industries. |
## EVOLUTION OF NAVARRE’S SECTORS 2008-2014

### ANALYSIS OF ECONOMIC SECTORS IN NAVARRE

**EVOLUTION 2008 - 2014**

<table>
<thead>
<tr>
<th>Sector</th>
<th>2014 (a)</th>
<th>2008-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, livestock, hunting and related services</td>
<td>550.830</td>
<td>↑ 12.3%</td>
</tr>
<tr>
<td>Extractive industries</td>
<td>10.099</td>
<td>↓ -61.7%</td>
</tr>
<tr>
<td>Electricity, gas, water and sanitation</td>
<td>494.666</td>
<td>↑ 2.1%</td>
</tr>
<tr>
<td>Food industries, manufacture of drinks and tobacco industry</td>
<td>767.932</td>
<td>↑ 10.4%</td>
</tr>
<tr>
<td>Textile, manufacture of clothing and leather and footwear industry</td>
<td>42.722</td>
<td>↑ 39.1%</td>
</tr>
<tr>
<td>Wood and cork industry</td>
<td>86.577</td>
<td>↓ -17.6%</td>
</tr>
<tr>
<td>Paper industry; graphic arts</td>
<td>184.150</td>
<td>↑ 22.0%</td>
</tr>
<tr>
<td>Chemical and pharmaceutical industry</td>
<td>175.073</td>
<td>↑ 0.2%</td>
</tr>
<tr>
<td>Manufacture of rubber and plastic products</td>
<td>241.202</td>
<td>↑ 43.2%</td>
</tr>
<tr>
<td>Manufacture of other non-metallic mineral products</td>
<td>156.748</td>
<td>↓ -57.3%</td>
</tr>
<tr>
<td>Metallurgy and metal products</td>
<td>731.825</td>
<td>↑ 9.7%</td>
</tr>
<tr>
<td>Manufacture of computer, electronic and optical products</td>
<td>741.984</td>
<td>↑ 31.8%</td>
</tr>
<tr>
<td>Manufacture of machinery and equipment not elsewhere specified</td>
<td>408.967</td>
<td>↓ -6.0%</td>
</tr>
<tr>
<td>Manufacture of motor vehicles and other transport equipment</td>
<td>992.604</td>
<td>↑ 27.4%</td>
</tr>
<tr>
<td>Manufacture of furniture, other manufacturing industries and repair</td>
<td>228.392</td>
<td>↑ 12.4%</td>
</tr>
<tr>
<td>Construction</td>
<td>1140.705</td>
<td>↑ 42.6%</td>
</tr>
<tr>
<td>Commerce</td>
<td>1436.143</td>
<td>↓ -7.0%</td>
</tr>
<tr>
<td>Transport, storage and postal activities</td>
<td>729.917</td>
<td>↑ 2.1%</td>
</tr>
<tr>
<td>Accommodation services; Food and drink services</td>
<td>799.365</td>
<td>↑ 3.2%</td>
</tr>
<tr>
<td>Information and communication services</td>
<td>250.527</td>
<td>↓ -20.0%</td>
</tr>
<tr>
<td>Financial services, insurance and ancillary activities</td>
<td>497.219</td>
<td>↓ -30.5%</td>
</tr>
<tr>
<td>Real estate activities</td>
<td>996.962</td>
<td>↓ -1.8%</td>
</tr>
<tr>
<td>Professional, scientific and technical activities</td>
<td>778.165</td>
<td>↓ -9.2%</td>
</tr>
<tr>
<td>Administrative activities and ancillary services</td>
<td>510.309</td>
<td>↑ 10.1%</td>
</tr>
<tr>
<td>Public administration and defense; Compulsory social security</td>
<td>988.230</td>
<td>↑ 6.1%</td>
</tr>
<tr>
<td>Market education</td>
<td>413.139</td>
<td>↑ 28.4%</td>
</tr>
<tr>
<td>Non-market education</td>
<td>426.348</td>
<td>↑ 4.3%</td>
</tr>
<tr>
<td>Health activities and non-market social services</td>
<td>701.091</td>
<td>↑ 36.4%</td>
</tr>
<tr>
<td>Health activities and non-market social services</td>
<td>726.958</td>
<td>↑ 14.8%</td>
</tr>
<tr>
<td>Artistic, recreational and entertainment activities</td>
<td>182.069</td>
<td>↑ 9.1%</td>
</tr>
<tr>
<td>Non-market artistic, recreational and entertainment activities</td>
<td>29.044</td>
<td>↑ 19.4%</td>
</tr>
<tr>
<td>Other services</td>
<td>145.431</td>
<td>↓ -0.8%</td>
</tr>
<tr>
<td>Household activities such as employers of domestic workers or producers of goods and services for own use</td>
<td>133.257</td>
<td>↓ -9.3%</td>
</tr>
</tbody>
</table>

**TOTAL** 16,698,369 100% -3.5%

*Unit: thousands of euros (a): Advance; (p): Provisional*
<table>
<thead>
<tr>
<th>Number of employees</th>
<th>GVA / employee</th>
<th>Exports (m€)</th>
<th>Patents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 (a)</td>
<td>2008</td>
<td>2014 (a)</td>
<td>2008</td>
</tr>
<tr>
<td>Employees</td>
<td>%T</td>
<td>%Incr.</td>
<td>€ Emp. on average</td>
</tr>
<tr>
<td>11172</td>
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<td>47031</td>
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<tr>
<td>193</td>
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<td>↓-41.1%</td>
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<tr>
<td>2,189</td>
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<td>↓-2.7%</td>
<td>225976</td>
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<td>12,945</td>
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<tr>
<td>818</td>
<td>0.3%</td>
<td>↓-45.3%</td>
<td>52228</td>
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<tr>
<td>1,084</td>
<td>0.4%</td>
<td>↓-41.5%</td>
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<tr>
<td>2,955</td>
<td>1.1%</td>
<td>↓-36.1%</td>
<td>62318</td>
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<tr>
<td>2,099</td>
<td>0.8%</td>
<td>↓-5.8%</td>
<td>83408</td>
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<tr>
<td>3,506</td>
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<td>↑8.1%</td>
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<tr>
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<tr>
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<td>↓-29.9%</td>
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<tr>
<td>4,282</td>
<td>1.6%</td>
<td>↓-33.9%</td>
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<tr>
<td>11,614</td>
<td>4.3%</td>
<td>↓-3.1%</td>
<td>85466</td>
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<tr>
<td>3,446</td>
<td>1.3%</td>
<td>↓-38.7%</td>
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<td>15,413</td>
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<td>74009</td>
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<td>↓-6.4%</td>
<td>76117</td>
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<tr>
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<td>↑9.7%</td>
<td>42369</td>
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<tr>
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<td>↑6.9%</td>
<td>74691</td>
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<td>15,406</td>
<td>5.7%</td>
<td>↑7.8%</td>
<td>47187</td>
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<tr>
<td>3,709</td>
<td>1.4%</td>
<td>↑2.2%</td>
<td>49088</td>
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<tr>
<td>498</td>
<td>0.2%</td>
<td>↓-2.2%</td>
<td>58321</td>
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<tr>
<td>4,875</td>
<td>1.8%</td>
<td>↓-11.8%</td>
<td>29632</td>
</tr>
<tr>
<td>12,672</td>
<td>4.7%</td>
<td>↓-8.3%</td>
<td>10916</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Total</th>
<th>%T</th>
<th>%Incr.</th>
<th>€ Emp. on average</th>
<th>%Incr.</th>
<th>K€</th>
<th>%T</th>
<th>%Incr.</th>
<th>Total</th>
<th>%T</th>
</tr>
</thead>
<tbody>
<tr>
<td>270,832</td>
<td>100%</td>
<td>-13.3%</td>
<td>61,696</td>
<td>100%</td>
<td>11.3%</td>
<td>8,141,092.16</td>
<td>100%</td>
<td>27.8%</td>
<td>235.00</td>
</tr>
</tbody>
</table>
ANNEX 3

SYSTEM FOR IMPLEMENTING THE STRATEGY

REGIONAL DIAGNOSIS

Diagnosis of regional competitiveness. Comparison to EU regions EU and countries.

Capacity to innovate and dynamic entrepreneurship of Navarre

Costs and productivity of Navarre’s companies

Economic-Financial Analysis of Navarre’s companies

Territorial Development, Transport, Energy and Infrastructure

Public Sector. Ongoing regional plans and initiatives

STRATEGIC VISION DEVELOPMENT AXES

QUALITY OF LIFE

PROSPERITY

SUSTAINABILITY

S3 PRIORITIES

(Economic areas and competitiveness factors)

AUTOMOTIVE AND MECHATRONICS

FOOD CHAIN

RENEWABLE ENERGY AND RESOURCES

HEALTH

COMPREHENSIVE TOURISM

CREATIVE AND DIGITAL INDUSTRIES

COMPETITIVENESS FACTORS

SUSTAINABLE NAVARRE

COMPETITIVE NAVARRE

INDUSTRIAL NAVARRE

BUSINESS DEVELOPMENT

R&D

INFRASTRUCUTRE

ADMINISTRATION AND TAXATION

EDUCATION AND TRAINING

COHESIVE NAVARRE

HEALTHY NAVARRE
IMPLEMENTATION AND MONITORING

OBJECTIVES 2020 / 2025 / 2030

- Distribution of wealth
- Poverty risk rate
- Energy efficiency
- Greenhouse emission reduction
- GDP per capita
- Long-term unemployment

ECONOMIC SPECIALIZATION OBJECTIVES

- Measuring evolution in economic areas in:
  - GVA
  - Employment
  - Productivity per employee
  - Exports
- Analysis of specialization index compared to Spain and Europe
- Evolution of specialization in time 2014-2020 / 2025 / 2030

CHALLENGES 2017 / 2020

01 Promotion of electric vehicles
02 Transformation 4.0 of industry in Navarre
03 Articulating the food value chain
04 Opting for healthy food
05 Reduction of fossil fuel consumption
06 Strengthening of wind energy sector
07 Promoting circular economy
08 Development of personalized medicine
09 Increasing efficiency of health services (e-Health)
10 New niches for comprehensive tourism
11 Creative digital industries
12 Clusters for innovation and competitiveness
13 Increasing mid-sized companies
14 New culture of entrepreneurial management
15 Supporting strategic projects in Navarre
16 Improving funding of S3 projects
17 Commitment to R&D
18 Technology Transfer to companies
19 Improving regional communication and competitiveness
20 Economic development of local areas
21 Administrative closeness and agility
22 Change in the outer image of Navarre
23 Navarre Smart Region project for public innovation
24 Vocational training close to companies