

Evaluation of the updating process  
of the Smart specialisation strategy  
of Navarra (RIS3) in the period  
2016-2017

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EVALUATION REPORT RIS3 NAVARRA

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This report could not have been elaborated without the collaboration of each one of the interviewees who have contributed with their time and expertise. Thanks to their commitment and ideas, this report has been enormously enriched.

Likewise, we would like to thank the Government of Navarra and Sodena for their availability and collaboration to execute this external evaluation.



## 1. EXECUTIVE SUMMARY

This report is the **result of the external evaluation carried out on the updating process of the RIS3 of Navarra**, that has been performed under a Technical Assistance contract for the Sociedad de Desarrollo de Navarra, S.L. (SODENA). The external evaluation **had a double target: to verify** that all the **procedures and requirements** defined by the **EC for elaborating RIS3 strategies** have been fulfilled, and **to identify success and improvement areas** in order to propose recommendations for the implementation and monitoring phase.

For that purpose, a mostly **qualitative methodology** has been observed. Firstly, a detailed analysis of the secondary sources of information has been completed, including the documentation provided by SODENA, reports from other regions and relevant tools available through the Smart Specialisation Platform of the EC. Secondly, 20 semi-structured and thorough interviews have been done to a representative sample of participants from the different governance bodies of the RIS3 in Navarra and the team of the regional strategy unit from SODENA. Thirdly, a comparative analysis about RIS3 strategies elaborated by other European regions similar to Navarra case, has also been executed pursuing the detection of best practices that could be interesting for our community.

The **report organises the evaluations and recommendations according to five requirements indicated by the EC for a RIS3 process**. 1) elaboration of a diagnose of situation, 2) priorities setting, 3) secure a large participation in the process governance, 4) adoption of a public framework concerning measures and actions and 5) incorporation of follow-up and assessment mechanisms.

The **diagnose elaboration process** is comprehensive and appropriate, showing the situation of Navarra. The main success in this domain are:

- Creation of a multidisciplinary team with public-private participation, associations, social economy companies, intermediate stakeholders and innovation and training centres. An effective and real participation has been achieved, beyond a mere procedure.
- Analytics information concerning the economic situation of Navarra has been used, as well as from other European regions, with similar structural features, as a basis to the decision-making process.
- Independent experts have grouped the economic information categorised by technological sectors which has permitted the identification of new opportunities.
- As a basis for the diagnose, the conclusions from the analysis of actions and improvements of the Plan Moderna have been considered.

Amongst the recommendations for future updating of the diagnose phase it can be pointed out:

- To include a “sector” approach in the comparative analyses with other regions. Despite the complexity of such approach, it would be very relevant for the diagnose accuracy and for the comparative evaluation of the critical mass and potential of the priority sectors in Navarra.
- To execute an analysis of the situation with a “micro” dimension, individually considering companies with a certain weight, their competitiveness situation, possible interrelations and value chains. At the time of concluding this report SODENA was promoting the beginning of that analysis with the support from the clusters.
- To plan a structured system for obtaining information on which projects the grants for investment, R&D&I, entrepreneurial development, entrepreneurship grants, etc. are being used, and the impact generated thereof in terms of employment, turnover, exports, etc. for the grants beneficiaries.

Regarding the **priorities setting**, generally speaking, the RIS3 is well structured around a limited number of six economic areas or vertical priorities and five transversal competitiveness factors or horizontal priorities. The priorities have been widely debated and agreed. Likewise, these priorities are divided into 24 challenges and eleven out of them are focused on the vertical priorities or priority economic areas and are fully aligned with the European and world-wide prevailing trends.

As improvement recommendations regarding priorities of the RIS3 of Navarra, it is indicated the need to follow-up the outputs during the executing and monitoring phase, both on the priorities derived from the diagnose and on the economic areas selected as a bet for the future: follow-up of these latter should permit to verify whether they are really able to generate a relevant economic development for Navarra and to validate this bet.

The **governance** system is a key issue for the successful development of the RIS3, to which a great effort has been paid in order to achieve the maximum participation of interest groups for Navarra, covering public and private sectors, and using it as fundamental tool to reach the commitment of all relevant stakeholders during the execution and follow-up phase.

The following achievements have been identified regarding the governance process:

- The methodological support provided by SODENA, as well as the commitment and leadership demonstrated by the Economic Development Department of the Government of Navarra.
- The rigorousness: when organising the meetings, it is very positively valued (terms, working documentation sent, meeting calls, minutes, etc.).
- The composition of the governance system with different bodies is appropriate and as a rule, there is a balance between members with different profiles bearing in mind types of stakeholders, the ‘quadruple helix’, its public-private origin, company size and gender balance.
- To include a Public Coordination Committee composed by members from different departments of the Government of Navarra and involved in the 24 challenges, which facilitates the interdepartmental coordination task, required to their implementation.



For the strategy implementation phase, the following recommendations are suggested within the governance domain:

- To achieve a wide political agreement for the economic strategy in a long-term (RIS3), backing the consensus built-up between the regional entrepreneurial and knowledge stakeholders and providing its stability.
- To keep the participative process that was implemented through the governance bodies to elaborate the RIS3 also during the implementation phase.
- The coordination amongst the departments of the Government of Navarra around the 24 challenges requires they work in joint projects and no longer isolated in separate departmental areas. This is a huge challenge and in a long-term view could be the most critical issue in order to implement the RIS3. It should be convenient to offer methodological and training support, which could be provided by SODENA.

The public framework of **tools and measures for the implementation** adopted by the RIS3 Navarra is coherent with the recommendations suggested by the EC when defining a combination of policies, roadmaps and aligned action plans.

It can be concluded that it is very helpful to specify the implementation of the RIS3 through specific challenges and with a temporal horizon in a short-medium term (2020). It is also very positive the budgetary estimation and allocation for each challenge, particularly the budget assignation to the vertical challenges responsible to achieve the specialisation.

The proposed recommendations regarding instruments are:

- To analyse the effectiveness of every action included in the challenges, adjusting the budgetary allocation and including a temporal planning to ease the integration of calls for proposals with the company and research centres scheduling.
- To execute the clusters follow-up to guarantee they are able to identify and carry out collaborative tractor projects of the entrepreneurial tissue and able to generate added value. This follow-up should be accompanied by an appropriate institutional assistance.
- To look for the cooperation with entities providing value and knowledge for technological and non-technological innovation projects, paying special attention to collaboration easing the market access and the internationalization.
- To continue to foster the research in universities oriented towards the entrepreneurial tissue and to promote the cooperation with universities and stakeholders from European regions in coinciding RIS3 areas, through joint and coordinated proposals to be submitted to European programmes, specially H2020 and interregional ones.
- To incorporate and reinforce the innovative public procurement as a fundamental too to implement the RIS3 of Navarra.





The RIS3 Navarra has a **comprehensive and pioneer monitoring and follow-up system**, including several complementary tools which will be periodically updated: dashboard (profile indicators of the region related to Navarra RIS3); specialisation control, territorial deployment, and challenges monitoring.

For the strategy implementation phase the following recommendations are suggested regarding the follow-up and evaluation mechanisms:

- To report about the updating and annual evolution of the indicators to the members from all the governance bodies.
- To achieve a higher exploitation of the international sources selected for the indicators by executing a comparative analysis with other European regions.
- To complete the indicators for the "Challenges monitoring" with a methodological document similar to the one elaborated by SODENA for the "dashboard".
- To complement the "specialisation indicators" of the priority economic areas with indicators obtained through specific questionnaires addressed to the beneficiaries of the measures and grants implemented in the 'Challenges' regarding those priority areas, thus permitting the evaluation of outputs and impacts of those measures.

**Summarising**, from the whole analyses and evaluations included in the current report, **it is clearly observed that the methodology described by the EC has been fulfilled** during the updating of the RIS3 of Navarra.

## 2. INTRODUCTION

This study has been completed according to the provisions stated within the contract of Technical Assistance for 'Sociedad de Desarrollo de Navarra, S.L.' (SODENA) envisaging an external evaluation report concerning the updating process of the Smart Specialisation Strategy of Navarra, so-called "Navarra S3"<sup>1</sup>. It focuses on the process boosted by the Government of Navarra by means of SODENA<sup>2</sup> and the governance bodies to achieve the current RIS3, substituting the former Plan Moderna<sup>3</sup>. The report is the result of the joint work between Zabala Innovation Consulting, S.A. and Universidad Loyola Andalucía.

The external evaluation process is foreseen in the Smart Specialisation Strategy of Navarra as a tool to guarantee the transparency, that shall be executed with independency and rigor (Government of Navarra, 2017 p.40)<sup>4</sup>

The updating of the RIS3 of Navarra is framed in the work that is being developed by SODENA (supported by the regional stakeholders) and entails an effort to adequate the strategy of regional development, its priorities and backbones to today's regional circumstances. The justification to undertake the update responds to the will to stimulate a growing and sustainable development model based on innovation, on the region strengths and standing by the commitment of every stakeholder involved.

Throughout the updating process, the tractor axes of the Navarra's economy and the challenges to be faced in the forthcoming years have been reviewed, and it is stated the importance of a strong and agreed strategy, not subjected to partisan purposes.

The core goal of this evaluation report is to verify that the procedures and requirements defined by the European Commission (EC) to elaborate a Smart Specialisation Strategy (RIS3) have been followed. For that purpose, the steps defined by the EC in the methodological guide of the RIS3 (Foray et al., 2012) have been revised. Accordingly, the annex XI of the EU 1303/2013 regulation concerning common provisions of the Structural Funds, where the requirements demanded by the EC to accept that a region has a smart specialisation strategy have also been considered.

These requirements focus on five domains, which have been analysed in depth when completing this evaluation: 1) elaboration of a diagnose of situation, 2) priorities assignment, 3) ensure a large

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<sup>1</sup> From SODENA state, that the use of the expression S3 (acronym for *Smart Specialization Strategy*) in the name of the strategy *Navarra S3* instead of RIS3 (*Research and Innovation Strategies for Smart Specialisation*) was adopted to reinforce the concept of "Smart Specialisation" and due to the fact that the Plan is a comprehensive territorial strategy, not only focused on the research, development and innovation issues (furtherly deployed in the Science, Technology and Innovation Plan). Anyway, Navarra S3 is the RIS3 of Navarra for the purpose of ERDF OP and thus, it has been recognised by the European Commission.

<sup>2</sup> Sociedad de Desarrollo de Navarra is a public company dependent from the Government of Navarra acting as a regional development agency. Further information: <http://www.sodena.com>.

<sup>3</sup> Government of Navarra (2011).

<sup>4</sup> Government of Navarra (2017) Smart Specialisation Strategy, Update 2016-2030.



participation in the process governance, 4) adoption of a public frame of measures and actions and 5) incorporation of follow-up and evaluation mechanisms.

The analyses performed aimed at evaluating, with rigor and objectivity, the activities carried out by SODENA and the governance bodies of the RIS3 of Navarra, to determine whether they followed the appropriate procedures to update the RIS3. ultimately aiming at detecting successes and improvement areas as well as at proposing some recommendations for the implementation and monitoring phase.

The report is divided as follows. Section 3 presents the backgrounds, both regarding RIS3 as regional development policy of the EC and the own RIS3 context of Navarra. Section 4 describes the qualitative methodology based on deep interviews and documental analysis that has been observed to conduct this evaluation. Section 5 presents the main results of the analyses carried out in each of the five domains previously mentioned; some features from other European regions are proposed for comparison in order to detect good practices that may inspire Navarra. After the analyses, section 6 completes an objective valuation about the new RIS3 updating and design process. Section 7 ends the report with recommendations of improvement in order to successfully implement the strategy and its future updates.



### 3. BACKGROUND

The current Smart Specialisation Strategy (RIS3) of Navarra is the result of updating the former strategy approved in 2010 and known as Plan Moderna, it was updated between January 2016 and June 2017 according to the methodology provided by the European Commission (EC) for this kind of strategies.

The Plan Moderna permitted Navarra to be one of the first regions in submitting and getting the EC approval for its 'Research and Innovation Strategy for Smart Specialisation (RIS3) and, hence, fulfil the condition required by the EU to access to the ERDF funds during the period 2014-2020.

A RIS3 consists in integrated agendas for territorial economic transformation that national and regional authorities of Europe must define through an entrepreneurship discovery process and taking into account the participation of economic and innovation stakeholders. Therefore, the smart specialisation is not a top-down imposed strategy, but a bottom-up involvement of companies, research centres and universities working hand by hand to identify the most promising specialisation areas in a member state or region, considering their assets and capacities. The enhancement of the governance and the achievement of the commitment of the participants in RIS3, encourage the stakeholders to act and share a common vision. It establishes ties between small, medium and large companies, promotes the governance at several levels and support the generation of creative and social capital within a community. The RIS3 process has to be interactive, it must be addressed to regions and consensus-based.

The Plan Moderna was elaborated during the period 2008-2009, just when one of the most difficult periods of economic crisis known in the last decades was being initiated. Obviously, it also affected Navarra, substantially modifying the entrepreneurial tissue, posing new threats and weaknesses, but also new opportunities and strengths. All this made necessary that, one decade later and seeing the end of this last period of economic crisis, Navarra rethought a new diagnose of its entrepreneurial situation and updated its smart specialisation strategy.

The RIS3 of Navarra, as it has been called the current strategy recently elaborated, consisted therefore in an evolution and update of the Plan Moderna, a thorough, largely participative and consensus-built exercise, involving a strategic reflection on how to strengthen, today and in the mid and long term, the entrepreneurial competitiveness of Navarra in a totally globalised economy and markets.

Basically, during the elaboration of RIS3 it has been updated the diagnose of the entrepreneurial situation of Navarra, incorporating a comparative analysis with other European regions; it has been adopted a new governance model to implement the RIS3, with a more participative public-private board of direction and open to the entrepreneurial and social stakeholders; the number of strategic priorities have been limited up to six economic areas, and the industrial profile of these priorities has



been highlighted. At the very first time diverse plans and public tools have been linked for the consecution of goals established in the strategy.

Regarding the implementation of the RIS3, 24 challenges have been set out as specific projects for developing the chosen priorities, with the corresponding particular actions and budget lines assigned to within the general budgets of Navarra, which is a very relevant novelty compared to the former Plan Moderna, where it was detected an uncoupling between strategy and public budget. Hence, it has been proposed an alignment of the new call for proposals and incentives with the RIS3 (i.e. calls supporting clusters in 2016 and 2017; collaborative strategic projects or traditional R&D&I grants).

Finally, the model to follow-up and monitor different tools chosen to implement the RIS3 priorities has been readapted, combining instruments and indicators coming from official statistics with other more specific indicators of the 24 challenges selected.

As it has been indicated, all this elaboration process of the RIS3 of Navarra has been carried out according to the RIS3 methodology proposed by the EC, which is briefly described hereafter in the "methodology" chapter.

More specifically, the purpose of the external evaluation executed and described in the current report, has been to verify that the European methodology has been followed-up for elaborating and setting-up the RIS3 of Navarra. In fact, that methodology foresees, as a final element, the realisation of an external, technical, independent and rigorous evaluation, to guarantee the transparency of the whole RIS3 elaboration process.



## 4. METHODOLOGY

The methodology followed-up during the evaluation process has been, mainly, of qualitative condition, due to the nature of the required analysis, which intends to identify and understand the strengths related to the strategy design, as well as the improvement areas to ensure the appropriate implementation of the RIS3 in the region.

Firstly, a thorough review and analysis has been completed on secondary information sources, including documentation provided by SODENA, which has been exhaustive and complete (working material in every single meeting held with different bodies of the RIS3, minutes, documents publicly submitted, etc.). as well as reports from other regions, and documents and relevant tools available through the Smart Specialisation Platform of the EC<sup>5</sup>

Secondly, the analysis of the documentation was completed with the execution of 20 semi-structured and in-depth interviews to a representative sample of participants from different governance bodies of the RIS3 in Navarra (amongst other, the Steering Committee (SC), the Public Coordination Committee (PCC) and Strategic Platform (SP)), as well as from the regional strategy team of SODENA who was responsible for supporting and facilitating the RIS3 updating process.

Apart from the PCC, integrally composed by members of the public administration, the members of the other two governance bodies of the RIS3 of Navarra (SC and SP) come from, both public and private organisations. In order to achieve a higher neutrality and impartiality of opinions, more than two thirds of the interviewees have been companies' representatives and knowledge centres (universities and technological centres), whilst only just a third of the interviewees were from Government of Navarra. All the interviewees have a proven expertise in the elaboration process of the RIS3 of Navarra.

The interviews were held face to face during the July-September 2017 period, with an extension of about 60-90 minutes in the usual working place of the interviewee, except for just one that was made through Skype due to agenda problems of the interviewee. All the interviewees were previously contacted by e-mail in order to explain the interview context, its purpose and asking for their participation. Likewise, a brief table of contents with the main issues to deal with were also sent before the interview.

A guide of questions, previously designed, was used to accomplish the interviews. This permitted the interviewer to focus the interview on five main subjects: diagnose of the situation; vision and priorities; process governance; instruments, measures and public grants; evaluation and follow-up mechanisms. Additionally, a final part during the interview was devoted to additional considerations where the

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<sup>5</sup> Further information: <http://s3platform.jrc.ec.europa.eu/>

interviewee could provide his/her general evaluation of the process or comment about any other issue not treated along the interview (see in Annex I the guide of the interview).

It was agreed with the interviewees that opinions given during the interviews would be treated anonymously and the results would be presented as aggregated data, securing at every moment the confidentiality and anonymity. Therefore, the next table shows, only a general profile of the interviewees, where a balanced gender participation of men and women was respected.

RIS3 bodies where he/she participates	Type of institution
SC and SP	Intermediary stakeholder
SC and SP	Intermediary stakeholder
SC and SP	Technological Centre
SP	Technological Centre
SP	Technological Centre
SC and SP	Cluster
SP	Cluster
SC	Education
SC	Education
SC	Business
SC and SP	Business
SC	Business
SC	Business
SC and SP	Business
PCC	Regional government
PCC and SP	Regional government
SC and PCC	Regional government
SC and PCC	Regional government
SC, PCC and SP	Regional government
SC, PCC and SP	Technical team

Given the dynamism of the RIS3 implementation in the region of Navarra, during the execution of this evaluation the usual meetings of the different governance bodies continued to be held, as well as the events with different regional stakeholders. To this extent, the evaluation presented in this report uniquely observes the opinion of the interviewees and the regional actions undertaken until September 2017.





## 5. ANALYSIS

### 5.1 MAIN OUTPUTS OF THE ANALYSES CARRIED OUT

The analysis included in this chapter is based on the interviews executed, as well as on the study of relevant documentation. The outputs are presented in every of the dimensions analysed: diagnose, selection of priorities, governance, instruments, monitorisation and follow-up. In addition, it is also included an analysis of the comparative elements with other European regions and experiences that could be inspiring for Navarra and its continuous learning in the RIS3 process.

Generally speaking, the analysis carried out reveals a very positive situation in every dimension as regards to the updating process of the RIS3 of the region. It is worth to point out that Navarra is a pioneer region at European level regarding the development, implementation and monitorisation of the RIS3, as it is recognised in a large number of documents and specific publications in smart specialisation.

#### 5.1.1 DIAGNOSE OF NAVARRA RIS3

The analyses conducted in this diagnostic phase of the RIS3 of Navarra have observed a methodical system, have been rigorous, largely discussed and validated in the different governance bodies of the RIS3 at regional level, with a relevant involvement of the private sector. Likewise, it is considered that the conclusions obtained are appropriate. It has been also valued very positively the involvement and direct support of the Government of Navarra to the process, which entails a perception of a solid and sustainable political issue.

Once reviewed the documentation and contrasted the information by means of the interviews, the diagnose is considered complete, accurate, rigorous and it adequately reflects the situation of Navarra.

In the benchmarking analysis with other regions, it has been avoided the usual comparative with other Spanish regions, to elude complacency, which is a positive and novel approach. The European regions targeted were those with similar: education levels, technological specialisation and economic and industrial sector structures, entrepreneurial size and export intensity. This approach based on aggregated or horizontal issues (GDP per capita, available income, unemployment, PCT patents applications, productivity per employee, exports over GDP, R&D business expenditure, R&D staff, employment in cutting-edge and medium-high technology manufacturing companies) is also accurate. Nevertheless, the aggregated variables provide restricted information when comparing the positioning of economic and industrial sectors of Navarra as regards to the sectors of these regions or in the global markets value chains.

A sector approach is a comparative analysis more difficult to complete, given the dispersion and complexity to access to regional information sources for these kind of sector data (including the language barriers). Despite the complexity entailed, this sector analysis has been partially achieved through the exports analysis carried out in the diagnose. It seems convenient, if feasible, to broaden the analysis scope at sectorial level for a better comparison of the critical mass and potential of the sectors of Navarra and the later definition of priorities.

The diagnose of the situation has mainly been a “macro” analysis. Navarra is a small regional, with an business tissue of about 3,000 companies, 450 out of them with more than 50 employees. It should be desirable to “dare”, to accompany the current diagnose with a “micro” dimension, it means, to individually review the companies with a certain entity, their competitive position, their possible interrelations and value chains. This “micro” analysis would require an additional and relevant effort, but it would help to better understand what the companies of the region need and would also support clusters to become aware of the challenges they must face. At the final phase of elaborating this report it is confirmed that some “micro” analysis have been initiated by the clusters, starting from the wind power cluster to study its sector situation and set out an action plan to deal with key challenges of their businesses.

### 5.1.2 RIS3 PRIORITIES

In general terms, the RIS3 of Navarra is well structured around a limited group of six economic areas or vertical priorities, and five transversal factors of competitiveness or horizontal priorities. Once reviewed the documentation of the meetings, it can be said that the priorities were also reason of a large debate and agreement. Besides, the interviewees do not miss any relevant priority according to the diagnose completed in RIS3. In turn, these eleven priorities are categorised in 24 challenges, 11 out of them specify the vertical priorities or economic priority areas and are properly aligned with the prevailing trends at European and world-wide level, which is considered right.

Most of the priority areas merge from the SWOT analysis completed during the diagnostic phase. With two exceptions: the creative and digital industries, which are a considered as a bet for the future; and the comprehensive or integral tourism priority considered as an enabling factor for territorial cohesion and social development. Concerning the latter, and due to the fact that Navarra has been traditionally more industrial than touristic it is shown in the interviews that follow-up of this priority should verify whether it is really able to generate a relevant economic development for Navarra around the tourism, paying special attention to promote it, and to set out new measures, as well.

The diagnose suggests that an excessive “endogenous” technological cooperation occurs in Navarra. The challenge number 12 determinedly envisages the clusters as an instrument to channel the private contribution to the RIS3 implementation. It is true that clusters can support the identification and undertaking of innovative and collaborative joint projects, but the more they get supported by open



innovation ecosystems with agents located beyond the geographical borders of Navarra and/or Spain, the more those projects will become innovative and competitive. Thus, it is needed to cooperate with interesting stakeholders both from Navarra and other regions.

The diagnose shows the need to increase the R&D&I cooperation culture abroad (77% of the patents applied in Navarra have been developed by local inventors, whereas in Germany, USA or EU28 this ratio is around 50%). The SWOT of the RIS3 exposes as first weakness the “lack of cooperation culture both locally and abroad”. In the chapter about the future vision of Navarra, it is also observed as a strategic principle to “facilitate the cooperation and collaborate with the best ones”. Even though, only the local cooperation has been considered a “challenge” but not the cooperation abroad.

### 5.1.3 PROCESS GOVERNANCE

The governance system is a key issue regarding the successful development of the RIS3 and it is clearly defined and documented<sup>6</sup>. It is organised by four working groups with distinct functions and responsibilities but complementary amongst them: the Strategic Platform (SP), which is an advisory body; the Public Coordination Committee (PCC), whose main function is the cooperation and alignment of the different public policies and guarantee the correct assignment of the resources; the Steering Committee (SC), which is the executive and leading body and finally the coordination technical equipment, integrated within the Regional Strategy Area from SODENA, who is in charge of the update and supports the different key actors of the RIS3.

As it is confirmed by different documents consulted and interviews executed, it has been in the past, and there is currently, a large participation of private stakeholders in the governance bodies of the RIS3. There is a general perception among interviewees that all their contributions have been listened to and reflected in a higher or lower extent in the RIS3. This situation is one of the goals pursued by the process RIS3 and it is very positively considered, since it contributes to the implication of the private stakeholders, who are one of the ultimate beneficiaries of RIS3.

According to the general opinion of the interviewees, the public-private participative process, has also provoked that stakeholders with distant profiles such as politicians and entrepreneurs talk with similar language and know each other better. The number and profile of the participant stakeholders (businesses, universities, technological centres, intermediary agents, public administration) is considered enough and balanced by most interviewees. A higher involvement or a more active participation of representatives from the financial sector, who are especially relevant to finance innovation when it is close to market, has been mentioned as convenient. Yet SODENA, due to its venture capital activity, has the knowledge and expertise on different funding modalities for companies.

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<sup>6</sup> Further information on the RIS3 of Navarra governance system see “Estrategia de Especialización inteligente de Navarra” (2017, p. 7 y 8)



Practically all the interviewees from SC and PCC outlined the good work, commitment and leadership of the Vice-President of the Government of Navarra, Manu Ayerdi, in the moderation and animation tasks during the meetings. This issue is of large importance since the RIS3 must rely on the support and participation of the main stakeholders of the region, and it could not be a reality without the engagement of the regional government. This commitment strengthens the robustness, stability and credibility of the strategic process.

The methodological support in the different meetings of the governance bodies, provided by the SODENA's technical team has been highly professional and fundamental for the RIS3 elaboration process. It has been also very positively valued by most of the interviewees.

Unlike the Plan Moderna, the Governance system currently defined has given the SC a higher profile of experts from the private sector, leaving the representation of political parties in the SP, which is very positive, since it has contributed to obtain more technical debates and decisions. Nevertheless, both from the analysis and interviews emerges the idea that still one of the highest challenges of the RIS3 is to achieve the consensus of political about the importance of this strategy for the future of Navarra in order to provide stability to its implement at medium-long term, regardless the political changes in the regional government. A large agreement and ratification of the RIS3 by the Parliament of Navarra, beyond the political parties supporting the current government, should be intended. It would be an important step in this sense.

Thus, we can conclude that the participative process followed to elaborate the RIS3 should be maintained during its implementation, not only for following-up or monitoring tasks, but also for gathering contributions about the design of instruments and measures to be used to achieve the 24 challenges.

Regarding the different committees, it is considered a success the evolution of the "Public Coordination Committee", initially conceived as a Steering Committee and later as a Public Coordination Committee, thus giving the participative leadership of the governance of the RIS3 to the initially named "Advisory and Control Committee" which has a public-private composition (Government of Navarra, businesses, universities, technological centres, intermediary agents).

On the other hand, the leadership of the 24 challenges constituting the RIS3 by different services and departments of the Government of Navarra, the support of those challenges on policies which are being developed from the departments of the government, and the involvement of several departments in actions foreseen in a same challenge, justifies the need to keep a Public Coordination Committee (PCC) of those government departments for the implementation of the strategy.

The PCC has played a fundamental role in supporting the inclusion of tourism and creative and digital industries as thematic priorities according to the analysis of economic data executed, as well as in





defining the content of actions and services to be implemented by the Government of Navarra, persons in charge and indicators for the 24 sheets that introduce the challenges.

The document describing the 24 challenges is considered a "living" document, and so it must be, due to the dynamism of the economy: this document of challenges indicates that every 6 months (on May and October) they can be eventually modified according to the evaluation processes and annual budgeting.

From an organisational point of view, the interviewees agree in affirming that calls to meetings for both the SC and PCC were made sufficiently in advance (around 10 days earlier) in order to permit their respective members to analyse the working documents and prepare the meetings. The working documents previously sent were clear and complete. Likewise, the minutes were sent a few days later and they always offered the possibility to incorporate additional comments, even though the number of contributions after the successive meetings have been, as a general rule, very scarce. This shows once more the importance of appropriately preparing face-to-face meetings, as a main channel to achieve an effective debate of contributions and reach consensus. On the other hand, minutes were reviewed during the next meeting, which served as a tool to align the visions and strength the agreement.

It has been very positively valued, that in the SP meeting held in June 2017, the 24 challenges were presented by the corresponding person in charge within the public administration, as a way to visualise the commitment of these persons with their respective challenges and the shared leadership of the RIS3 between different teams.

The coordination between departments of the Government of Navarra around the 24 challenges, implies to work on a project-basis but no longer through unconnected departmental areas, which is a huge and long-term challenge for the Administration. The most critical issue to implement the RIS3 is that the leaders of the 24 challenges, by joining interests from different departments of the Government of Navarra, execute an analysis on how their measures impact for attaining the goal/challenge, and if they do not reach them, being able of proposing corrective actions, or planning a change of actions, if needed. The focus of the RIS3 in these 24 challenges is enormously important and innovative in the Public Administration and it should be very convenient to provide them with support in terms of methodology and training, which could be provided by SODENA.

As regards to the timing for elaborating the RIS3, slight variations have taken place between what was initially planned and the execution, so to adjust agendas and the needs to elaborate information, a process considered as totally normal taking into account the immense task developed and the number of participants who must be coordinated. All the recommendations provided by the European Commission have been observed, by defining and setting up a working plan with the members of the different governance bodies from beginning of 2016. During July 2016 a public consultation process



about the RIS3 draft was completed through the 'Open Government' web portal, and in September 2016 a public report was elaborated gathering the contributions received and related conclusions adopted. The document RIS3 was approved by the Government of Navarra at the beginning of 2017 and its realisation in 24 challenges was completed in May of the same year.

The document introducing the governance system of the RIS3 describes an annual periodicity for the SP meetings, combining working meetings with informative ones. Based on the analysis completed it is proposed a regular and homogeneous scheduling of SP meetings at least every six months and to maintain the advisory nature and these sessions. They should be synchronised with the six-monthly follow-up meetings of the PCC and SC.

It is also expected the participation of the members of the SP in thematic roundtables (maximum 15 persons/table) in two areas:

- Design and implementation of regional plans (Science Technology and Innovation Plan, Industrialisation Plan, Internationalisation Plan, ...)
- Implementation of initiatives (i.e. cluster tractor projects, actions foreseen in the 24 challenges)

Finally, it is worth to mention the importance of communicating the RIS3 and its related actions. This communication should be proactive (as it occurs nowadays), basically addressed to potential beneficiaries of the actions, and specially to the entrepreneurial tissue, with the support of intermediary stakeholders and entrepreneurial associations, so to further encourage their participation in projects.

#### **5.1.4 INSTRUMENTS, MEASURES, PUBLIC GRANTS TO IMPLEMENT THE RIS3**

As a result of the analysis and the interviews completed, it can be concluded that it is very positive to concretize the implementation of the RIS3 through the specific challenges, and consider a short-medium term horizon (2020) in order to avoid an eventual relaxation in achieving the final goals of the RIS3 that are expected by the year 2030. The work done to transform the challenges into actions and the level of detail reached is appropriate to initiate the implementation of the strategy. During the strategy implementation it should be convenient not only to evaluate the result and effectiveness obtained in each action, but also to plan them more in detail: to breakdown them in sub-tasks and to schedule them along a year calendar planning.

The governance document of the RIS3 of Navarra suggested as a pending question of the Plan Moderna (cf Page 15), to include commitments or budgetary estimations, therefore, the budgetary estimation of the challenges is considered as very positive.



It is also positively valued the budgetary effort executed in the vertical priorities, even though in the upcoming future it might be needed a higher budgetary intensity in these vertical priorities, according to the degree of effectiveness achieved with the current budgetary allocation between vertical and horizontal priorities.

The effort paid to design and adopt new measures of grants and supporting instruments in some of the challenges of the RIS3 is also considered as very positive. So far, the main novelties about measures, public grants and calls for proposals aligned to the RIS3 are:

- Clusters, calls for proposals 2016 and 2017 with a budget provision of 190,000 and 335,000 € respectively
- R&D projects, call for proposals 2017 (individuals, collaborative and transfer projects), where 5 out of the 100 points of the evaluation score (more points could eventually be assigned) are given if a project is aligned to any of the strategic sectors of the RIS3 of Navarra. i) renewable energies including energy storage, zero emissions vehicle, energy efficiency; ii) agrofood; iii) biomedicine including personalised advanced medicine and medical equipment; iv) advanced manufacturing including robotics IoT, sensing; v) ICT transversal to previous sectors. Budget 12 million € for the period 2017-2019.
- Strategic projects, call for proposals 2017 (collaborative R+D) under a limited number of priority areas of the RIS3 (energy storage, zero emissions vehicle, genomics, biomedicine, advanced medicine, budget 12 million € for the period 2017-2019). This partial selection excluding the rest of priority areas is probably provoked by limited budgetary availability. The rest of priority areas will be covered in later calls for proposals, as it can be observed in agrofood/challenge 4, renewable energies/challenge 5; and investment projects in industry 4.0/challenge 2. In order to reach an increased transparency of public policies, it would be positive to publish the criteria used in this call for proposals for selecting some priority areas over others.

If RIS3 ultimate goal is to strengthen the entrepreneurial competitiveness in priority economic areas for Navarra, it is surprising that the regulatory bases of these strategic projects foresee a grant intensity for the companies lower than the intensity authorised by the Community framework on State R&D&I aids and the European regulation 651/2014 (article 25.5 and 25.6) for R&D projects where an effective collaboration between SMEs and research bodies occurs, as it is the case of the strategic projects. Despite this lower aid intensity may leverage a higher private investment, it may demotivate the participation of the private sector in collaborative projects. Yet the strategic projects are a very good instrument that must be kept and promoted. In line with this type of projects, it is worth to mention the Communities RIS3CAT, which are described in chapter **¡Error! No se encuentra el origen de la referencia..**

Qualification of the collaborative project	Small company	Medium company	Large company
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Qualification of the collaborative project	Small company	Medium company	Large company
Industrial research	65%	40%	25%
Experimental development	45%	30%	15%

Table 1. Maximum intensity of the grant foreseen in the call for proposal guidelines related to strategic projects  
 Source: Resolution 7E/2017, dated on January the 20<sup>th</sup>, approving the call for proposals to carry out R&D strategic projects 2017-2019 (BON number 29, of 10/02/2017)

Qualification of the collaborative project	Small company	Medium company	Large company
Industrial research	80%	75%	65%
Experimental development	60%	50%	40%

Table 2. Maximum intensity of the grant foreseen in the **European regulation 651/2014**.  
 Source: Regulation (EU) number 651/2014 of the Commission dated on 17/06/2014, describing specific categories of grants compatible with the internal market

Regarding clusters, although its dynamics must be promoted by private initiatives, it is important that the Government of Navarra, beyond launching the call for proposals supporting clusters, gets involved and provides an appropriate institutional backing to clusters, as it has successfully occurred with the commercial mission to India in the wind cluster.

If in a short-medium term clusters are not able of identifying and promoting collaborative and tractor joint projects for the local entrepreneurial tissue, they will disappear little by little. Bear in mind that in order to keep the interests and motivation to participate in clusters, visible results must be achieved. In view of detecting collaborative and tractor joint projects, the Government of Navarra’s innovative public procurement policy can play a relevant role: as an example mentioned by an interviewee, in Silicon Valley there are no clusters, but its origin was the North American administration funding and aligning companies around large challenges; the promotion of the Silicon Valley derived, above all, from challenges defined and purchases executed by the USA government.

The challenges do not observe measures of innovative public procurement and it is a lack that should be corrected during the implementation of the RIS3.

Regarding the 2017 budget for vertical challenges corresponding to priority economic areas, there is a difference between the budget allocated to the automotive and mechatronics area (3.5 million €) and that allocated to the food chain (31.4 million €). It seems that such a budgetary difference between those priority economic areas cannot be justified based on GDP, employment and exports figures of both economic areas. It would be convenient to review the budgetary effort and measures required to support the automotive auxiliary industry in its challenge to adapt and position itself regarding the imminent commercialisation of the electric vehicle.



Amongst the horizontal challenges, the following budgetary allocations must be outlined, according to their specific weight:

- The budget of 57.5 million of euros in 2017 to increase the size of companies (22.9 million of euros addressed to grants for investments in SMES/large/agrofood companies; 33 million of euros of tax relief due to investment and employment).
- 22.4 million to finance strategic projects by SODENA.
- 46 million euro in R&D&I (36 out of which are estimated from tax reliefs).
- 20.4 million euro in technology transfer, 17.8 out of which are devoted to R&D projects and infrastructures of technology centres, which double the amount (9 million of euros) allocated to entrepreneurial R&D. This budgetary distribution means funding more the technology offer than the R&D entrepreneurial demand, since not all R&D projects conducted by technology centres will be collaborative with firms. And even those being collaborative, their objectives will be fixed by the centres not by the companies, so there is a risk that these projects do not always respond to the entrepreneurial demand.
- 11.7 million euro in infrastructures for communication and competitiveness (7.9 million euro Canal of Navarra; 3.1 million euro telecommunication wide broad).

Six (five horizontal) out of the 24 challenges accumulate 94.76 % of the budget for the year 2017, which represents 186.9 million out of the total 197.2 million euros allocated. Therefore, there is an unbalance of the budgetary effort distribution among challenges, with an elevated number of challenges that have a budget of very low relevance.

Another important aspect of the RIS3 budget is that 83% of the total 197.2 million euro devoted (that is to say 163.9 million euro) is assigned to horizontal priorities (also named transversal factors of competitiveness), while only the remaining 17% budget is assigned to the priority economic areas (vertical priorities). This assignation can entail a high risk since it may happen that the horizontal budget does not actually focus on the vertical priorities. The vertical "specialisation" concept of the RIS3 process requires to be backed by an specialised budget as well, and the horizontality of the current budget could endanger this specialisation. Nevertheless, it must be outlined the effort paid to allocate budget to the vertical challenges for the first year of implementation, that should be gradually increased in the future according to the results achieved in view of the indicators.

Despite the huge programming effort concerning the estimation of the budget evolution of the challenges by the upcoming four years, some of them are not sufficiently explained or justified in the public documentation describing the 24 challenges and some specific issues would require an additional explanation:



- Challenge 3. Action 3. Grants to promote the investment in agrofood industry. It doubles the budget in the last two years, whilst the target-value assigned to the indicator measuring this action (number of investment projects approved in agrofood industries) is kept constant along the four years (100 a year). Maybe it is estimated an increase of the budget required by the investment to be undertaken.
- Challenge 24 about Vocational Training (VT). It is expected a strong budgetary raise in the later years (specially in 2019 and 2020) for the action 2 (VT offer). At first view, it seems more logical that largest investments (teaching staff, premises, promotion, etc.) should be considered during the initial years, increasing the budget in later years according to the VT demand from the labour market in the priority economic areas of the RIS3. This would avoid the eventual risk of VT graduate surplus and the related talent drain (as it has occurred in different university degrees). Regarding the indicators described, the budgetary increase planned to offer the VT in 2019 and 2020 does not entail a parallel raise of the target-values assigned to the indicators "A. Number of graduates in VT" and "C. Number of students in VT" which appear as constant throughout the four years. Some additional information should be included easing the comprehension of budgetary allocation assigned to the actions and target-values of related indicators.

According to the VT labour market demand evolution, it would be convenient to disaggregate the indicators "A. Number of graduates in VT" and "B. % of employability" into specialisation areas, since the current indicators impede to see the strong differences existing in terms of labour demand amongst the different specialities or "training families" (cf pages 31 and 34 of the VT Plan approved by the Government of Navarra in July 2017).

Related to the Challenge 22 "Change of the external image of Navarra", it would be appropriate a more proactive approach on how to fit the priority areas of the RIS3 with the H2020 programme. Beyond the enumeration, in a generic way, of the H2020 areas in annex RIS3, it would be very convenient to identify specific "topics" (specific thematic of calls for proposals) of the subprogrammes 2018-2020 of the H2020 that were aligned to the RIS3 and elaborate a proactive action plan to get the European funding.

Regarding the limited number of new measures (grants) included in the challenges, that was mentioned by several of the interviewees, it can be argued that RIS3 has firstly pursued to map the instruments already in use, and later on to focus those instruments on the priorities of RIS3, by aligning, sensitizing and training the departments and services of the Government of Navarra involved in the implementation of the RIS3, instead of starting from scratch, which would have been really difficult. The budgets of the challenges are allocations of the Government of Navarra who assumes its involvement in the smart RIS3 strategy and focuses the budgetary allocations on measures and actions oriented to achieve the goals planned in the strategy.



Therefore, this budgetary approach is highlighted as a virtue and novelty compared to the previous Plan Moderna, as the current budgets are not something apart from and in parallel to the “Budget of Navarra”, but the official budget makes part of RIS3, it means, the concept of RIS3 is embedded in the elaboration of the budgets of the Government of Navarra. To conclude the analysis executed and, admitting the validity of this argumentation, there is a risk that the RIS3 has a more restricted impact, if the concretion of the 24 challenges through the actions and measures of public support is based on measures already being applied in the past and it would be convenient to estimate an additional and significant contribution of new resources.

Thus, when following-up the RIS3 it should be verified which of those current measures being already applied are actually reoriented to accomplish the 24 challenges and which ones require an adaptation.

On the other hand, the twelve strategic public plans of the Government of Navarra are structured between the strategy and the 24 challenges, and also interrelated with the 24 challenges, since there are actions of the challenges that refer to these plans. This will be certainly complex to deal with, although it is foreseen within the interdepartmental coordination of the challenges. Besides, the plans have budgets which have not been published, but they make part of the allocations assigned to the government departments.

Finally, to point out that a general impression of the interviewees is that the most important challenge of the RIS3 is that everything which is foreseen gets to be launched, that everything functions and therefore is able to obtain the first results, so to finally fulfil the expectations and generate a higher credibility and adhesion.

### 5.1.5 MECHANISMS TO FOLLOW-UP AND EVALUATE THE RIS3

The RIS3 of Navarra has a monitoring and follow-up system, accomplishing the EC requirement for the smart strategies. It is a complete and a pioneer follow-up system<sup>7</sup> including some complementary tools which will be regularly updated: dashboard (region’s profile indicators related to the RIS3 Navarra); specialisation control indicators; territorial deployment indicators and challenge monitorisation.

It is important to outline that every indicator of the dashboard has a specific data source, identified and reliable, and with some medium-term target-values. These two items are key for the follow-up mechanism to complete its monitoring function and show that its design process has been professional and rigorous.

The six general indicators measuring the three overall goals of the dashboard, as well as the 20 indicators of the transversal factors of competitiveness are backed by official statistics providing value

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<sup>7</sup> For further information see 6.2 Monitoring system of RIS3 of Navarra.



and credibility to data and measure profile indicators related to the strategy. In spite of the merits of the official data, it is important to mention that the indicators based on official statistics are affected by other external factors, not related to RIS3 measures, and they cover not only the beneficiaries, but also the non-beneficiaries of specific measures. For that reason, it seems convenient to use some other complementary indicators obtained through specific questionnaires addressed to the beneficiaries of the grants and permitting to assess the cause-effect direct relation between the measure and the indicator selected.

Regarding the forecast of target-values assigned to the indicators of the “dashboard” for the coming years (2020, 2025 and 2030) they are mostly considered assumable target-values or consistent with their historic evolution in the last years. The dashboard is backed by an individualised review about each indicator evolution during the last six or seven years.

The coordination of the follow-up and monitoring tasks of indicators is executed by SODENA, who has elaborated a methodological report concerning the official sources and periodicity of the indicators, with an explanation of the most technical indicators (Gini ratio, PISA score, position of S&P regional rating over national); and it also includes the last available/published values of the different indicators of the dashboard, which makes easier the monitoring duties to the different governance bodies of the RIS3. This methodological document is very important and useful to understand the indicators by the different stakeholders and it can be considered a best practice to be recommended to other European regions.

The defined indicators to follow-up the 24 challenges introduce an annual assignment of the target-values and therefore an annual monitoring for the period 2017-2020. Regarding the “dashboard” indicators, the assignment of the target-values is every five years (2020, 2025, 2030), which should not impede its yearly monitoring, so to identify in early phases any relevant deviation and quickly adopt the opportune adjustments. For this reason, it should be maintained the practice started by SODENA about yearly monitoring and it should be also convenient that the information concerning the update and annual evolution of the indicators could be transferred not only to the SC, but also to the PCC and SP members, even just for information purpose, without needing any face-to-face meeting for that.

Ten out of the 26 indicators of the dashboard use international information sources. More specifically, Eurostat for seven indicators (poverty risk rate, GDP per capital, university graduates, early school leavers, R&D investment, science and technology staff, employment rate), the OECD for the indicator concerning the educative system (PISA score), the European Commission for the indicator “Regional Innovation Scoreboard” and the agency Standard&Poors for the financial solvency indicator.

Except for two particular cases, which will be analysed next, the rest of the eight indicators that use international information sources have an annual periodicity. So, they are not affected by delays





(around two years) which are usual for making available those kind of indicators by some of the international public bodies. To this extent, the election of these international sources is appropriate.

Nevertheless, according to the analysis, it can be stated that a greater advantage can be obtained from these international sources, since they enable a comparative analysis with other European regions, that to some extent would mean a continuity to the comparative analysis carried out in the RIS3 diagnose, so it would provide a better vision of the positioning of Navarra in an international competitiveness environment.

On the other hand, the use of the PISA score as indicator to measure the educative system is positive, since it allows the comparative analysis with other regions and countries at international level, yet the restriction is that the OECD elaborates this indicator every three years. Thus, an indicator which can only be reviewed after three years, reduces the agility or capacity to promptly react to relevant deviations and adopt the opportune modifications. In accordance to what was suggested by some interviewees, it would be convenient to complete this indicator, without eliminating it, with any other indicator internally elaborated by the Education Department of the Government of Navarra, enabling the annually measure the efficiency of our non-university educational system.

Regarding the patents indicators, the Spanish Patent and Trademark Office (SPTO) provides not only the selected indicator, "the number of applications", but also the "number of patents granted" indicator, which complements the previous one when measuring the novelty or the actual innovative character of the applications, even though a granted patent does not necessarily imply its later exploitation.

With reference to the indicator "% of waste reductions compared to year 2010" it is stated that its follow-up is executed with the unique value available from year 2014 (provided by the Environment Department within the IPWMN draft - Integrated Plan for Waste Management in Navarra) and there is not any public official source to gather and update it in successive years. This lack should be solved in collaboration with the Environment Department and, if the lack of information source is confirmed, it should be replaced by other similar and accessible indicator.

The progress in the indicator "Regional Innovation Scoreboard" (recuperate the "strength" score and overcome the current "moderate +") has to be specially looked after and searched for, since it has a tremendous visibility at European level, and a direct impact on the decision of foreign companies to invest in Navarra

Special attention must be paid to the indicator selected to measure the financial solvency of Navarra "the positioning of the Standard & Poors rating of Navarra compared to the national rating", since it is usually positioned over the national rating, and it is simultaneously linked to the evolution of the national rating. When measuring the positioning of Navarra compared to Spain and given the fact that



it is not simply used the official qualification of Navarra, it does not emerge the eventual improvement or worsening of that qualification, and consequently whether the Government of Navarra has more or less difficulties to access to financial markets. In fact, along the last nine years, Navarra has evolved from the triple A rating (AAA) to one A (A) rating given by Standard&Poors, and this is downwards evolution of the regional financial solvency is not visible in the indicator selected. It would be more useful, as indicator, to directly use the qualification given to Navarra by Standard&Poors.

As it has been previously described, together with the indicators of the “dashboard”, some other indicators are planned to measure the “specialisation” evolution, or in other words, the evolution of key economic magnitudes (GDP, employment, productivity, exports), of the six priority economic areas of the RIS3, valuing the weight in the whole economic magnitudes of Navarra. The effort to include specialisation indicators is extremely important since its follow-up will permit to know if the ultimate goal of specialisation is being achieved. Although they are macro-indicators based on statistical data, their monitoring within the RIS3 has a great value, since it will enable the validation of the priority selection in economic areas or to figure out other areas to be prioritised in the future. Complementarily, it would be convenient to analyse the effort/benefit to be obtained when comparing the weight of these “specialisation” magnitudes to those from other regions or countries in the same economic areas.

Regarding the monitoring at geographical subareas (“comarca”) level (Sakana, Pyrenees, Pamplona and neighbourhood, Eastern Middle Zone, Estella zone, Ribera), a monitoring tool is suggested for the “territorial deployment” of the indicators from the “dashboard” at subregional level, aiming at monitoring the achievement of the territorial cohesion in the RIS3 implementation. It is said that for that purpose, Navarra will count with the Agencia Navarra de Sostenibilidad “Lursarea” (regional agency for sustainability) created in October 2016 and integrated within NASUVINSA (public company in charge of real state promoting for industrial and residential activities), to strengthen the territorial development policies. Once again, the effort to disaggregate data at subregional level is greatly valued for the follow-up process, but the main problem will be the actual availability of separated statistical data at this subregional level.

Lastly, it is planned a differentiated monitoring of the 24 challenges, so, some specific indicators devoted to measure outcomes and goals, beyond measuring actions and executed budget. This planning is positively considered, since it is a counterpoint to the official statistics indicators of the “dashboard” with other indicators having a more direct cause-effect relationship.

Nevertheless, it would be convenient to review the document of the challenges, since in some cases, there are mentions to specific and relevant indicators of the 24 challenges where no target-values have been assigned to: i.e. in challenge 1, indicator D “Number of companies in the electric vehicle sector”; in challenge 7, indicator A “Quantity (wastes) generated in Tm compared to 2010”; and the four indicators of challenge 11 (creative and digital industries). On the other hand, some action of the



challenges lacks an indicator measuring its progress: i.e. challenge 3/actions 5 (“Orizont”: accelerator of agrofood start-ups) and 6 (boosting the internationalisation of agrofood companies).

In challenge 6 “reinforcement of the wind sector”, it seems that there is not a cause-effect relationship between the foreseen actions and the outcome indicators: can it be argued that the selected indicators (6,300 million euro turnover and 2,910 people employment in total in the overall regional wind cluster) are actually due to the fact of assigning 60,000 € in the year 2017 to develop the cluster? It is a very low budgetary allocation to “become the author” of this impact, except for the incorporation of companies to the cluster during the first year, besides only 5,000 euros are yearly assigned in the coming years.

In the specific case of the traditional indicator of R&D expenditure over GDP (indicator A of challenge 17) it draws the attention the forecast of target-values assigned during the period 2017-2020: the target-value assigned for 2017 is 1.85% while the last available reference (in 2015, two years before) is 1.64%, after several years of continuous fall since 2011, and it is expected to reach 2.20% by the year 2020. According to these estimations, it is going to change the trend and a growth of about 12.8% on R&D expenditure will take place between 2015 and 2017, and grow will continue up to 18.9% between 2017 and 2020, while the budget for public aid to business R&D (action 2 of challenge 17) in 2017 is practically similar to that of the previous years, and it does not increase between 2018 and 2020. It is not being taken into account the leveraging effect that public grants provoke on business R&D expenditure, even more when the R&D entrepreneurial expenditure in Navarra represents two thirds of the total R&D regional expenditures.

The indicators A (% of active population with university degree and working in science/technology) and B (patents application per 100,000 inhabitants) of challenge 18 “Technology transfer to companies from technological centres and universities”, seems not to be appropriate since they do not serve to measure the goal of the challenge, which is the higher collaboration and knowledge transfer from these stakeholders to the entrepreneurial tissue. It could be replaced by other indicators such as “percentage of annual incomes of the technological centres coming from companies”, “scholarship holders transferred from technological centres to companies”, “number of collaboration contracts with companies, etc.

As with the monitoring of the dashboard indicators, it would be very appropriate for following-up the challenges, to define a methodological document concerning the official sources and periodicity of the different indicators of the 24 challenges explaining the most technical ones, indicating which services of the Government of Navarra are responsible to update the evolution of the values, etc., easing their monitoring.

From the Government of Navarra, it has been planned that the leaders of the 24 challenges, by means of separated meetings of the teams working in each challenge, carry out a periodic annual follow-up



of each one of them (towards the month of October every year), so to study if it is needed to modify or include any other action in the next year budgets of the Government of Navarra or if some adaptation is required in the budgets, indicators, etc. This approach is positive, but its operativity and implementation will demand an appropriate programming enabling to analyse and check the tasks in the 24 working teams. Particularly, as several Services of the Departments of the Government of Navarra simultaneously participate in those 24 working teams (i.e. the Service of Entrepreneurial Promotion takes part in seven out of the 24 challenges, the Service of Economic Policy participates in six challenges, the R&D&I service participates in six challenges, SODENA in nine challenges, the Service of Energy in four challenges, etc.).

As working material for these follow-up meetings, a detailed information concerning the challenge progress including indicators and budgets executed should be sent, in a separated way for the different actions constituting each challenge.

## **5.2 COMPARATIVE ELEMENTS WITH RIS3 STRATEGIES FROM OTHER EUROPEAN REGIONS**

## **5.3 ELEMENTS FOR BENCHMARKING RIS3 OF EUROPEAN REGIONS**

### **5.3.1 REFERENCE REGIONS**

The evaluation of the RIS3 does not include as such a comparative or benchmarking analysis. However, as mentioned in previous sections, the monitoring process put in place in the framework of the RIS3 in Navarra has as one of its main pillars the continuous improvement and, thus, it is crucial to develop an exercise of benchmarking with other national and European regions in order to get an effective learning process and a base to generate synergies and interregional cooperation.

It is important to put in value that in the diagnosis phase of the RIS3 a comparison of Navarra with other European regions was made, focusing mainly on regions with similar levels of education, technological specialisation, economic and industrial characteristics, similar average size of companies and export intensity. From the analysis of the information gathered through the interviews and the review of the specialised literature we can argue that this approach has clear advantages, since it provides a very useful base to make comparison using aggregate indicators (such as GDP per capita, available rent, unemployment, or private investment in R+D<sup>8</sup>). Hence, and aiming to complement the effort already done, this report tries to provide experiences and practices that can be useful to reflect on the potential of the region, as well as to continue improving in the process of smart development and open potential routes of inter-regional cooperation.

Although it is possible to learn from regions that are very different, the benchmarking of RIS3 and the mutual learning process of good practices requires to take the context into consideration. Thus, the

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<sup>8</sup> For more information on the regional comparative analysis, see Gobierno de Navarra (2017, pp. 12-15).



comparative analysis should be done with regions with similar characteristics that make the transfer of good practices feasible.

According to Navarro et al. (2014), one of the most important issues when starting to perform a comparative analysis between regions is knowing who we want or should compare us. Based on the specialised literature the reference point could be: neighbour regions; regions from the same country; regions with who we would like to cooperate in the future; or regions facing similar challenges. The first three types of regions do not imply any identification problem. However, the last one is the most challenging one but, at the same time, the one that can provide the most valuable information (Navarro et al., 2014).

As first step in the benchmarking analysis we use the interactive tool call “regional benchmarking”<sup>9</sup> available in the S3 Platform of the European Commission (EC) and jointly designed with Orkerstra-Basque Institute of Competiveness. This tool allows to identify the reference regions that share structural similarities with Navarra at social, economic and geographical level<sup>10</sup>. The instrument measures the distance to the reference regions through a synthetic index of structural distance (being the lower value the structurally closer to the selected region).

Next table illustrates the result provided by the tool “regional benchmarking” having Navarra as reference region and including 10 peers regions. The 10 regions that are structurally closer to Navarra are shown in Table 3.

The 10 nearest regions to Navarra (es22)	Distance index
Aragón -Spain (es24)	0.0086
Trento - Italy(ith2)	0.0139
Cantabria -Spain(es13)	0.0150
La Rioja - Spain(es23)	0.0192
Basilicata -Italy(itf5)	0.0193
Galicia - Spain (es11)	0.0218
Bourgogne - France (fr26)	0.0227
Northern Ireland - United Kingdom (ukn)	0.0238
South Denmark (Syddanmark) – Denmark (dk03)	0.0241
Steiermark (Styria) – Austria (at22)	0.0245

Table 3. The 10 nearest regions to Navarra according to their structural characteristics

Source: data retrieved from: <http://s3platform.jrc.ec.europa.eu/regional-benchmarking>.

Note: Lower index value = region closer to the selected region (Navarra).

<sup>9</sup> For more information on how the tool works, see: <http://s3platform.jrc.ec.europa.eu/regional-benchmarking>.

<sup>10</sup> For more information about the methodology used to design the tool see: Navarro et al. (2014).

As it can be observed in the table, the 10 regions belongs to six different European countries: Spain (4), UK (1), Italy (2), Denmark (1, Austria (1) and France (1).

Taking the mentioned regions as reference regions, we have run a comparative analysis of the strategic priorities in each region. The analysis was developed using the tool Eye@RIS3<sup>11</sup>, also available in the S3Platform of the EC. The information provided by this tool has no statistical significance, but allowed us to clearly visualise the RIS3 strategic priorities of the reference regions. To illustrate the potential of the information gathered, Annex II includes a detailed table with each priority in each region, indicating the scientific and economic dimensions, as well as their objectives.

The analysis of the information provided by Eye@RIS3 shows that there is a great coincidence between the strategic priorities chosen by these 10 regions, being automotive, health and food the most common.

Knowing better the strategies of your reference regions is important to get a higher level of differentiation, avoid duplications as well as searching for synergies and new ways of inter-regional cooperation. In the concrete case of Navarra we found multiples similarities, being Aragon (Spain) the region with greatest similarities. Both are neighbour regions and share five strategic priorities. Thus, regional governments, companies, universities and research centres should establish interregional working groups aiming to explore potential synergies.

<b>RIS3 Thematic priority in Navarra</b>	<b>Regions with the same priority</b>
Automotive and mechatronics	Styria, Galicia, Cantabria, La Rioja, Aragón, Bourgogne, Basilicata
Food	Cantabria, La Rioja, Aragón, Bourgogne, Basilicata, Trento, Northern Ireland
Renewable energy and resources	Styria, Galicia, Aragón, Basilicata, Trento, Northern Ireland
Health	Styria, Syddanmark, Galicia, Cantabria, Aragón, Bourgogne
Tourism	Galicia, Cantabria, Aragón
Creative and digital industries	Syddanmark, Trento

Table 4. Thematic priorities in Navarra and its reference regions

Source: Own elaboration based on Annex II – information retrieved from <http://s3platform.jrc.ec.europa.eu/map>

The RIS3 focuses on economic development and investments on the strengths of the region to take advantage of its economic opportunities and emerging trends, while trying to improve the added value, impact and visibility of EU funding. In this context, other element that could be of great interest for policy makers is the benchmark among reference regions in relation to the planned investment in European Structural and Investment Funds (ESIF)<sup>12</sup>.

<sup>11</sup> <http://s3platform.jrc.ec.europa.eu/map>

<sup>12</sup> European Structural and Investment Funds (ESIF)



The data – gathered through the interactive tool ESIF-viewer<sup>13</sup> available at the S3 Platform of the EC - provide interesting information to policy makers and agents involved in the design and implementation of the RIS3 on how and in what the ESI Funds are spent in the different regions.

The ESIF for Navarra and its reference regions are about 5.843 million Euros and are desegregated as follows (see Table 5).

Region	ESIF (M Euros)
Galicia (ES)	2,069 M
Basilicata (IT)	749 M
Northern Ireland (UK)	718 M
Aragón (ES)	615 M
La Rioja (ES)	408 M
Bourgogne (FR)	314 M
Navarra (ES)	263 M
Cantabria (ES)	254 M
Steiermark (AT)	177 M
Trento (IT)	159 M
Syddanmark (DK)	117 M

Table 5. Planned investment of ESIF in Navarra and its reference regions

Source: Retrieved from <http://s3platform.jrc.ec.europa.eu/esif-viewer>

The data can be obtained with different levels of disaggregation: national level, regional level, operational programme and intervention fields. Just as an example, the following table shows ESIF planned for the regional operational programmes in the energy infrastructure field.

Region	ESIF for energy infrastructure (M Euros)
Galicia (ES)	139 M
Aragón (ES)	51 M
Northern Ireland (UK)	48 M
Basilicata (IT)	40 M
Bourgogne (FR)	38 M
Navarra (ES)	21 M
Cantabria (ES)	21 M
La Rioja (ES)	12 M

<sup>13</sup> <http://s3platform.jrc.ec.europa.eu/esif-viewer>

Region	ESIF for energy infrastructure (M Euros)
Trento (IT)	6 M
Steiermark (AT)	2 M
Syddanmark (DK)	1 M
Total	379 millones

Table 6. Planned investment of ESIF in energy in Navarra and its reference regions

 Source: Retrieved from <http://s3platform.jrc.ec.europa.eu/esif-viewer>

### 5.3.2 EXPERIENCES WITH POTENTIAL FOR CONTINUOUS IMPROVEMENT

From a purely qualitative point of view, a review of the RIS3 of the reference regions has been done as well as of other good or innovate practices from other regions aiming at the identification of experiences that could inspire Navarra and have certain potentiality to be applied in the region adapting them to the intrinsic characteristics of the territory. Without claiming to be exhaustive, this subsection presents some concrete actions considered as good practices in the RIS3 context by international experts and members of the S3 Platform of the EC.

The Navarra RIS3 has been considered itself a good practice in several documents (Edwards et al., 2014; Campillo et al., 2017; Elena et al., 2017). Furthermore, the region participated in the HESS<sup>14</sup> Project, led by the S3 Platform, where Navarra was selected as pilot to better understand how higher education institutions can contribute to the successful implementation of RIS3. The high level of involvement and commitment of Sodena and other private and public institutions in the region with the RIS3 process were clearly reflected in the HESS Project and showed a high level of knowledge and understating of the RIS3 of other national and European regions. This outstanding starting point makes quite difficult to be able to provide completely new experiences that are not known by SODENA. However, the experiences presented in this report try to provide additional added value to what has been already done in the region and, thus, aims to increase the knowledge among other stakeholders, perhaps less familiarised with the practices of regional development in other regions.

Below five initiatives related to four of the dimensions of the RIS3 process are explained:

- Maximize the scientific potential of the region
  - Campus Iberus (interregional collaboration Spain-France)
  - Science Space of Styria (Austria)
- RIS3 instrument: RIS3CAT communities (Catalonia, Spain)
- Cluster as regional development instruments: Clusters in Southern Denmark
- RIS3 monitoring systems: Emilia-Romagna

<sup>14</sup> For more information about the HESS Project see: <http://s3platform.jrc.ec.europa.eu/hess>



### 5.3.2.1 MAXIMIZE THE SCIENTIFIC POTENTIAL OF THE REGION IN THE DESIGN AND IMPLEMENTATION OF THE RIS3

#### CAMPUS IBERUS

The involvement of the university in the design and implementation of the RIS3 is one of the crucial aspects of the success of the RIS3 for several reasons. Universities are knowledge generating institutions, their scientific-research potential is one of the bases for the identification of the priority and emerging areas of regions reflected in the SWOT analysis, and are key players in the quadruple helix approach and in the implementation of innovation projects that stimulate smart regional development.

Campus Iberus<sup>15</sup> is a Campus of International Excellence (CIE) launched in 2010 as a strategic aggregation project by the universities of Zaragoza, Pública de Navarra, La Rioja and Lleida. This aggregation of universities is reinforced by a group of companies and institutions that carry out R&D&I activities with the four universities that make up the aggregation.

Although by proximity and direct participation the Campus Iberus is well known in the region of Navarra, it is important to value this initiative that has undoubtedly great potential to generate synergies with strategic projects and other actions arising from the clusters.

The Campus Iberus' strategy is built on the principles of specialization and internationalization, with special emphasis on the following areas: Agri-Food and Nutrition; Energy, Environment and Sustainability; Technologies for Health; and Social and Territorial Development. Campus Iberus also develops actions and projects in the fields of higher education and training, students, R&D&I and internationalization.

As reflected in the document of good practices published by the EC (Edwards et al., 2014), the Campus Iberus is an excellent collaborative initiative between universities in order to create critical mass in certain priority areas of specialization and areas of cooperation interregional.

In 2014, the CIE Iberus promoted an initiative in the area of energy that aims to develop R&D projects based on the search for synergies and the identification of common objectives in each of the RIS3 of the four universities in the network (Campus Iberus, 2014).

Finally, another key element is the cooperation established with the French universities of Toulouse and Pau et des Pays de l'Adour (UPPA) since 2012 for the creation of the European cross-border campus EBRoS (European Bioregion of Science). In this context, the EBRoS 2020 project was launched,

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<sup>15</sup> For more information see: <http://www.campusiberus.es/>



which has a global budget of 287,000 euro and an execution period of 2 years. The project is co-financed by ERDF funds through POCTEFA 2007-2013 (Spain-France-Andorra Territorial Cooperation Program.) In order to reinforce the collaboration between the six universities and with their productive environment, EBROS 2020 now focuses on the participation of its partners in the calls of Horizon 2020 programme.

This first initiative shows the capacity of this activity to extend to other nearby regions, such as Aquitaine and Midi Pyrenees.

Given the relevance of the initiative for regional development, inter-campus and cross-border cooperation, it is important to maximize the potential of the network of universities in the Ebro Valley, identifying its scientific potential, seeking synergies and designing joint action plans in priority areas for the member regions. The progress reports issued by the CIE and its indicators can also inform the diagnosis of the situation in the Navarre region in future updates, as well as serve as input to the control panel and monitoring of the Navarre RIS3.

## SCIENCE SPACE STYRIA

The Austrian Ministry of Science, Research and Economics has created a strategic unit for regional policy in science, technology and innovation and has initiated the so-called "RIS3 KEY", which presents the concept of RIS3 to universities and research centers, companies and regions offering a self-assessment questionnaire. In this way the universities are empowered with a role of leaders in the process to identify the strengths of the regions. In operational terms, the concept of RIS3 is included in a three-year performance contract between the university and the regional government. Universities must actively participate in the RIS3 process and their performance in this field can have an impact on future financing decisions.

In this context, one of the initiatives that can serve as inspiration to achieve a high degree of sustained commitment over time by universities in the RIS3 process is the one known as "Science Space Styria" (Austria). This initiative was created understanding that universities are not only affected by the RIS3 process but must be one of the key actors and leaders of the entire process due to their status as generators of knowledge and their regional impact.

This initiative is the union of forces of the nine universities of the region<sup>16</sup> in order to strengthen the higher education system, improve regional cooperation and research activity in priority areas with a vision of the future. This means approximately 55,000 students, 12,200 people employed and a budget of approximately 700 million euro. Edwards et al. (2014) also highlight this initiative as a significant practice in European regions to mobilize the university in the context of RIS3 and regional development

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<sup>16</sup> <http://www.steirischerhochschulraum.at/en/universities/>



The mission of Science Space is to coordinate the strategies and research profiles of the various universities and to develop joint research projects and clusters (such as the BioTechMed or NAWI Graz). Likewise, it also coordinates the project proposals to competitive European programs and the use of the infrastructures of the different universities.

Based on the two experiences mentioned and in order to continue with the involvement and commitment of the Navarra universities in the RIS3 process, it is proposed:

- Continue with the diffusion of the RIS3 - its updates and follow-up reports - to the entire academic community so that the knowledge of the priorities and the strategic axes is increased not only among top managers of the university, but in all layers of the scientific community.
- Promote cooperation between the two universities of the region in RIS3 priority areas with concrete projects and joint actions, as well as in joint and coordinated proposals to European programmes.
- Continue to promote the activities carried out within the framework of the Campus Iberus to strengthen both interregional and cross-border cooperation.

### 5.3.2.2 INSTRUMENTS SPECIFICALLY DESIGNED FOR AN EFFECTIVE RIS3 IMPLEMENTATION – RIS3CAT COMMUNITIES

The design of new funding tools is not an easy task and often it is considered a marginal issue when defining the RIS3. However, assuming the RIS3 as a new framework in which to make policy and create sustainable regional development, it seems clear that an effort must also be made to design new instruments that promote the quadruple helix approach and achieve the objectives specified in the strategy.

The RIS3CAT combines already existing and consolidated R&D&I tools with the creation of new ones that foster collaboration initiatives with the involvement of the quadruple helix stakeholders (see Figure 1). These projects define common R&D&I agendas to transform the industries (RIS3 CAT communities), the territory (projects of regional specialisation and competitiveness named PECT), and encourage emerging activities. The different agents of the R&D&I system, throughout the definition of the mentioned sectoral and territorial agendas, will progressively specify the RIS3 in Catalonia.



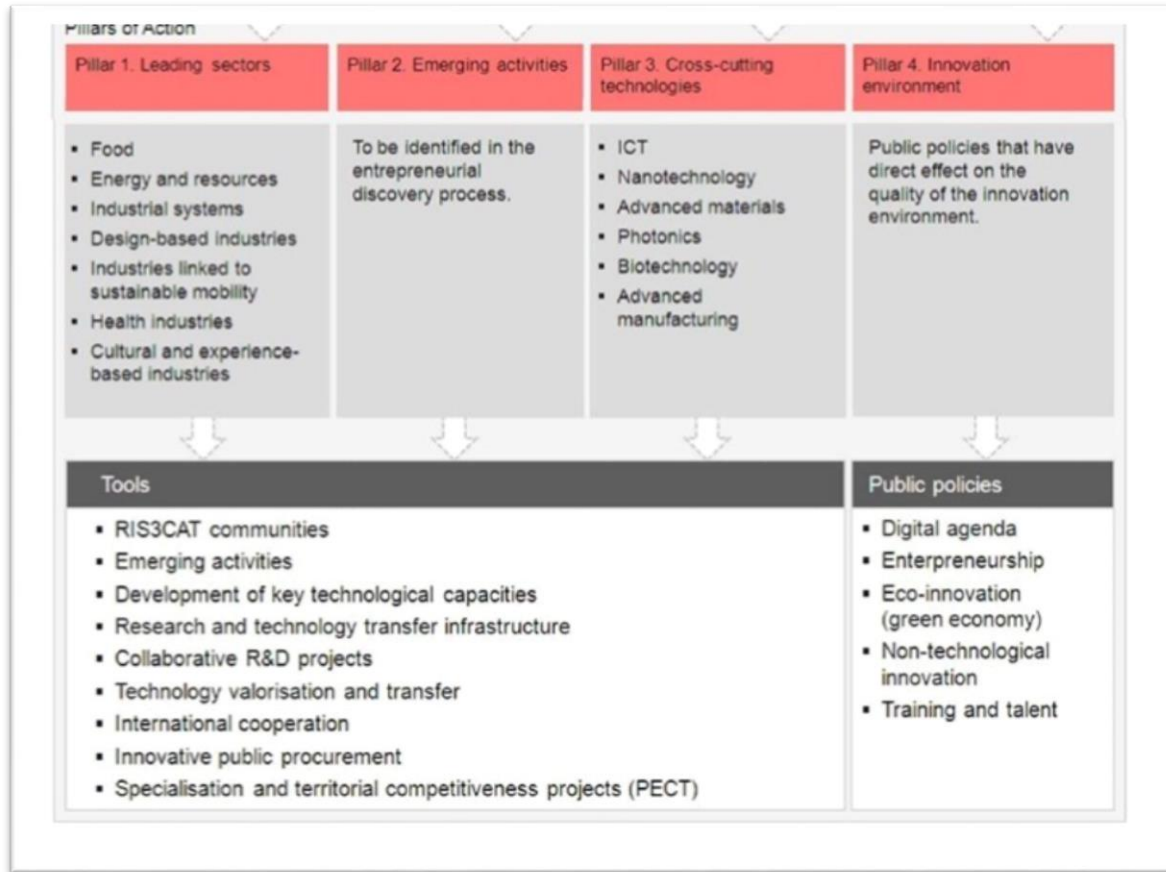


Figure 1. RIS-CAT pillar and tools

Source: RIS3CAT

The RIS3 CAT communities have been analysed by the EC as a significant case of building new instruments in the context of RIS3 to drive regional development by fostering cooperation among different stakeholders in line with the priorities defined (Marinelli et al., 2016). Despite the fact that Catalonia does not appear to be one of the reference regions gathered from the distance index previously mentioned it has been considered a valid and rich example based on several analyses done on it (Marinelli et al., 2016, Marinelli y Elena, 2017).

The RIS3 CAT communities are voluntary consortiums made up of approximately eight agents working jointly in R&D&I, including companies, research institutions, and other type of public and private organizations working on innovation. These communities go through an accreditation process run by the Regional Government of Catalonia on a competitive basis and allow the selected ones to get ESIF funds of the regional operational programmes. Aiming at facilitating the creation of consortiums, in 2014 the Generalitat published a methodological guide addressing the key issues related to the communities (Generalitat de Catalunya, 2014).

During the period 2015-2017, 15 multidisciplinary communities have been accredited in the following thematic areas: food; energy; industrial systems; design-based industries; industries linked to sustainable mobility; health; and cultural and experience-based industries. The Government of



Catalonia estimated the value of the projects in approximately 200 million euro, from which 72 million will be coming from ESIF funds (until 2020). This instrument is an important opportunity for universities to create consortiums with regional companies and directly contribute to the strategic priorities of the region.

With the aim to support the design of tool for a better implementation of the RIS, the following actions are proposed:

- Establish a system of co-financing of projects allocating a part of the European regional development funds for competitive projects at a regional level always aligned with the priority lines defined by the RIS3 of the region.
- Create a control system based on indicators to be able to monitor the number of consortiums, its configuration and results that can contribute to the control panel of the region.

### 5.3.2.3 CLUSTERS AS INSTRUMENT OF REGIONAL DEVELOPMENT – REGION OF SOUTHERN DENMARK

The cluster policy that the Danish Government and its regions follow has as main ambition the establishment of networks between companies (mainly SMEs), universities and other stakeholders linked to the creation of knowledge (Danish Ministry of Higher Education and Science and Danish Agency for Science, Technology and Innovation, 2016). With the aim of building clusters that are able to generate real added value to the economic and innovation ecosystems, in 2013 the *Cluster Forum* is created. In the Forum the main Ministries (such as Education, Science, Energy or Health), the cities and the regions are represented. They also have created a Regional Growth Forum in each Danish region which also takes part in the national Growth forum.

The national strategy of clusters proposes five areas of intervention with corresponding initiatives as well as an indicator system of monitoring and control (see Figure 2).



FOCUS AREAS	INITIATIVES
Clusters as bridge-builder to research and education	<ol style="list-style-type: none"> <li>1. Strategic collaboration between clusters and research institutions on building knowledge bridges</li> <li>2. Strengthened interaction on education programmes that match the needs of enterprises</li> <li>3. Collaboration projects between students and enterprises</li> <li>4. Strengthened interaction between clusters and Innovation Fund instrument</li> </ol>
Clusters as a driver of internationalisation	<ol style="list-style-type: none"> <li>1. Strengthening the international strategies of clusters</li> <li>2. Strategic collaboration in the Nordic countries, other neighbouring areas and Europe</li> <li>3. Increased Danish participation in Horizon2020 through cluster</li> <li>4. Enhanced collaboration between the cluster policy and the infrastructure for internationalisation</li> </ol>
Clusters as a driver in the regional ecosystem	<ol style="list-style-type: none"> <li>1. Greater synergy between local/regional and national cluster activities</li> <li>2. Strengthened collaboration between clusters and business support actors in the ecosystem</li> <li>3. Strengthened business development and entrepreneurship through clusters</li> <li>4. The public sector as a growth driver through clusters</li> </ol>
Development of strong and professional cluster	<ol style="list-style-type: none"> <li>1. Development of the Danish strengths through cluster collaboration</li> <li>2. Cluster collaboration on development of emerging cross-sectoral growth areas</li> <li>3. Continued development of Danish Gold and Silver clusters and the quality labelling system</li> <li>4. Competence development of emerging regional/local cluster organisations</li> </ol>
Cohesion in the cluster policy and structure	<ol style="list-style-type: none"> <li>1. Better overview of the Danish cluster landscape</li> <li>2. Best practice catalogue of collaboration models between local, regional and national clusters</li> <li>3. Systematic measurements of the cluster policy's impact</li> <li>4. Enhanced coordination of the public authorities' funding instruments and requirements to the clusters</li> </ol>

Figure 2. Strategic initiatives of clusters by area

Source: Danish Ministry of Higher Education and Science and Danish Agency for Science, Technology and Innovation, 2016

Focusing in the concrete case of the Southern Denmark region (that is a reference region based on the aforementioned distance index), clusters are defined as one of the instruments for the implementation of the RIS3 (see Figure 3).

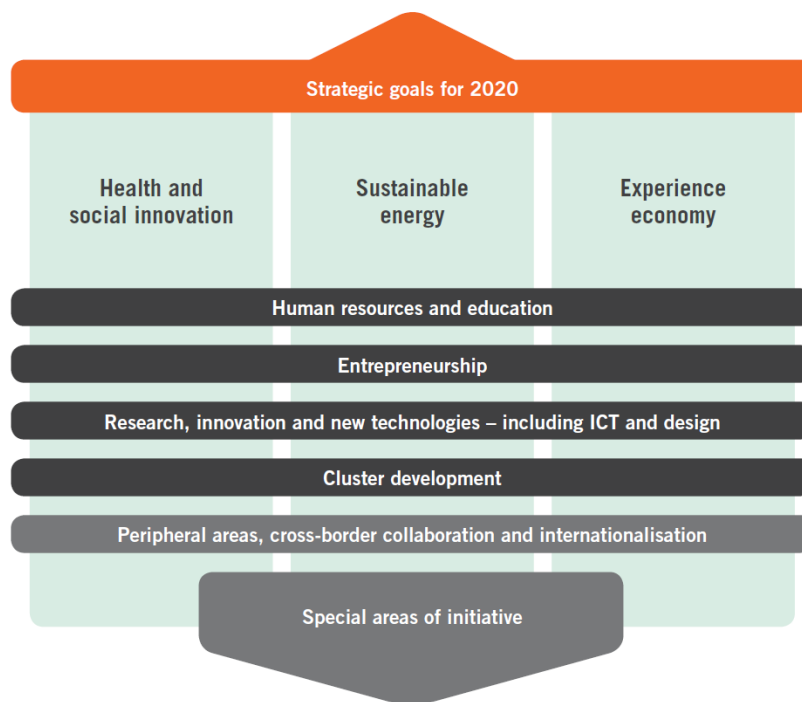


Figure 3. Strategic objectives 2020 and implementation instruments for Southern Denmark

Source: Southern Denmark (2012)

The RIS3 in Navarra is making a clear effort to promote clusters as one of the main implementation tools of the strategy. Thus, it would be interesting to integrate them in a broader framework where they can be visualized together with the rest of instruments, the relation between them, and how clusters contribute to each of the strategic priorities defined.

In general terms, the idea underlying the creation of clusters in Navarra and Southern Denmark is very similar. The following two principles are highlighted in both strategies: include universities as key players and the definition of a monitoring system in relation to the cluster's objectives to measure their economic impact. Those indicators could also be included in the control panel of the Navarra's RIS3. Accordingly, clusters will be visualised as key elements in the RIS3 implementation and in its monitoring system. These type of initiatives would increase trust in the work being done by the clusters and provide empirical evidence (with quantitative and qualitative indicators) of their importance and sustainability over time.

Summing up, the creation of clusters is at the heart of the RIS3 in all its phases – design, implementation and monitoring – and are considered an adequate tool to involve the main stakeholders of the triple helix approach: universities, companies and regional government (Foray et al., 2012).

To strength the cluster policy as central element of the RIS implementation in Navarra, the following initiatives are proposed:

- Mapping clusters operating in the territory and monitoring their activity, members, priorities and objectives. This exercise will facilitate a comparative analyses between clusters at regional, national and European level and will help to identify potential networks and the creation of synergies. Transnational collaboration among clusters could be a driver of internationalization of the region. Moreover, the mapping exercise would help to promote the cooperation inter-clusters at regional level, which can be a way to differentiate from the rest of European regions.
- Creation of a Cluster Forum with wide participation of companies, universities and regional government. It would help to identify the key clusters, visualise better the work they are doing and get a explicit support from the regional government.
- Create a system of indicators, including quantitative and qualitative indicators, as a tool to monitor the activity of the clusters and also serve as input in the panel control of the RIS3 of the region.

#### 5.3.2.4 MONITORING SYSTEM - EMILIA-ROMAGNA

Monitoring the RIS3 is recognised as one of the key elements of the governance system. It encompasses all type of actions aiming at gathering information on the level of implementation of the policy measures as well as the level of achievement of the objectives proposed (Gianelle and Kleibrink, 2015). Hence, the selection of the right indicators and the frequency of measurement is crucial.



As Figure 4 illustrates, a RIS3 monitoring system have three main purposes: creating a learning process about the transformation process; generate trust and cooperation among stakeholders and citizens; and guarantee accountability (Gianelle and Kleibrink, 2015).

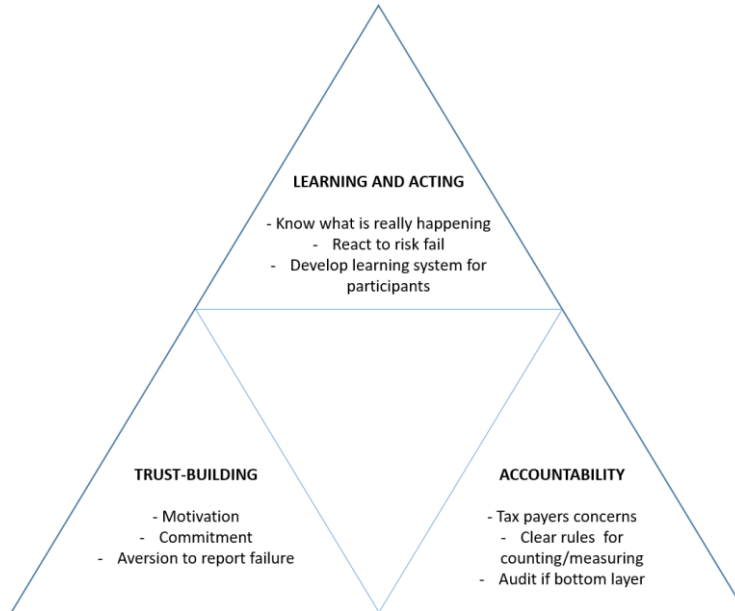


Figure 4. Main elements in the design of a RIS3 monitoring system

Source: Gianelle and Kleibrink (2015)

In 2015, the EC developed a peer review exercise with three European regions -Emilia-Romagna (Italy), Sweden y Wielkopolska (Poland) – with the aim to discuss their monitoring systems. Among the experiences presented, we have selected the case of Emilia-Romagna since it focuses on two aspects that are also crucial for Navarra: (a) the reinforcement of the exiting clusters and discovery new ones with potential to generate innovation and employment and (b) the reinforcement of the industrial system to better manage the intangibles aspects and the value chain.

ASTER (the regional innovation agency in Emilia-Romagna) supervises the monitoring activity through an indicators system that includes four levels or dimensions (see Figure 5):

- Indicators of implementation of the policy measures (output indicators);
- Indicators of changes of the regional economy in relation to the specialisation areas (change indicators) ;
- Indicators of effectiveness of the strategy (result indicators);
- Indicators of evolution of the regional economy (framework indicators).



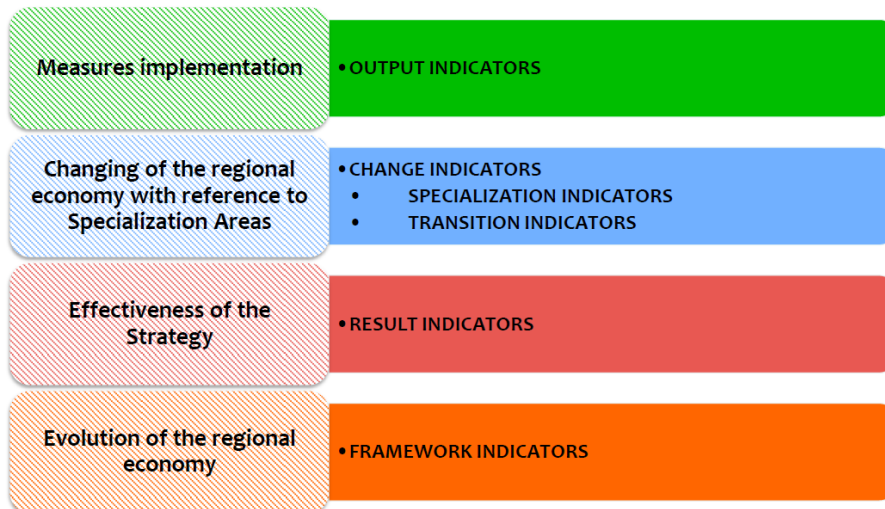


Figure 5. Levels and indicators of the monitoring system in Emilia-Romagna  
Source: Smart Specialization Platform (2015)

Specialization indicators include, among others, patent data, research contracts with companies, or the start-up ratio and SMEs by area of specialization. These indicators are especially relevant to see the evolution of the RIS3 over time and how the regional economy is addressing (or not) towards the priority areas of specialization. The Figure that follows explains in greater detail the indicators that try to capture the evolution of specialization in the region.

ID	Expected change	Specialisation indicator	Unit	Reference year	Baseline	Source
Co1	Growth of regional innovative potential	Patents per AS	No	2013	tbd	EPO
Co2		Patents in the selected OT per AS	%	2013	tbd	EPO
Co3	Growth of R&I in public research system	Research grants in regional universities per AS	No	2013	tbd	MIUR-CINECA
Co4		Research grants in regional universities in the selected OT, per AS	%	2013	tbd	MIUR-CINECA
Co5	Reinforcement of research-business relations	Number/value of researchbusiness contracts per AS/OT	No./k€	2016	tbd	Research dashboard - ASTER
Co6		Percentage of total of number/value of researchbusiness contracts per AS/OT	%	2016	tbd	Research dashboard - ASTER
Co7	Innovative regional entrepreneurship	Innovative start-up per AS	No	2013	143	Company registry
Co8		Percentage of total of innovative start-up in the selected OT per AS	%	2013	tbd	Company registry
Co9		Number of innovative SMEs per AS	No	2015	tbd	Company registry

Figure 6. Expected changes and specialisation indicators proposed by Emilia-Romagna  
Source: Smart Specialization Platform (2015)



As an additional issue to be highlighted, the region is working on an online portal where the monitoring data will be displayed and which will be partially open to the different agents of the regional economic system. The platform has a double objective. On the one hand, to be an informative platform on the implementation and motorization of the RIS3 of the region and, on the other hand, a platform capable of creating a working community among all the territorial agents involved in monitoring and follow up. For this, it has been proposed that the platform has four different elements: a reserved area, where data and knowledge about related policies and good practices are collected; a public area that disseminates information on the progress of the RIS3 in the region; an area for the innovative community that serves as a tool to create and consolidate the working groups; and, finally, an area for the diffusion of events and news related to the RIS3 that promotes the principles of communication and transparency

Finally, as suggestion for improving the monitoring system, the following aspects should be taken into account:

- Clearly identify in the monitoring system key indicators to monitor outputs, results, process and evolution of the specialization.
- The annual frequency would be desirable so, if necessary, it is possible to establish corrective actions and redirect the RIS3 towards the desired path.

The monitoring system, as a crucial instrument of the governance system, should have a permanent discussion forum where the proposed indicators and their evolution are reported, analysed and discussed. Indicators should be communicated to all interest groups periodically (ideally annually) or, if



## 6. EVALUATION

Navarra is a pioneer region in dealing with innovation by means of technological plans promoted by the Government of Navarra, who has taken into account the main interesting stakeholders of the region, companies, technological centres and universities for their elaboration. This dynamism and interests for the R&D and its repercussion on the economy and social welfare, enabled Navarra to become one of the first regions in submitting and approving a smart specialisation strategy by the European Commission.

Being aware of the economic situation dynamisms and the society demands, Navarra has envisaged the need to reflect on and update the previously planned strategy. The updating process of the smart specialisation strategy of Navarra (RIS3) in the period 2016-2017 has permitted one step forward from that previously defined, the Plan Moderna, to update it to the situation of Navarra in 2016 and achieve a better commitment from the public and private sectors on it. This higher involvement has been achieved as a result of the main following issues:

- The good work, involvement and leadership of the Economic Vice-President of the Government of Navarra, Manu Ayerdi when moderating and animating the working meetings.
- The methodological support provided by the technical team from SODENA to organise, facilitate and gather the information in the different meetings of the governance bodies, as well as in the elaboration of the documentation and reports according to the procedures and requirements defined by the EC to elaborate a RIS3.
- To build consensus and organise the contributions emerging from the participants in the meetings and to gather relevant comments for the RIS3 Navarra.
- To integrate the public and private sector between the governance members, giving them a relevant role in the updating process, in such a way that they feel they have been listened to during the updating phase, increasing their motivation to actively participate in the future implementation of the strategy.
- A continuous communication in the diffusion media, in the Parliament and between the members of the governance bodies about the activities completed and conclusions obtained in each phase of the process.

Moreover, the updating process has benefited from the support of external experts on specific issues, like the elaboration of the regional diagnose. These external experts have provided new ways of analysing information related to the activities of Navarra companies by technology domains, and included a benchmarking analysis with other European regions considered as similar to Navarra..

Having counted for the strategy updating with the technical team who participated in the elaboration and dynamisation of the first smart specialisation strategy of Navarra, named Plan Moderna, is considered as a right decision. It has permitted to take advantage of the experience and know-how of





this technical team both on the methodological procedures defined by the EC and on the situation of the regional economic and productive tissue, knowledge stakeholders and public administration.

The process for updating the Smart Specialisation Strategy of Navarra has been carried out by following the steps defined by the EC for elaborating a RIS3: 1) elaboration of a diagnose of situation, 2) formulation of priorities, 3) ensuring a large participation in the process governance, 4) adoption of a public framework of measures and actions, and 5) incorporating follow-up and evaluation mechanisms, including the current external evaluation of the work performed, in order to assess the degree of fulfilment of the European methodology and to include recommendations for the implementation and follow-up phases of RIS3.

It is presented hereafter an evaluation of the analyses carried out in each of the above five steps, including the successes identified.

## 6.1 DIAGNOSE OF SITUATION

The elaboration process of the diagnose and its result is complete and appropriate, and it reflects the situation of Navarra. The main merits are:

- A multidisciplinary working team has been created, with public and private participation, associations, companies of social economy, intermediary stakeholders, innovation and training centres. The participants in the diagnose knew the reality of Navarra, they had a medium-term vision in mind and participated in strategical decision-making that were relevant for each one of them.
- Analytical information about the economic situation of Navarra has been used to serve as a basis of information devoted to the decision-making, as well as qualitative and quantitative information, both internal and external from other European regions with similar structural features.
- Independent experts have processed the economic information according to technological sectors instead of CNAEs (National Code for Economic Activities) which has allowed to analyse the situation from a different perspective than the one previously used and therefore, and to identify new opportunities.
- The information and conclusions of the diagnose have been analysed, having the possibility of contributing with proposals from groups of interest for Navarra, reaching an effective and real participation beyond a mere formal participation.
- The conclusions after the analysis of positive actions and actions to be improved from the Plan Moderna has been considered as a basis for the current diagnose.



In conclusion, based on the information checked with the interviewees and the analysis of the documentation, it can be said that the studies completed during the diagnose phase of the RIS3 of Navarra have followed a methodical system, have been rigorous, largely debated and validated in the different governance bodies of the RIS3 at regional level, with an important involvement of the private sector. Additionally, it is considered that the conclusions extracted are appropriate and observe the requirements and recommendations defined by the European Commission to elaboration a diagnose of the situation serving as a basis to set out a smart specialisation strategy of the region.

## 6.2 VISION AND PRIORITIES OF THE RIS3

The smart specialisation strategy looks for supporting in a selective way those activities permitting to improve the regional competitiveness, the economic development and the social challenges, taking as basis the smart specialisation existing in science and technology.



Figure 7. Thematic priorities defined in RIS3 Navarra

Source: Government of Navarra and Sodena (2017), “Estrategia de Especialización Inteligente de Navarra” (p33)

A future vision of Navarra has been planned around 5 regional development axes. Because of them, a restricted number of priorities has been selected (tree branches) which have been structured in six

economic areas or vertical priorities accordingly (tree leaves) and five transversal competitiveness factors or horizontal priorities (tree roots). Likewise, these eleven priorities are specified in 24 challenges. The vision and priorities defined in RIS3 Navarra has the following success:

- It is based in the SWOT analysis of the economy of Navarra completed and verified by a large group of interest in different meetings, and through possible contributions received during the public exposition phase.
- It plans specific and ambitious goals and challenges which can be reachable bearing in mind the efforts of the public/private stakeholders of the region.
- Some technological and sectorial priorities have been identified, related to the economic prioritised areas, such as strategic economic areas and transversal competitiveness factors. The selection of these technological priorities has been justified, their potential impact on the strategy has been identified, the technologies and key stakeholders of interest together with the trends of future and lines of development both competitive and technological are defined. This level of detail of the priorities eases the understanding of the strategy of Navarra by each economic stakeholder of interest, permitting an alignment of its own strategy in the medium-long term with the RIS3 Navarra.
- The eleven challenges specified in the vertical priorities or prioritised economic areas are in line with the prevailing trends at European and world-wide level.
- They are based in the knowledge and speciality of the region, as well as in its future potential, integrating new bets, that although not directly derived from the diagnose, they are aligned with the trends at world-wide level (i.e. the priority of the comprehensive tourism searching for benefits of the territorial cohesion and that of creative and digital industries which is a bet on future)
- They count on the support and positive valuation of the interviewees, which will ease the launching of the measures.

According to the documentation analysed and the interviews executed, it has been confirmed that the requirements and recommendations defined by the EC have been followed-up to define the vision and priorities serving as a basis to set out a smart specialisation strategy of the region.

### 6.3 PROCESS GOVERNANCE

The governance system is a key issue for the successful development of the RIS3, to which a huge effort has been paid to be able to relay on the maximum participation of groups of interest for Navarra, both from the public and private sectors, using governance as a fundamental tool to achieve the largest involvement of stakeholders during the execution and follow-up phases, as well as to solve the weakness detected in the Plan Moderna about the disconnection between the public measures and the strategy.



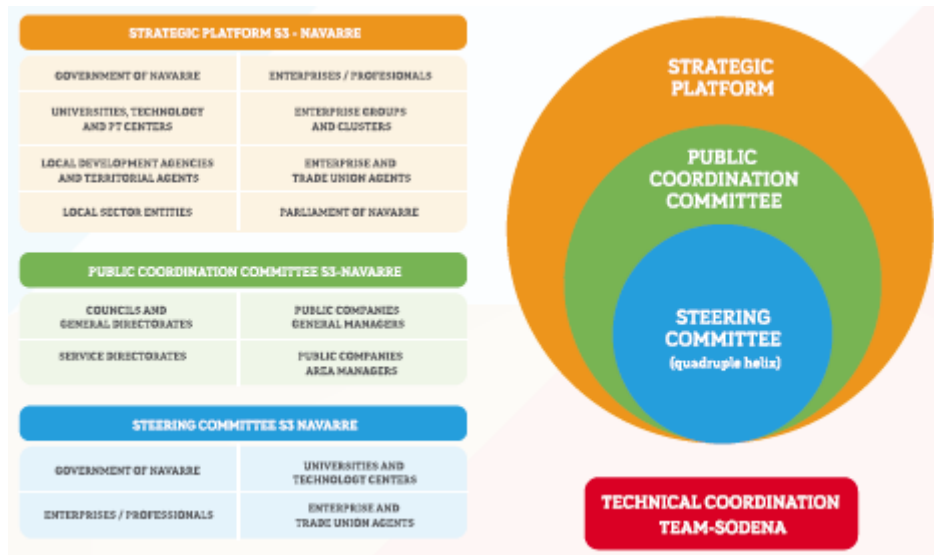


Figure 8. Governance model of the RIS3 of Navarra  
 Source: RIS3 of Navarra (p. 8)

The following success have been identified during the governance process:

- The methodological support provided by SODENA and the good work, commitment and leadership of the Department of Economic Development of the Government of Navarra, which have been very positively valued by practically all the interviewees.
- The organisation of the meetings has been very positively valued by all the attendants. Additionally, by analysing the meetings documentation it can be confirmed the rigorousness of the organisation, considering the terms, working documentation sent together with the agendas, minutes mailed as well as their review in next meetings and the possibility to provide additional information by the participants after the meetings. Both, the meetings as well as the review of the previous minutes at the beginning of the next meeting, served as a tool to align the visions and strengthen the agreement of participants, particularly in those meetings from the Steering Committee and Public Coordination Committee.
- The governance system with its different bodies is appropriate and, in general terms, it is also adequate its composition and balance between members with different profiles taking into account the types of stakeholders, the quadruple helix, public-private origin, size of the companies and gender balance.
- A large participation of private stakeholders has been achieved in the governance bodies and there is a generalised perception among participants that all their contributions have been listened to and assumed by the RIS3 Navarra. This perception has been confirmed in the analysis of the meetings documentation. This large participation has permitted the involvement of private stakeholders who ultimately are the beneficiaries and booster of the RIS3 Navarra.

- Regarding the different committees<sup>17</sup>, it is considered a virtue the evolution of the public coordination committee, initially configured as a steering committee and latterly as public coordination committee giving the participative leadership of the RIS3 governance to the initially named “advisory and control committee”, which is public and privately composed (its members come from Government of Navarra, companies, universities, technological centres, intermediary stakeholders).
- The governance system defined has generated a higher and better communication between different profiles, public and private ones, that undoubtedly contributes to the progress of the region.
- To include in the governance system the Public Coordination Committee composed by members from different departments of the Government involved in the 24 challenges eases the interdepartmental coordination task, required to implement these challenges.
- The presentation to the Strategic Platform of the challenges by the respective person in charge within the administration reinforce and reflect the commitment acquired by the Government of Navarra, which can increase the motivation and effort to be carried out by the rest of the stakeholders of interest to achieve the goals set out.

#### **6.4 INSTRUMENTS, MEASURES, PUBLIC AIDS TO IMPLEMENT THE RIS3**

The implementation of the RIS3 Navarra has been articulated around 24 challenges for the period 2017-2020 that are linked both to the priority economic areas and the transversal factors of competitiveness. These projects are named challenges.

The instruments and measures to implement the RIS3 Navarra require public and private participation which is prioritised by the Government of Navarra through the budgetary allocation and by the Steering Committee determining the more relevant questions until year 2020 according to:

- The private participation is boosted by calls for proposals foreseen in the 24 challenges and by means of the work with clusters that operate in the domains of the priority economic areas. The clusters group the entrepreneurial and knowledge stakeholders to promote the competitiveness and development lines set out in every priority, boosting collaboration projects and improvement of the economic context.
- The public participation is executed by means of specific actions foreseen in the 24 challenges and also through strategic regional plans to deploy the transversal factors of competitiveness, such as the Science, Technology and Innovation Plan 2017-2020, the Industrial Plan of Navarra 2020 and own preferential projects from the Government of Navarra that will be carried out in some of the priority strategic areas as tourism and waste management.

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<sup>17</sup> For further information on the RIS3 of Navarra Governance system see “Estrategia de Especialización inteligente de Navarra (2017, page. 7 and 8)

According to the analyses carried out, it is concluded that the public framework of measures and actions adopted by the RIS3 of Navarra is consistent with the recommendations given by the EC for defining a combination of policies, roadmaps and action plans aligned, outlining the following successful issues:

- Some general action lines have been defined corresponding to priority areas, that have been named 'challenges'. They include a description of the challenge indicating the working scope and the responsible assigned for its execution, who is known as leader of the challenge and comes from the regional public administration.
- Every challenge describes the specific operating mechanisms and/or related projects, known as actions and it is designated both the responsible entity for each action and the annual budget for the period 2017-2020. The budget allocated is differentiated from the budget executed and a follow-up of percentage of budget executed is foreseen. The matrixial structure used to define the challenges and actions enable the identification of the targeted groups, indicating it in the name assigned for every action, in addition to the involved public departments and the time framework of the plan.
- Some goals and indicators of results have been specified with measurable values, differentiating the target-value, the reached value and the percentage of achievement, easing the evaluation of the results and impact of the actions.
- The implementation is supported by a combination of previously existing instruments that were selected according to their validated effectiveness and its relevance regarding the priority areas and by new tools such as strategic projects (collaborative R&D and restricted towards priority areas of the RIS3 Navarra) or the calls for proposals of clusters.
- The budgetary allocation assigned to the implementation of the strategy RIS3 Navarra is aligned and integrated in the elaboration of the successive general budgets of Navarra Government, thus securing a financial stability in the implementation of the RIS3.
- The stability that, through a regional Act, it is expected to be given to the R&D&I public funding and its budgetary increase.

Both from the analysis conducted and the information checked with the interviewees It is concluded that it is very positive to specify the implementation of the RIS3 Navarra by means of some specific challenges with a a short-medium term horizon (2020), that boost motivation and avoid the risk to be relaxed when looking for some final goals expected in the RIS3 Navarra by the year 2030.

It is also positive the budget estimation and allocation to the challenges, more particularly, the budget assignment to the vertical challenges which will reach the specialisation and will provide information and certainty on the expectations of selected priorities for the RIS3 Navarra.



## 6.5 MECHANISMS TO FOLLOW-UP AND EVALUATE THE RIS3

As it has been mentioned earlier in this report, the strategy will have to be dynamic and should evolve in order to be adjusted according to economic situation and scenario changes that may happen during the implementation phase. This evolution will be tracked by means of the follow-up and evaluation mechanisms planned.

As it is recommended in the methodology promoted by the European Commission to elaborate RIS3 strategies, some mechanisms have been defined and integrated for assessing the degree of achievement of priorities and goals, the projects monitoring and the evaluation of results, being planned the following tools:

- “Dashboard” (profile indicators of the region) to monitor the evolution of the region based on 6 general indicators controlling the general goals and 20 indicators of the transversal factors for the intermediary goals.
- “Specialisation control” to gauge the weight of every priority economic area over the set of the whole region and control its evolution.
- “Territorial deployment” to assess the territorial cohesion.
- “Challenges’ monitoring” to measure the progress and result of each one of the planned challenges.

Additionally, they can be complemented by some other monitoring tools of regional public plans deployed and aligned with the RIS3 Navarra.

Based on the analysis executed, it can be said that the guidelines indicated by Europe for integrating the control and evaluation mechanisms are accomplished, highlighting the following merits:

- Regarding the “Dashboard”:
  - It is very positive the creation of a structured dashboard according to the priorities set out, with indicators referenced to current and target values, and a clear temporal horizon.
  - The six general indicators of the dashboard and the 20 indicators of transversal factors of competitiveness are backed by official statistical data. Besides, ten out of the 26 indicators of the dashboard use international information sources and 8 out of them are published annually, being a success their selection.
  - The estimation of the evolution of target-values assigned to the indicators is assumable and coherent with their historic evolution.
  - The coordination of the follow-up and monitoring tasks of the indicators is assigned to SODENA who has elaborated a methodological document about indicators’ official sources, periodicity and explanation of the technical values to ease the monitoring.

- The indicators of the dashboard are displayed according to five-year intervals, but SODENA has planned the annual follow-up to early identify eventual deviations and quickly adopt the opportune adjustments.
- Concerning the “Challenges monitoring”
  - The indicators of the 24 challenges plan an assignment and annual monitoring of targeted values.
  - It is expected a differentiated monitoring of the 24 challenges based on specific indicators to measure the “cause-effect” ratio achieved in the challenges. This approach counterbalance to the macro indicators from official statistic of the “dashboard”.
- Some indicators are foreseen to assess the evolution of the “specialisation”. This will allow the validation of the priorities selected or economic areas to be prioritised in the future.

## 6.6 TEMPLATE TO ANALYSE THE FULFILMENT OF THE RIS3 METHODOLOGY

From the set of analysis and valuations included in the current report, it is clearly observed that the methodology set out by the EC has been followed-up during the elaboration of the RIS3 of Navarra. If we wonder to what extent or percentage that methodology has been accomplished, a small summary table gathering the most relevant issues from the five blocks of the RIS3 methodology can be made to check how many have been fulfilled (mark ) and indicate the degree of fulfilment using a colour code: green (fully completed), yellow (partially completed) and red (incomplete). As it can be observed hereafter, in general terms, most relevant issues from the RIS3 methodology have been fulfilled, since a total fulfilment has been achieved in 20 out of the 24 issues reviewed, and only four issues show a slight deviation compared to what the European methodology of RIS3 states.

<b>“SETTING THE SCENE” ANALYSIS</b>	
Availability of a complete and updated diagnose about the strengths, opportunities, weaknesses and threats of the region, regarding its scientific, technological and economic/entrepreneurial specialisation	✓
Execution of an analysis showing the competitiveness position of the region in comparison with other regions/countries and its positioning in the value chains of global markets	✓ 18

<sup>18</sup> Partial accomplishment, due to the comparative with other regions is in horizontal data and not by sectors, which would permit to compare the critical mass and competitive position of the sectors (even though, it is recognised the difficulty of this comparison and in the recommendation chapter it is proposed that it could be tackled through the clusters).



<b>VISION AND PRIORITIES</b>	
Description of a medium-term vision, credible and realistic	✓
Focus on a restricted number of priorities of research and innovation based on the strengths of the region	✓
Priorities identifying potential and/or existing niches for a smart specialisation	✓
Specific priorities defining concrete and achievable goals	✓
Priorities derived from the diagnose of situation of the region	✓ <sup>19</sup>
Priorities agreed with the stakeholders participating in the strategy elaboration process	✓
<b>PROCESS GOVERNANCE</b>	
Periodic meetings to debate and agree with the participant stakeholders the steps forward for the strategy elaboration process	✓
Working material for these meetings, being of quality and sent well in advance	✓
Large participation of private stakeholders, who are the ultimate beneficiaries of the strategy	✓
Strong involvement of the regional authorities for facilitating the participative process during the strategy elaboration process	✓
Keeping the participative process in the monitoring tasks to accomplish the strategy	✓
<b>INSTRUMENTS, MEASURES, PUBLIC GRANTS</b>	
Incorporation of instruments, measures or public grants and roadmaps, realistic and in line with the strategy objectives	✓
Clarity when identifying the bodies from the regional administration who are responsible to promote and implement the actions, instruments and grants	✓
Coordination and cooperation of tools and measures among the different departments of the regional government	✓
Assignment of a budgetary framework consistent with the content and scope of the priorities (horizontal-vertical balance)	✓ <sup>20</sup>
Orientation of the tools towards the stimulation of the private investment in innovation	✓
<b>FOLLOW-UP AND EVALUATION MECHANISM</b>	

<sup>19</sup> Partial accomplishment due to the fact that the tourism and creative/digital industries priorities are not clearly derived from the diagnose of the region, although they are a bet for the future

<sup>20</sup> Partial fulfilment given the restricted number of new instruments/budgets and risk to do not focus the budget on the specialisation of the vertical areas (the RIS3 is above all about specialisation) since the largest percentage of the budget is allocated to the horizontal priorities



Suitability of the indicators selected to assess the degree of achievement of the goals/priorities of the strategy in a short-medium term	✓
Suitability of the indicators selected to measure the outcome of the different instruments, measures and/or public grants defined	✓
Balance between indicators based on official statistics and more specific indicators	✓
Availability of specific, accessible and reliable indicators	✓
Target-values assigned to indicators that are achievable and realistic	✓ <sup>21</sup>
Inclusion of follow-up or monitoring mechanisms within the strategy governance system	✓

Table 7 Fulfilment degree of the RIS3 of Navarra

Source: Own elaboration

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<sup>21</sup> Partial fulfilment since the estimation on the evolution of certain target-values in specific objectives of some challenges is not sufficiently justified and they do not always permit the evaluation of results and impact of the measures planned.



## 7. RECOMMENDATIONS FOR THE IMPLEMENTATION

In this chapter some improvements and recommendations are included for each one of the five domains analysed, that could be taken into consideration during the implementation phase.

### 7.1 RECOMMENDATIONS FOR THE ANALYSIS

According to the evaluation conducted, the following improvement and recommendations can be proposed for the implementation phase as regards to the analysis of the situation:

- To add in the comparative analyses with other regions a “sector” approach, being aware that it can be very difficult and complex to obtain homogeneous and comparable sector data from the selected regions of reference, but if achieved the results would be more relevant for the accuracy of the diagnose, and particularly for a comparative valuation of the critical mass and potential of the Navarra sectors and the later definition of specific sectorial priorities.

For that purpose, in order to implement the RIS3, there should be an attempt to access to “sector” information from other leading European regions in that which concerns priority economic areas of the RIS3, maybe by means of the clusters and working groups (and European sectorial associations), so to analyse the competitiveness situation of Navarra priority sectors compared to those regions and, accordingly, define the strategic sectorial actions and projects.

- To execute an analysis of the situation in Navarra with a “micro” dimension, individually considering companies with a certain weight, their competitiveness position, possible interrelations and value chains. The result of the micro diagnose could help to really understand what the companies from the region require. This analysis could be undertaken starting from economic sectors, through the existing associations and/or clusters which are being created/consolidated and they could use this information to be aware of the challenges to be faced by every regional economic sector. At the time of finishing this report SODENA is promoting the beginning of this kind of analyses through the clusters.
- To plan a structured system to gather information “on what” (and in which sectors) the grants in investments, R&D&I, entrepreneurial development, entrepreneurship, etc. are being spent and the impact they have generated; what is the historic of results in terms of employment, turnover, exports, etc. of the beneficiaries of grants from the Government of Navarra.

## 7.2 RECOMMENDATIONS FOR THE VISION AND PRIORITIES

As recommendations for improvement related to the priorities of the RIS3 of Navarra the following are suggested:

- The priorities have been introduced as large challenges permitting to achieve the goals defined and a follow-up of results must be carried out during the execution and monitoring phase, regarding both the priorities derived from the diagnose and the economic areas selected as a bet for the future. Following-up these latter areas are of particular relevance to verify if they are really able to generate a significant economic development for Navarra, and so to validate this bet. Additionally, the RIS3 must be attentive to new emergent areas that may appear and can generate a relevant economic value for Navarra.

## 7.3 RECOMMENDATIONS FOR THE GOVERNANCE

For the strategy implementation phase the following recommendations are planned in that which concerns the governance:

- One of the highest defiance that the RIS3 has, because of its relevance for the future of Navarra, it is to achieve that this long-term economic development strategy gets a large political consensus, thus accompanying the agreement already got among the entrepreneurial and knowledge stakeholders and contributing to its stability.
- The participative process through the governance bodies (SC, PCC and SP) that has been followed to elaborate the RIS3 should be kept during the implementation phase, not only for the follow-up and monitoring tasks but also to gather contributions on the instruments effectiveness or to eventually design new instruments and/or modify tools and measures used to achieve the 24 challenges. Keeping the participative process will help to maintain the interest, motivation and commitment of every stakeholder of economic interest for Navarra, both public and private.

As regards to the SP, in order to achieve its effectiveness as an advisory body, it should be kept the dynamic carried out in the first meetings where members of the platform were separately distributed in working teams of reduced composition, with specific thematic goals of joint interest. In order to propitiate a more active participation of its members, the working dynamic should be animated by someone with tractor potential and enough authority/expertise on the thematic addressed by the working team.

- Given the horizontal priority of the RIS3 addressing the "education and training" it is specified in a single challenge regarding the Vocational Training (VT) it could be considered the presence of a VT

representative in the Steering Committee. Nowadays, there is only one representative of the Education Department in the PCC but there is no VT representative in the SC.

- The coordination among departments of the Government of Navarra (GN) around the 24 challenges requires they jointly work in common projects but no longer unconnected departmental areas, so it is a huge defiance and in a long-term view could be the most critical issue in order to implement the RIS3. This new approach requires that the leaders of the 24 challenges, join interest from distinct departments of the Government of Navarra, execute an analysis on how their respective measures have an impact on the achievement of the goal/challenge. And if they do not fulfil the goals/challenge, be able to change their actions. This new approach of joint work around challenges of the RIS3 is of huge and innovative significance in the public administration, being convenient to provide methodological and training support, which could be provided by SODENA.

## 7.4 RECOMMENDATIONS FOR INSTRUMENTS, MEASURES, PUBLIC GRANTS

For the strategy implementation phase the following recommendations are suggested concerning the instruments, measures and public grants foreseen in the 'challenges':

- Beyond the follow-up of the budgetary execution progress of each challenge, it should be analysed the result and effectiveness achieved by each action included in the challenges, modifying the budgetary provision allocated, incorporating a higher level of detail, breaking down the actions in sub-tasks and scheduling a temporal planning facilitating the integration of calls for proposals with the planning of companies and research bodies. This analysis will also serve to redirect or eliminate actions from each challenge, as well as to design new challenges if needed.
- Although keeping the clusters promotion by the private initiative, it is suggested to follow-up the clusters to ensure they can identify and carry out joint projects that pull the entrepreneurial tissue and are able to generate added value. This follow-up should be accompanied by an appropriate institutional assistance as it has successfully occurred in some joint commercial actions in international markets.
- To look for the cooperation with entities providing added value and knowledge in order to execute technological and non-technological innovative projects paying special attention to the collaborations easing the market access and the internationalisation beyond the geographical borders of Navarra and/or Spain. The challenge number 12 is a firm bet about the clusters as a tool to channel the private contribution to the implementation of the RIS3 which should be complemented and backed by open innovation ecosystems at world-wide level.
- To continue the promotion of the research in the universities oriented towards the entrepreneurial tissue taking advantage of the research, scientific and training potential which can provoke economic and entrepreneurial outcomes. It could be also promoted the cooperation with universities from European regions in priority areas of the RIS3 that coincide in terms of specific

projects and common actions as well as in joint and coordinated proposals to be submitted to European programmes, specially H2020 and interregional ones.

- To incorporate and reinforce the role of the innovative public procurement as a fundamental tool to implement the RIS3 of Navarra, since it is a public tool successfully used by other regions and countries and whose effectiveness to stimulate the entrepreneurial innovation is sufficiently validated (i.e. the Silicon Valley technological and economic development has its origin in North American federal programmes related to public procurement)
- It would be convenient a more proactive approach on how to fit the priority areas of the RIS3 with the programme H2020. Beyond the generic enunciation of H2020 priorities in the RIS3 annex it would be appropriate to identify and select specific “topics” (particular thematics of calls for proposals) from the drafts of the sub-programmes 2018-2020 of the H2020 which are aligned with the RIS3 and execute a proactive action plan to get the European funding.

## 7.5 RECOMMENDATIONS FOR FOLLOWING-UP AND EVALUATION MECHANISMS OF THE RIS3

To implement the strategy the next recommendations are suggested considering the follow-up and evaluation mechanisms of the RIS3 Navarra:

- It would be convenient that the information on the updating and annual evolution of the indicators could be transferred to the members of all the governance bodies, including the SP, and to interesting economic stakeholders of Navarra, for informative purposes. In this way, a better stakeholders’ alignment with the RIS3 Navarra will be reached and connections within the quadruple helix will be strengthen in order to achieve the initially planned goals, as well as their adhesion to new improvement proposals, should the strategy need some adjustments.
- It could be obtained a higher exploitation of the international sources of information selected for the indicators, comparing them with those from some other European regions. So, a continuity will be given to the comparative analyses carried out during the diagnose of situation and could be obtained a better vision of the positioning of Navarra in an international competitiveness environment.
- It is suggested to complete the indicators for the “Challenges monitoring” with a methodological document on this monitoring, similar to that elaborated by SODENA for the “Dashboard”. This document could incorporate the official sources used, their periodicity, explanation of the most technical indicators, as well as the services of the Government of Navarra in charge of the updating process. Taking advantage of the elaboration of this methodological document, the indicators missing could be completed.
- The “specialisation” indicators of the priority economic areas could be complemented with indicators obtained through specific questionnaires to be sent to the beneficiaries of the measures and grants foreseen in the challenges of those priority areas, thus enabling the evaluation of the outcomes and the impact of those measures.



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## 9. ANNEXES

### ANNEX I. INTERVIEW GUIDE. AUDIT ON THE UPDATING PROCESS OF THE RIS3 OF NAVARRA

#### Introduction

The main goal of the audit is to **verify that all the procedures and requirements** defined by the European Commission **to elaborate a Smart Specialisation Strategy (RIS3) have been accomplished** and which basically are gathered in the methodological guide of the RIS3 elaborated by the own European Commission and in annex XI of the EU regulation 1303/2013 regarding common provisions of the Structural Funds, where the requirements needed for the European Commission to accept that a region has a smart specialisation strategy are indicated.

These requirements are concentrated in **five domains**: 1) elaborate a diagnose of situation, 2) formulate the vision and priorities, 3) adopt a public framework of measures and actions, 4) incorporate some follow-up and evaluation mechanisms and 5) guarantee the participation in the process governance.

The interviews, and the questions planned aim at verifying whether the activities developed by SODENA and governance bodies of the RIS3 Navarra have observed those proceedings to update the strategy, detecting success and improvement actions and proposing recommendations for the implementation and monitoring phase.

#### 0. IDENTIFYING DATA

- 0.1. Name and position of the interviewee, organisation represented
- 0.2. Tasks and meetings of the RIS3 where the interviewee has participated

#### 1. DIAGNOSE OF THE SITUATION

- 1.1. What's your opinion about the diagnose of the situation executed during the updating process: is it a sufficiently **complete** analysis of the strengths, weaknesses, opportunities and threats (SWOT) of Navarra regarding its scientific, technological and economic/entrepreneurial specialisation?
- 1.2. What **relevant issues have been gathered** in the diagnose analysis? **Do you miss some relevant issues** within the diagnose serving as a basis for the RIS3? **Which ones**?
- 1.3. Do you think there are some issues **not completely or insufficiently analysed? Which ones and why** do you consider the analysis incomplete?
- 1.4. What's your valuation of the competitive position of Navarra compared to other regions? Do you think the diagnose shows the competitive position of Navarra (strengths and weaknesses) **with regard to other regions**? And what about the positioning of Navarra in the **global market** value chains?
- 1.5 (In case you consider the diagnose does not reflect the situation of Navarra, please explain it).



## 2. VISION AND PRIORITIES

2.1. Does the RIS3 propose a **vision** of Navarra in a short-term sufficiently described, credible and realistic?

2.2. Do you think the RIS3 of Navarra is focused on a **restricted number of research and innovation priorities** based on **own strengths** or just the opposite, is it much more generalist? (*justify the answer*)

2.3. Do you think the priorities identified are generalist or are they enough **specific** when finding **potential and/or existing niches** for a smart specialisation in the definition of **specific and achievable goals** and in the corresponding improvement of existing activities or potential future ones?

2.4. Do you think the research and innovation priorities of the RIS3 of Navarra **are clearly derived from the diagnose** of situation executed during the updating process? Or do you think there is **no a clear link** between the diagnose and some of the priorities described in the RIS3? (*if so, what priority is not needed and why is no link with the diagnose?*)

2.5. Oppositely, do you think there is **any priority clearly derived from diagnose completed that is not gathered** in the RIS3 of Navarra? (*if so, what priority is missing from the diagnose?*)

2.6. Do you think the priorities shown in the RIS3 of Navarra have been originated or at least have been debated and sufficiently **agreed by the participant stakeholders** in the updating process? Or just the opposite, do you think the priorities have been mostly **unrelated** to that debated by the stakeholders or imposed by the team in charge of facilitating the updating process of the RIS3? (please explain and specify)

## 3. PROCESS GOVERNANCE

3.1. Have you been called to all the meetings held about RIS3? When you are **called the goals of the meeting, the agenda and points to deal with** are properly set out? (*could you please show us some invitation, agenda, list of participants minutes...related to a meeting where you attended to?*) Do you receive the minutes later? If you do not attend to a meeting, do you **receive the minutes of the points dealt with?** Is there any possibility to send your comments and suggestion through **other ways apart from the presence meetings?**

3.2. Do you think your **level of involvement** in the updating tasks of the RIS3 (elaboration of the diagnose, definition of priorities, measures and follow-up mechanism) is **enough** or do you miss a **higher level of interlocution and collaboration** or a **more efficient collaboration** with the technical team responsible of promoting the updating tasks of the RIS3?

3.3. Have you got appropriate **channels** to provide **contributions** during the updating process of the RIS3? Do you think your contributions have been **taken into consideration?**

3.4. In case you consider the collaboration is **insufficient or inefficient, what aspects** could require higher or more efficient collaboration? Do you miss **more meetings** of working teams? **More information?**

3.5. Considering the next **implementation of the RIS3, how do you think your organisation must be involved** during this phase? For instance, taking part in the follow-up process of the implementation and the possible adjustment of the **priorities?** How? And/or in the design, follow-up



and eventual adjustment of **instruments and public grants** related to the achievement of these priorities? How? **Other ways** to be committed in the next implementation of the RIS3?

3.6. Do you think the **stakeholders'** involvement/participation (including administration, companies, universities, technological centres, social and economic agents, etc.) has been **enough**? In the meetings where you participated, are they **balanced** in terms of representation from the different economic sectors, universities, regional government, etc.? **Do you miss** the participation of relevant stakeholders?

3.7. Do you think there has been a **clear leadership** during the **updating** process of the RIS3 of Navarra? Do you think there is a **clear leadership** in view of the **next implementation**?

3.8. Do you think that the **calendar and implementation rhythm** of the RIS3 is appropriate, considering the global competitiveness in the economic areas selected as priorities by the RIS3? (other regions also run and some even faster...)

#### **4. INSTRUMENTS, MEASURES, PUBLIC GRANTS**

4.1 Do you know the **instruments, measures or public grants** designed to launch the RIS3 in Navarra? Which ones? How did you know them? (press, meetings, official sources, etc.).

4.2. Do you think the RIS3 include the **instruments, measures or public grants** and/or roadmaps realistic and **aligned with the objectives planned**? (*in case of negative answer: alternative proposed*)

4.3 Do you think these instruments, measures or grants are **sufficient** to reach the goals? (please explain and specify)

4.4. Is it sufficiently defined in the RIS3 **the bodies** from the regional administration **in charge** of fostering and implementing the actions, instruments and/or grants?

4.5. Do you think the RIS3 sufficiently describes the **coordination and cooperation of instruments and measures among departments** of the Government of Navarra, covering relevant policies, particularly between research/science policies and innovation/economic development policies, but also with regard to other relevant policies i.e. education and employment?

4.6. Do you think the RIS3 sufficiently identifies the **available budgetary resources**? Has the RIS3 a pluriannual **budgetary framework**, realistic and coherent with the scope and content of the research and innovation priorities?

4.7. How do you think the RIS3 Navarra **stimulates the private investment** in research and innovation? Do you think it gathers instruments or specific measures for that purpose? What measures do you think should be applied in this respect?

#### **5. FOLLOW-UP AND EVALUATION MECHANISMS**

5.1. Do you know the **indicators and monitoring mechanisms** planned in the RIS3 Navarra? What do you think about them?

5.2. Do you think the RIS3 Navarra sufficiently defines specific, accessible and reliable **indicators, assigned to the different instruments, measures and/or public grants** defined and that **serve to measure the progress** of the outputs/outcomes (immediate and in a short-medium term) and to **evaluate the degree of achievement of the goals/priorities** of the RIS3?



5.3. Do you consider there is an appropriate number of specific indicators **based on surveys** addressed to the beneficiaries of the measures, compared to indicators based on **official statistics**?

5.4. Do you think the goals/**assigned values** in a short and medium term for the indicators defined are **achievable and realistic**?

5.5. Do you consider the RIS3 includes a governance **system** for the **follow-up and monitoring** sufficiently defined, and is it able to **control and evaluate** the implementation of the regional innovation strategy, **identify possible deviations** in an early phase and adapt/adopt the opportune **adjustments and/or reviews**?

## **6. GENERAL CONSIDERATIONS (RECAPITULATION OF THE PREVIOUS ONE)**

6.1. As a general conclusion, please indicate which are in your opinion the strengths or the **most successful** issues of the RIS3 Navarra?

6.2. And which are the **weaknesses**? Consequently, what do you think should be changed or **improved during the next implementation** of the RIS3? and **how**?

6.3. Do you have **any other suggestion** or comment about the updating process of the RIS3 of Navarra, that you consider relevant and was not included in the previous questions?

Thank you very much for your kind cooperation.

**ANNEX II. PRIORITIES OF THE RIS3 IN NAVARRA AND THE 10 CLOSEST REGIONS ACCORDING TO “REGIONAL BENCHMARK”**

Name [NUTS ID]	Description	Economic Domains	Scientific Domains	Policy Objectives	Source	Date of Source
<a href="#">Styria [AT22]</a>	Green-tech	C - Manufacturing	02 - Environment	J - Sustainable innovation	Final RIS3 Document	nov-16
	Green-tech	C.32 - Other manufacturing	02.08 - Monitoring facilities for measurement of pollution	J.63 - Eco-innovations		
		J - Information and communication technologies	02.11 - Protection of ambient air			
	...	...	...			
<a href="#">Styria [AT22]</a>	Health-tech	J - Information and communication technologies	07 - Health	D - Digital transformation	Final RIS3 Document	nov-16
	Health-tech	J.61 - Telecommunications	07.65 - Health promotion	D.27 - e-Health (e.g. healthy ageing)		
		J.62 - Computer programming, consultancy and related activities	07.66 - Monitoring the health situation	G - Public health & security		
	...	...	...	G.49 - Public health & well-being		
<a href="#">Styria [AT22]</a>	Mobility	H - Transportation and storage	04 - Transport, telecommunication and other infrastructures	J - Sustainable innovation	Final RIS3 Document	nov-16
	Mobility	H.49 - Land transport and via pipelines	04.23 - Civil engineering	J.66 - Smart green & integrated transport systems		
		H.50 - Water transport	04.24 - Construction and planning of building			
	...	...	...			
<a href="#">South Denmark [DK03]</a>	Experience based industries	R - Arts, entertainment and recreation	10 - Culture, recreation, religion and mass media	C - Cultural & creative industries	Final RIS3 Document	Dec - 2016
	Experience based industries	R.90 - Creative, arts and entertainment activities	10.85 - Cultural services	C.16 - Development of regional cultural & creative industries		



		R.91 - Libraries, archives, museums and other cultural activities	10.86 - Racial, cultural and social integration, sociology of science, religion, art, sport and leisure; media, language, libraries, archives and cultural policy	C.17 - Support to link cultural & creative industries with traditional industries		
		R.93 - Sports activities and amusement and recreation activities	10.87 - Recreational and sporting services			
<a href="#">South Denmark [DK03]</a>	<b>Health and welfare innovation</b>	Q - Human health and social work activities	07 - Health	G - Public health & security	Final RIS3 Document	Dec 2016 -
	<b>Health and welfare innovation</b>	Q.86 - Human health activities	07.65 - Health promotion	G.46 - Ageing societies		
		Q.87 - Residential care activities	07.68 - Personal health care for vulnerable and high risk population	G.49 - Public health & well-being		
		Q.88 - Social work activities without accommodation	...	G.50 - Public safety & pandemics		
<a href="#">South Denmark [DK03]</a>	<b>Sustainable energy</b>	D - Electricity, gas, steam and air conditioning supply	05 - Energy	J - Sustainable innovation	Final RIS3 Document	Dec 2016 -
	<b>Sustainable energy</b>	D.35 - Electricity, gas, steam and air conditioning supply	05.32 - Energy efficiency consumption	J.68 - Sustainable energy & renewables		
			05.33 - Energy production and distribution efficiency			
			...			
<a href="#">Galicia [ES11]</a>	<b>ICT and knowledge based economy</b>	J - Information and communication technologies	04 - Transport, telecommunication and other infrastructures	E - KETs	Final RIS3 Document	Dec 2013 -
	<b>Boosting ICT as driving sector of the Gali...</b>	J.61 - Telecommunications	04.27 - Telecommunication systems	E.38 - Advanced materials		
				E.40 - Micro/Nano-electronics		
				...		
<a href="#">Galicia [ES11]</a>	<b>Development of the aquaculture sector</b>	A - Agriculture, forestry and fishing	01 - Exploration and exploitation of the earth	B - Blue growth	Final RIS3 Document	Dec 2013 -



	Development of the Galician aquaculture se...	A.01 - Crop and animal production, hunting and related service activities	01.07 - Sea and oceans	B.08 - Aquaculture		
		A.03 - Fishing and aquaculture	08 - Agriculture	B.09 - Blue renewable energy		
		...	...	...		
<a href="#">Galicia [ES11]</a>	<b>Food and nutrition</b>	A - Agriculture, forestry and fishing	07 - Health	G - Public health & security	Final RIS3 Document	Dec 2013 -
	Diversification of food sector to position...	A.01 - Crop and animal production, hunting and related service activities	07.65 - Health promotion	G.48 - Food security & safety		
		A.02 - Forestry and logging	07.66 - Monitoring the health situation			
		A.03 - Fishing and aquaculture	...			
<a href="#">Galicia [ES11]</a>	<b>Diversification of automotive, naval and textile sectors</b>	C - Manufacturing	06 - Industrial production and technology	E - KETs	Final RIS3 Document	Dec 2013 -
	Diversification of the driving sectors and...	C.13 - Textiles	06.60 - Manufacture of motor vehicles, trailers and semi-trailers	E.37 - Advanced manufacturing systems		
		C.23 - Other non-metallic mineral products	06.61 - Manufacture of other transport equipment	E.38 - Advanced materials		
		...	...	...		
<a href="#">Galicia [ES11]</a>	<b>Biomass and Marine energy</b>	D - Electricity, gas, steam and air conditioning supply	05 - Energy	B - Blue growth	Final RIS3 Document	Dec 2013 -
	Diversification of the Galician energy sec...	D.35 - Electricity, gas, steam and air conditioning supply	05.31 - Energy conservation	B.09 - Blue renewable energy		
		E - Water supply; sewerage; waste management and remediation activities	05.32 - Energy efficiency - consumption	J - Sustainable innovation		
		E.38 - Waste collection, treatment and disposal activities; materials recovery	...	...		
<a href="#">Galicia [ES11]</a>	<b>Tourism</b>	R - Arts, entertainment and recreation	10 - Culture, recreation, religion and mass media	C - Cultural & creative industries	Final RIS3 Document	Dec 2013 -



	Diversification of the tourism sector and ...	R.90 - Creative, arts and entertainment activities  R.91 - Libraries, archives, museums and other cultural activities  R.93 - Sports activities and amusement and recreation activities	10.85 - Cultural services  10.87 - Recreational and sporting services	C.16 - Development of regional cultural & creative industries  C.17 - Support to link cultural & creative industries with traditional industries  ...			
<a href="#">Galicia [ES11]</a>	<b>Active ageing</b>  Galicia as lead region in Southern Europe ...	Q - Human health and social work activities  Q.86 - Human health activities	07 - Health  07.65 - Health promotion  07.66 - Monitoring the health situation  ...	G - Public health & security  G.46 - Ageing societies  G.49 - Public health & well-being  ...	Final RIS3 Document	Dec 2013	-
<a href="#">Galicia [ES11]</a>	<b>Industrial processes and eco-innovation</b>  Galician industrial sector by optimising l...	C - Manufacturing  C.10 - Food products  C.13 - Textiles  ...	06 - Industrial production and technology  06.38 - Increasing economic efficiency and competitiveness  06.39 - Improving industrial production and technology  ...	I - Social innovation  I.59 - Social innovation with regard to health, well-being & elder care  J - Sustainable innovation  ...	Final RIS3 Document	Dec 2013	-
<a href="#">Galicia [ES11]</a>	<b>Industrial Modernisation</b>  Modernisation of Galician sectors (agricul...	A - Agriculture, forestry and fishing  A.01 - Crop and animal production, hunting and related service activities  A.02 - Forestry and logging  ...	06 - Industrial production and technology  06.39 - Improving industrial production and technology  08 - Agriculture  ...	B - Blue growth  B.08 - Aquaculture  B.09 - Blue renewable energy  ...	Final RIS3 Document	Dec 2013	-
<a href="#">Galicia [ES11]</a>	<b>Innovation in public administration</b>	O - Public administration and defence; compulsory social security	11 - Political and social systems, structures and processes	D - Digital transformation	Final RIS3 Document	Dec 2013	-



	sectors and their ancillary sectors by usi...	O.84 - Public administration and defence; compulsory social security	11.92 - Public administration and economic policy	D.26 - e-Government (e.g. Procurement, open data & sharing of public sector information)			
			11.93 - Regional studies and multi-level governance				
<a href="#">Galicia [ES11]</a>	<b>Diversification of Galician driving</b>	C - Manufacturing	03 - Exploration and exploitation of space	E - KETs	Draft RIS3 Document	Dec 2013	-
	sectors and their ancillary sectors by usi...	C.13 - Textiles	04 - Transport, telecommunication and other infrastructures	E.38 - Advanced materials			
		C.14 - Wearing apparel	06 - Industrial production and technology				
		...	...				
<a href="#">Galicia [ES11]</a>	<b>Value enhancement of sea-related sub-products</b>	A - Agriculture, forestry and fishing	01 - Exploration and exploitation of the earth	B - Blue growth	Final RIS3 Document	Dec 2013	-
	value enhancement of sub-products and by-p...	A.03 - Fishing and aquaculture	01.04 - Exploration and exploitation of sea-bed	B.08 - Aquaculture			
		C - Manufacturing	01.05 - Hydrology	B.09 - Blue renewable energy			
		...	...	...			
<a href="#">Cantabria [ES13]</a>	<b>Agrofood</b>	C - Manufacturing	01 - Exploration and exploitation of the earth	B - Blue growth	Final RIS3 Document	Dec 2013	-
	Agrofood specialised in high quality produ...	C.10 - Food products	01.07 - Sea and oceans	B.08 - Aquaculture			
		C.11 - Beverages	08 - Agriculture	H - Service innovation			
		C.12 - Tobacco products	08.73 - Agriculture, forestry and fishery	H.53 - New or improved service products (commodities or public services)			
<a href="#">Cantabria [ES13]</a>	<b>Biotechnology</b>	M - Professional, scientific and technical activities	07 - Health	G - Public health & security	Final RIS3 Document	Dec 2013	-
	Biotechnology is an emerging sector, with ...	M.72 - Scientific research and development	07.65 - Health promotion	G.49 - Public health & well-being			
		M.74 - Other professional, scientific and technical activities	07.66 - Monitoring the health situation	H - Service innovation			
		...	...	...			



<a href="#">Cantabria [ES13]</a>	<b>Satellite communications and radiofrequency.</b>  Challenge is to increase existing critical...	J - Information and communication technologies  J.61 - Telecommunications	04 - Transport, telecommunication and other infrastructures  04.27 - Telecommunication systems  06 - Industrial production and technology  06.57 - Manufacture of computer, electronic and optical products	D - Digital transformation  D.21 - Broadband, spectrum and other communication networks (e.g. 5G)  D.22 - Cleaner environment & efficient energy networks and low energy computing  ...	Final RIS3 Document	Dec 2013	-
<a href="#">Cantabria [ES13]</a>	<b>Maritime engineering</b>  Development of a metallic transformation s...	C - Manufacturing  C.24 - Basic metals  C.25 - Fabricated metal products, except machinery and equipment  ...	05 - Energy  05.31 - Energy conservation  05.32 - Energy efficiency - consumption  ...	B - Blue growth  B.09 - Blue renewable energy  B.13 - Offshore mining, oil & gas  ...	Final RIS3 Document	Dec 2013	-
<a href="#">Cantabria [ES13]</a>	<b>Machinery and automotive equipment.</b>  Specialisation in automotive: melting proc...	C - Manufacturing  C.28 - Machinery and equipment n.e.c.  C.29 - Motor vehicles, trailers and semi-trailers  C.30 - Other transport equipment	03 - Exploration and exploitation of space  03.19 - Applied research programmes for space  03.20 - Launch systems for space  ...	E - KETs  E.37 - Advanced manufacturing systems  E.38 - Advanced materials	Final RIS3 Document	Dec 2013	-
<a href="#">Cantabria [ES13]</a>	<b>Chemistry</b>  specialised in organic and inorganic basic...	C - Manufacturing  C.20 - Chemicals and chemical products	06 - Industrial production and technology  06.51 - Manufacture of chemicals and chemical products  12 - General advancement of knowledge  12.100 - Chemical sciences	E - KETs  E.38 - Advanced materials  E.39 - Industrial biotechnology  E.41 - Nanotechnology	Final RIS3 Document	Dec 2013	-
<a href="#">Cantabria [ES13]</a>	<b>Metallic transformation</b>	C - Manufacturing	06 - Industrial production and technology	E - KETs	Final RIS3 Document	Dec 2013	-



	Specialised in the design and production o...	C.24 - Basic metals	-	Basic	06.64 - Repair and installation of machinery and equipment	E.37 - Advanced manufacturing systems	-	
		C.25 - Fabricated metal products, except machinery and equipment						
		...						
<a href="#">Cantabria [ES13]</a>	<b>Tourism</b>	J - Information and communication technologies	10	-	Culture, recreation, religion and mass media	D - Digital transformation	Final RIS3 Document	Dec 2013 -
	Tourism with strengths in natural environm...	J.58 - Publishing activities	10.84	-	Broadcasting and publishing services	D.25 - E-Commerce & SMEs online		
		J.59 - Motion picture, video and television programme production, sound recording and music publishing activities	10.85	-	Cultural services	D.33 - New media & easier access to cultural contents (e.g. heritage)		
		...	...					
<a href="#">Rioja [ES23]</a>	<b>Agri-food</b>	A - Agriculture, forestry and fishing	06	-	Industrial production and technology	E - KETs	Final RIS3 Document	may-15
	Agricultural primary sector and food and b...	A.01 - Crop and animal production, hunting and related service activities	06.39	-	Improving industrial production and technology	E.39 - Industrial biotechnology		
		A.02 - Forestry and logging	06.41	-	Manufacture of food products	F - Nature & biodiversity		
		...	...					
<a href="#">Rioja [ES23]</a>	<b>Wood furniture and</b>	C - Manufacturing	06	-	Industrial production and technology	E - KETs	Final RIS3 Document	may-15
	Design and manufacture of quality furniture.	C.31 - Furniture	06.38	-	Increasing economic efficiency and competitiveness	E.38 - Advanced materials		
			06.62	-	Manufacture of furniture	J - Sustainable innovation		
		...	...					
<a href="#">Rioja [ES23]</a>	<b>Shoe industry</b>	C - Manufacturing	06	-	Industrial production and technology	E - KETs	Final RIS3 Document	may-15
	Including leather and footwear industr...	C.13 - Textiles	06.44	-	Manufacture of textiles	E.37 - Advanced manufacturing systems		
		C.14 - Wearing apparel	06.45	-	Manufacture of wearing apparel	E.38 - Advanced materials		
		...	...					



<a href="#">Rioja [ES23]</a>	<b>Metal mechanical sector, automotive industry and advanced manufacturing</b>	C - Manufacturing	06 - Industrial production and technology	A - Aeronautics & space	Final RIS3 Document	may-15
	Manufacture of automotive equipment and co...	C.25 - Fabricated metal products, except machinery and equipment	06.39 - Improving industrial production and technology	A.02 - Aeronautics & environment		
		C.28 - Machinery and equipment n.e.c.	06.41 - Manufacture of food products	E - KETs		
		C.29 - Motor vehicles, trailers and semi-trailers	...	...		
<a href="#">Aragon [ES24]</a>	<b>Agrifood</b>	A - Agriculture, forestry and fishing	06 - Industrial production and technology	E - KETs	Final RIS3 Document	may-15
	- Development of new products, processes a...	A.01 - Crop and animal production, hunting and related service activities	06.38 - Increasing economic efficiency and competitiveness	E.37 - Advanced manufacturing systems		
		A.02 - Forestry and logging	06.39 - Improving industrial production and technology	J - Sustainable innovation		
		...	...	...		
<a href="#">Aragon [ES24]</a>	<b>Automotive</b>	C - Manufacturing	04 - Transport, telecommunication and other infrastructures	E - KETs	Final RIS3 Document	may-15
	- Improvement of industrial processes in t...	C.22 - Rubber and plastic products	04.28 - Transport systems	E.37 - Advanced manufacturing systems		
		C.24 - Basic metals	05 - Energy	E.38 - Advanced materials		
		...	...	...		
<a href="#">Aragon [ES24]</a>	<b>Resources efficiency</b>	A - Agriculture, forestry and fishing	02 - Environment	D - Digital transformation	Final RIS3 Document	may-15
	Closing cycles of water, materials and energy	A.01 - Crop and animal production, hunting and related service activities	02.12 - Protection of ambient water	D.22 - Cleaner environment & efficient energy networks and low energy computing		
		A.02 - Forestry and logging	02.14 - Protection of soil and groundwater	J - Sustainable innovation		
		...	...	J.65 - Resource efficiency		
<a href="#">Aragon [ES24]</a>	<b>Health and well-being</b>	Q - Human health and social work activities	07 - Health	D - Digital transformation	Final RIS3 Document	may-15



	Development of comprehensive products and ...	Q.86 - Human health activities  Q.87 - Residential care activities  Q.88 - Social work activities without accommodation	07.65 - Health promotion  07.66 - Monitoring the health situation  ...	D.27 - e-Health (e.g. healthy ageing)  E - KETs  ...		
<a href="#">Aragon [ES24]</a>	<b>ICT</b>  Digital Agenda	J - Information and communication technologies  J.61 - Telecommunications  J.62 - Computer programming, consultancy and related activities  ...	12 - General advancement of knowledge  12.104 - Mathematics, computer and information sciences	D - Digital transformation  D.21 - Broadband, spectrum and other communication networks (e.g. 5G)  D.22 - Cleaner environment & efficient energy networks and low energy computing  ...	Final RIS3 Document	may-15
<a href="#">Aragon [ES24]</a>	<b>Storage and integration of energy systems</b>  Including hydrogen and Fuel cells, smart g...	D - Electricity, gas, steam and air conditioning supply  D.35 - Electricity, gas, steam and air conditioning supply	05 - Energy  05.30 - CO2 capture and storage  05.33 - Energy production and distribution efficiency  ...	D - Digital transformation  D.30 - Intelligent inter-modal & sustainable urban areas (e.g. smart cities)  J - Sustainable innovation  ...	Final RIS3 Document	may-15
<a href="#">Aragon [ES24]</a>	<b>Management of water resources</b>  Information systems and monitoring of hydr...	E - Water supply; sewerage; waste management and remediation activities  E.36 - Water collection, treatment and supply  E.37 - Sewerage  ...	02 - Environment  02.12 - Protection of ambient water  02.14 - Protection of soil and groundwater  ...	D - Digital transformation  D.36 - Smart system integration  J - Sustainable innovation  J.69 - Sustainable land & water use	Final RIS3 Document	may-15
<a href="#">Aragon [ES24]</a>	<b>Logistics transport &amp;</b>	H - Transportation and storage	04 - Transport, telecommunication and other infrastructures	A - Aeronautics & space	Final RIS3 Document	may-15



Name [NUTS ID]	Description	Economic Domains	Scientific Domains	Policy Objectives	Source	Date of Source
	Integration and improvement of supply chains	H.49 - Land and transport pipelines H.50 - Water transport ...	04.28 - Transport systems 06 - Industrial production and technology 06.38 - Increasing economic efficiency and competitiveness	A.07 - Transport & logistics B - Blue growth ...		
<a href="#">Aragon [ES24]</a>	<b>Tourism</b>  Tourism based on cultural and natural heritage	J - Information and communication technologies  J.63 - Information service activities N - Administrative and support service activities ...	05 - Energy  05.32 - Energy efficiency consumption 07 - Health ...	F - Nature & biodiversity  F.44 - Ecotourism G - Public health & security ...	Final RIS3 Document	may-15
<a href="#">Burgundy [FR26]</a>	<b>Eco Construction, Green building</b>  Bio-sourced materials, limitation of envir...	F - Construction  F.41 Construction buildings	02 - Environment  02.18 - The elimination and prevention of pollution 04 - Transport, telecommunication and other infrastructures 04.24 - Construction and planning of building	J - Sustainable innovation  J.63 - Eco-innovations	Final RIS3 Document	Jan 2015
<a href="#">Burgundy [FR26]</a>	<b>E-health, Medical Imagery</b>  e-health, Wound-Care technologies, Drug Del...	Q - Human health and social work activities  Q.86 - Human health activities	07 - Health  07.65 - Health promotion 07.66 - Monitoring the health situation ...	G - Public health & security  G.49 - Public health & well-being	Final RIS3 Document	Jan 2015
<a href="#">Burgundy [FR26]</a>	<b>Innovative technologies for transport and mobility</b>  intelligent vehicles, reduction of gaz emi...	C - Manufacturing  C.29 - Motor vehicles, trailers and semi-trailers C.30 - Other transport equipment	03 - Exploration and exploitation of space  03.19 - Applied research programmes for space 03.20 - Launch systems for space	E - KETs  E.42 - Photonics J - Sustainable innovation	Final RIS3 Document	Jan 2015



			...	J.63 - Eco-innovations		
<a href="#">Burgundy [FR26]</a>	<b>Food quality and safety</b>  "Quality environment of food for ..."	C - Manufacturing	06 - Industrial production and technology	G - Public health & security	Final RIS3 Document	Jan 2015
		C.10 - Food products	06.41 - Manufacture of food products	G.48 - Food & safety		
		C.11 - Beverages	06.42 - Manufacture of beverages	G.49 - Public health & well-being		
			...			
<a href="#">Burgundy [FR26]</a>	<b>Advanced Materials and Production processes for secured applications</b>  relates to nanotech, plastics and metals	C - Manufacturing	06 - Industrial production and technology	E - KETs	Final RIS3 Document	Jan 2015
		C.32 - Other manufacturing	06.63 - Other manufacturing	E.38 - Advanced materials		
		M - Professional, scientific and technical activities	12 - General advancement of knowledge	E.41 - Nanotechnology		
		M.72 - Scientific research and development	...			
<a href="#">Basilicata [ITF5]</a>	<b>Automotive industry: mechanics, nanotechnologies, sensors, etc.</b>	C - Manufacturing	03 - Exploration and exploitation of space	J - Sustainable innovation	Final RIS3 Document	oct-14
		C.29 - Motor vehicles, trailers and semi-trailers	03.19 - Applied research programmes for space	J.66 - Smart green & integrated transport systems		
		C.30 - Other transport equipment	03.20 - Launch systems for space			
		M - Professional, scientific and technical activities	...			
<a href="#">Basilicata [ITF5]</a>	<b>Green energy</b>	D - Electricity, gas, steam and air conditioning supply	05 - Energy	J - Sustainable innovation	Final RIS3 Document	oct-14
		D.35 - Electricity, gas, steam and air conditioning supply	05.31 - Energy conservation	J.68 - Sustainable energy & renewables		
			05.32 - Energy efficiency - consumption			
			...			
<a href="#">Basilicata [ITF5]</a>	<b>Agrifood</b>	C - Manufacturing	01 - Exploration and exploitation of the earth	E - KETs	Final RIS3 Document	oct-14



			C.10 - Food products	01.01 - Atmosphere	-	E.37 - Advanced manufacturing systems		
			C.11 - Beverages	01.02 - Climatic and meteorological research				
			...	...				
<a href="#">Basilicata [ITF5]</a>	<b>Design furniture and</b>		C - Manufacturing	03 - Exploration and exploitation of space		K - Other	Final RIS3 Document	oct-14
			C.31 - Furniture	04 - Transport, telecommunication and other infrastructures		K.72 - Other		
			M - Professional, scientific and technical activities	06 - Industrial production and technology				
			...	...				
<a href="#">Basilicata [ITF5]</a>	<b>Agrifood</b>		C - Manufacturing	01 - Exploration and exploitation of the earth		E - KETs	Final RIS3 Document	oct-14
			C.10 - Food products	01.01 - Atmosphere	-	E.37 - Advanced manufacturing systems		
			C.11 - Beverages	01.02 - Climatic and meteorological research				
			...	...				
<a href="#">Basilicata [ITF5]</a>	<b>Design furniture and</b>		C - Manufacturing	03 - Exploration and exploitation of space		K - Other	Final RIS3 Document	oct-14
			C.31 - Furniture	04 - Transport, telecommunication and other infrastructures		K.72 - Other		
			M - Professional, scientific and technical activities	06 - Industrial production and technology				
			...	...				
<a href="#">Autonomous Province of Trento [ITH2]</a>	<b>Agrifood</b>		A - Agriculture, forestry and fishing	06 - Industrial production and technology		J - Sustainable innovation	Final RIS3 Document	Apr 2016
	<b>functional foods and nutraceuticals, food ...</b>		A.01 - Crop and animal production, hunting and related service activities	06.41 - Manufacture of food products	-	J.67 - Sustainable agriculture		
			C - Manufacturing	06.42 - Manufacture of beverages	-			
			...	...				
<a href="#">Autonomous Province of</a>	<b>Mechatronics</b>		C - Manufacturing	06 - Industrial production and technology		D - Digital transformation	Final RIS3 Document	Apr 2016



<a href="#">Trento [ITH2]</a>	robotics, automation, smart materials, sensors	C.26 - Computer, electronic and optical products	06.57 - Manufacture of computer, electronic and optical products	-	D.24 - Digitising Industry (Industry 4.0, smart and additive manufactruing)	-		
		C.28 - Machinery and equipment n.e.c.	06.59 - Manufacture of machinery and equipment n.e.c.	-	D.35 - Robotics, autonomous and cyber physical systems (e.g. vehicles, embedded systems)	-		
		...	...		...			
<a href="#">Autonomous Province of Trento [ITH2]</a>	<b>Energy and environment</b>  sustainable natural resource management, e...	A - Agriculture, forestry and fishing	02 - Environment	D - Digital transformation	Final RIS3 Document	Apr 2016	-	
		A.01 - Crop and animal production, hunting and related service activities	02.10 - Protection against natural hazards	D.22 - Cleaner environment & efficient energy networks and low energy computing				
		A.02 - Forestry and logging	02.14 - Protection of soil and groundwater	D.36 - Smart system integration				
		...	...	...				
<a href="#">Autonomous Province of Trento [ITH2]</a>	<b>Quality of life</b>  tourism, culture, smart cities & commu...	J - Information and communication technologies	07 - Health	C - Cultural & creative industries	Final RIS3 Document	Apr 2016	-	
		J.62 - Computer programming, consultancy and related activities	07.65 - Health promotion	C.16 - Development of regional cultural & creative industries				
		J.63 - Information service activities	07.66 - Monitoring the health situation	D - Digital transformation				
		...	...	...				
<a href="#">Northern Ireland [UKN0]</a>	<b>AgriFood Technology</b>	A - Agriculture, forestry and fishing	08 - Agriculture	J - Sustainable innovation	Final RIS3 Document	sep-14	-	
		A.01 - Crop and animal production, hunting and related service activities	08.74 - Animal and dairy science	J.65 - Resource efficiency				
			08.75 - Fertilizers, pest control and mechanization of agriculture					
			08.77 - Veterinary science and other agricultural science					
<a href="#">Northern Ireland</a>	<b>Advanced Materials and Manufacturing</b>	C - Manufacturing	06 - Industrial production and technology	E - KETs	Final RIS3 Document	sep-14	-	



<a href="#">[UKN0]</a>		C.27 - Electrical equipment	06.58 Manufacture of electrical equipment	- of	E.38 Advanced materials	-	
<a href="#">Northern Ireland [UKN0]</a>	<b>ICT</b>	J - Information and communication technologies	12 - General advancement of knowledge	- of	D - Digital transformation	Final RIS3 Document	sep-14
		J.63 - Information service activities	12.104 Mathematics, computer and information sciences	- and	D.29 - ICT trust, cyber security & network security		
<a href="#">Northern Ireland [UKN0]</a>	<b>Sustainable Energy</b>	D - Electricity, gas, steam and air conditioning supply	05 - Energy		J - Sustainable innovation	Final RIS3 Document	sep-14
		D.35 - Electricity, gas, steam and air conditioning supply	05.31 - Energy conservation		J.68 Sustainable energy & renewables		
			05.32 - Energy efficiency consumption	-			
			...				
<a href="#">Northern Ireland [UKN0]</a>	<b>Sustainable Energy</b>	D - Electricity, gas, steam and air conditioning supply	05 - Energy		J - Sustainable innovation	Final RIS3 Document	sep-14
		D.35 - Electricity, gas, steam and air conditioning supply	05.31 - Energy conservation		J.68 Sustainable energy & renewables		
			05.32 - Energy efficiency consumption	-			
			...				
<a href="#">Navarre [ES22]</a>	<b>Education knowledge generation and</b>	K - Financial and insurance activities	09 - Education			Draft RIS3 Document	jun-13
		M - Professional, scientific and technical activities	10 - Culture, recreation, religion and mass media				
		N - Administrative and support service activities	12 - General advancement of knowledge				
		...	12.108 - Social sciences (psychology, economics, business, sociology, law, political science and geography)				
<a href="#">Navarre [ES22]</a>	<b>Business services</b>	K - Financial and insurance activities	09 - Education		H - Service innovation	Draft RIS3 Document	jun-13





			K.64 - Financial service activities, except insurance and pension funding	09.78 - Post secondary non tertiary education	H.51 - New or improved organisational models		
			K.65 - Insurance, reinsurance and pension funding, except compulsory social security	09.79 - Pre- and primary school	H.52 - New or improved service processes		
			...	...	H.53 - New or improved service products (commodities or public services)		
<a href="#">Navarre [ES22]</a>	<b>Medical equipment</b>		C - Manufacturing	07 - Health	G - Public health & security	Draft RIS3 Document	jun-13
			C.28 - Machinery and equipment n.e.c.	07.65 - Health promotion	G.49 - Public health & well-being		
			M - Professional, scientific and technical activities	07.66 - Monitoring the health situation			
			...	...			
<a href="#">Navarre [ES22]</a>	<b>Health services</b>	<b>care</b>	Q - Human health and social work activities	07 - Health	G - Public health & security	Draft RIS3 Document	jun-13
			Q.86 - Human health activities	07.65 - Health promotion	G.49 - Public health & well-being		
				07.66 - Monitoring the health situation			
			...	...			
<a href="#">Navarre [ES22]</a>	<b>Bio medicine</b>		C - Manufacturing	07 - Health	G - Public health & security	Draft RIS3 Document	jun-13
			M - Professional, scientific and technical activities	07.65 - Health promotion	G.49 - Public health & well-being		
			M.74 - Other professional, scientific and technical activities	07.66 - Monitoring the health situation			
			...	...			
<a href="#">Navarre [ES22]</a>	<b>Mechatronics</b>		C - Manufacturing	03 - Exploration and exploitation of space	E - KETs	Draft RIS3 Document	jun-13
			C.28 - Machinery and equipment n.e.c.	04 - Transport, telecommunication and other infrastructures	E.37 - Advanced manufacturing systems		
			M - Professional, scientific and technical activities	06 - Industrial production and technology			





			...			
<a href="#">Navarre [ES22]</a>	<b>Sustainable construction</b>	F - Construction  F.41 Construction of buildings F.42 - Civil engineering  F.43 - Specialised construction activities	04 - Transport, telecommunication and other infrastructures  04.23 - Civil engineering  04.24 - Construction and planning of building  ...	J - Sustainable innovation  J.63 - Eco-innovations	Draft RIS3 Document	jun-13
<a href="#">Navarre [ES22]</a>	<b>Sustainable tourism</b>	I - Accommodation and food service activities  I.55 Accommodation  I.56 - Food and beverage service activities  ...	10 - Culture, recreation, religion and mass media  10.84 - Broadcasting and publishing services  10.85 - Cultural services  ...	J - Sustainable innovation  J.63 - Eco-innovations	Draft RIS3 Document	jun-13
<a href="#">Navarre [ES22]</a>	<b>Renewable energies</b>	D - Electricity, gas, steam and air conditioning supply  D.35 - Electricity, gas, steam and air conditioning supply  ...	05 - Energy  05.30 - CO2 capture and storage  05.31 - Energy conservation  ...	J - Sustainable innovation  J.68 - Sustainable energy & renewables	Draft RIS3 Document	jun-13
<a href="#">Navarre [ES22]</a>	<b>Environment and waste</b>	E - Water supply; sewerage; waste management and remediation activities  E.36 - Water collection, treatment and supply  E.37 - Sewerage  ...	02 - Environment  02.08 - Monitoring facilities for measurement of pollution  02.09 - Noise and vibration  ...	J - Sustainable innovation  J.71 - Waste management	Draft RIS3 Document	jun-13
<a href="#">Navarre [ES22]</a>	<b>Environment and waste</b>	E - Water supply; sewerage; waste management and remediation activities  E.36 - Water collection, treatment and supply	02 - Environment  02.08 - Monitoring facilities for measurement of pollution	J - Sustainable innovation  J.71 - Waste management	Draft RIS3 Document	jun-13



		E.37 - Sewerage	02.09 - Noise and vibration			
		...	...			
<a href="#">Navarre [ES22]</a>	<b>Eco-friendly agro-food industries</b>	A - Agriculture, forestry and fishing  A.01 - Crop and animal production, hunting and related service activities	03 - Exploration and exploitation of space  04 - Transport, telecommunication and other infrastructures  06 - Industrial production and technology  ...	J - Sustainable innovation  J.67 - Sustainable agriculture	Draft RIS3 Document	jun-13



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