II STRATEGIC PLAN FOR RESEARCH AND INNOVATION

JUNE 2017

SUSTAINABLE DEVELOPMENT

PEOPLE'S WELL BEING

DYNAMIZATION OF THE CITIES AND THE REGION

quality · impact · people · organization · resources ·

25
1991-2016

UNIVERSITAT ROVIRA i VIRGILI

INDEX

1. INTRODUCTION

On 12 December 2016 the Universitat Rovira i Virgili celebrated the 25th anniversary of its foundation by the Parliament of Catalonia. In these years the University has become the driving force behind the social, economic and cultural development of the southern regions of Catalonia. At the same time, it has opened out to the world in an attempt to become an international point of reference. Its feet are firmly on local ground but it is facing the world.

From the very beginning, the URV placed particular emphasis on research. The connection between excellence in education, quality international research and the social and economic reality of the southern regions of Catalonia has been the basis on which the institution has developed. It is this set of factors that is valued by the international rankings in which the URV has a place.

The anniversary provides a good opportunity to remember the milestones we have achieved during our first 25 years, reflect on the challenges we need to rise to in the coming years, and decide on the actions we have to carry out that will allow us to maintain and even improve our mission of serving southern Catalonia and the world in general.

The URV is also well aware of its leading role in regional development. Its commitment to society can mainly be seen in the wide variety of undergraduate, master's and doctoral degrees, and the transfer of knowledge and technology to society. This connection between teaching, research and socio-economic reality has been stimulated by the Campus of International Excellence Southern Catalonia (CEICS), which has reinforced the links with other agents that generate knowledge, the socio-economic fabric, and the authorities. The impact the URV is having today is therefore the result of the knowledge generated by its staff and transfer, which is helping progress towards a more just, balanced, inclusive and sustainable society.

Similarly, the transformation of the economic paradigm in the framework of a networked society based on information and communication technologies, in which knowledge has become the main driving force, has meant that the structures that generate knowledge, like the universities, play a central role. They have increasing social responsibility in all dimensions of sustainable development: the economic, the social and the environmental.

This Plan focuses the URV's mission, which is based on scientific excellence, to improve people's wellbeing, promote sustainable development and revitalize our cities and the region. The URV is a socially responsible university.

2. BACKGROUND AND CONTEXT

The URV provides the public service of higher education and investigation through teaching, research and knowledge transfer, which gives the members of the university community, the organizations and society as a whole the skills, ideas and scientific knowledge they need to live and work in a world that is constantly undergoing social and technical change.

In 2001, which saw the first and – until now – only strategic plan for research, the response to these changes was to construct a research-intensive university in all fields that excelled and was recognized internationally particularly, but not exclusively, in those fields that were of greatest present and future relevance to the URV's socio-economic environment.

Thus the institution adopted a twofold stance to face the future. On the one hand, its horizontal positioning aimed to achieve levels of scientific quality in most research areas that were competitive in the regional and state context. And, on the other, its vertical positioning aimed to achieve levels of quality and recognition in the priority research areas in the medium and long term that were comparable to those of leading European universities in their respective fields.

On the basis of this strategic vision institutional policies and programmes have been developed and then aligned using external agents. In parallel, researchers with new and diverse talents have been arriving in various disciplines and have been making a considerable contribution. Their efforts have led, among other things, to participation in and coordination of international networks and partnerships. The URV and the Catalan government have also taken part in various strategic actions.

Aware of the fundamental importance of human resources, the URV has developed a policy of attracting research talent and adopted both regulatory measures (e.g. the European Charter for Researchers, the Code of Good Practices for R&D and Excellence of Human Resources in Research) and economic measures (e.g. the Programme for Active Researchers, the Programme for Research Promotion, and the Martí i Franquès Programme of Research Subsidies for Pre- and Post-doctoral students), which have led to a progressive increase in research support in terms of people and resources.

Internationally visible

Thanks to the competitiveness of the people who work here, the URV has obtained good results in terms of the quality and the quantity of scientific output and funding. In terms of fundraising, in 2014 the URV was above the mean of the university system in Spain and southern Europe. Between 2006 and 2015, the number of doctoral theses tripled and, at the moment, of all the theses presented more than a third have been produced by foreign students. A total of 42% of publications have been written jointly with international partners and the number of patent applications and firms created has also increased.

As a result, the URV has been included in the most prestigious world rankings in recent years. For the first time, in 2016 it entered the Academic Ranking of World Universities (ARWU), an international referent produced by the Jiao Tong University of Shanghai, and was in the top 500. Likewise, for the second year running, the journal Times Higher Education (THE) classified the URV among the best 401-500 universities

in the world (THE World University Rankings 2016-2017) and for the third consecutive year it has been placed in the top 100 universities in the world that are under 50 years old (200 under 50 years Ranking, 2017). In the Leiden ranking it is 277th in the world. It is also in the top 8% of world universities that publish most, high-impact articles and, according to SIR Global 2014, it is the 77th university in the world in terms of excellence of leadership.
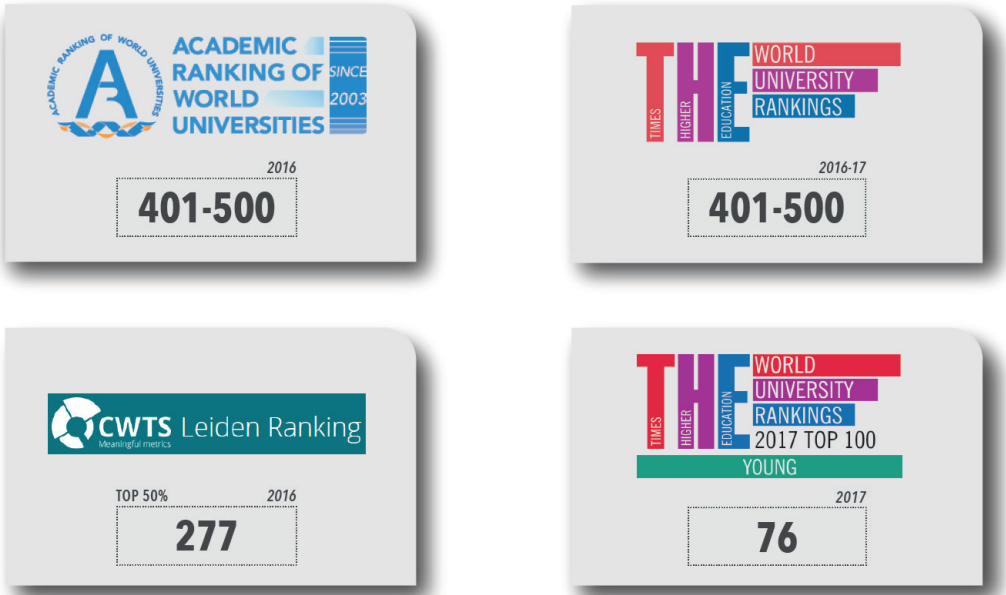
Figure 1. Position of the URV in international rankings.
Source: Technical Committee

The URV, then, is a research university that generates quality research. This has given it international visibility through rankings, competitive research projects, its size and its local impact, as has been recognized in various reports from the OECD and the European Commission. To sum up, the institution is now well-positioned nationally and internationally because of its scientific policy, the excellence and commitment of the personnel and the innovation that has been carried out.

New responses to new challenges

The external context is undergoing profound changes at all levels: overall, the system, the organization and the processes. The context is now completely new and requires new responses. For this reason, some of the changes that take place require new responses from the scientific, technological and innovation system and, above all, from the universities. It should also be borne in mind that these changes involve new local and global challenges, which are also interconnected.

From the perspective of global challenges, particular attention must be paid to the 17 sustainable development goals agreed by the United Nations in 2015.

Figure 2. Sustainable development goals agreed by the United Nations (2015).

Source: Respon.cat

As a result, the University must accept its commitment to society and play a proactive role in encouraging research that provides greater insight into these global challenges.

The models for generating and transferring knowledge are gradually changing into more open-access (*Open Science* and *Open Innovation)* and collaborative systems in which co-creation is an essential part of the process and the new emerging structures for creating scientific value. It is hoped that this is to be to everybody's benefit. It should also be borne in mind that the scientific community of the future (and of the present) and its organizations will need to acquire new competencies and functionalities. Some of these will be internal (like disciplinary integration) while others will be external (like the new culture of interaction between the social and scientific systems. It is also important to advance towards responsible research and innovation (RRI), which involves society participating in research, open science, ethics and gender equality, among other things.

This second Strategic Plan for Research and Innovation (PERI), which was conceived within the current reality of the University and in a context in which knowledge has become the main driving force behind social and economic development, has been designed so that the University can continue to be of maximum use to society. It came into existence thanks to an agreement of the URV Senate on 26 November 2015 and will guide the URV's strategies and lines of action for the coming years so that it can be a university for research and innovation that is competitive internationally and committed to today's society and the challenges facing it.

3. MISSION, VISION AND VALUES IN RESEARCH AND INNOVATION

The URV was created in 1991 by the Parliament of Catalonia on the basis of already existing faculties and schools. From the very beginning the aim was to place knowledge at the service of society to contribute to the social and economic development of its environment, which has undergone a considerable transformation over the course of time.

Mission – What are our main tasks on issues of research and innovation?

To help improve people's welfare and sustainable development, particularly in southern Catalonia, and to revitalize the cities and the region by generating and transmitting knowledge.

Vision – What is our vision in research and innovation?

To become a leading world research and innovation environment that is connected to the most important international networks in all areas of knowledge and become an international point of reference, a university that educates people, does responsible research, and innovation that is recognised, competitive, committed to the environment, and which drives regional development in a sustainable fashion.

Values – What do we represent?

A research and innovation community with a considerable capacity to adapt and respond to change in which the emphasis is on people and the values of cooperation, confidence and co-responsibility.

4. STRATEGIC VISION

The URV has other aims:

- To reach levels of scientific excellence on which advanced teaching and learning processes can be based so that people can be provided with the highest levels of training, and contribute to their development as citizens and professionals.

- To generate, transfer and socialize knowledge with the purpose of helping the sustained and sustainable progress of society. Research, transfer and teaching are closely united and our students, at all levels, have to acquire the appropriate competencies and get involved with research and innovation.

- To accept its role as the driving force behind responsible and sustainable human development, particularly in the society, culture and economy of the southern regions of Catalonia through independent research, and the transmission and application of knowledge. At the same time, to contribute to the global challenges that affect humanity and the planet.

- To use the universality of knowledge, inherent in the university, as a vehicle of communication and dialogue between peoples, while encouraging the maximum internationalization of university activities.

Taking into account the vitality and manoeuvrability of the institution, its external complicities and the desire to rise to challenges for the benefit of society it is part of, the URV will be able to become a leading research and innovation environment in the coming years that incorporates the new emerging models for generating and transferring knowledge.

Living ecosystems are the most complete functional structures that can adapt to uncertain changes, valuing individual differences and at the same time linking these differences to others and the local and global environment with the highest possible potential. The URV is already part of a research and innovation ecosystem, the result of the 2001 research plan, which laid the foundations and which will be reinforced in the following ways:

- Research and innovation will be guided towards what is of scientific and social importance in which the URV and the associated entities can have considerable local and global impact.

- Talent, creativity and the skills to develop individually and collectively will be encouraged by internal and external alliances of co-creation and co-innovation.

- Departments and high-performance research and innovation units: facilitating culture and leaderships with the widest-ranging technical and managerial support and all the infrastructure necessary.

The URV wants to maximize its social, economic and cultural impact through research and innovation activity based on scientific excellence, also measured for its impact, which contributes to the challenges society is facing and reinforces the productive sectors in which the region specializes.

Social challenges

The challenges that this strategic plan hopes to respond to are:
- ✧ The improvement in people's welfare
- ✧ Sustainable development: economic, social and environmental
- ✧ The revitalization of cities and the region

The focus on these challenges or goals must allow the URV's various scientific disciplines to take active part in establishing and identifying areas of excellence and, in this way, drive forward interdisciplinary projects.

The specialized productive sectors of the region

On the basis of the initial strategy defined in the first research plan, the vision reinforced by the Campus of International Excellence Southern Catalonia, the strategy of smart specialization defined by the European Union and the increasing scientific excellence of the URV, the following sectors of regional specialization are identified: *chemistry, energy and new materials, nutrition and health, oenology, tourism, heritage and culture,* and *ICT and the digital economy*. The focus on the priority productive sectors must reinforce the vision of the region as the driving force behind sustainable development and economic and social innovation. Also, the socio-economic dynamics of the region may lead to new sectors of specialization emerging in the future.

Scientific excellence

Through scientific excellence, the URV makes its contribution to the advancement of knowledge and generates new opportunities that help to increase the capacity of the productive sector to innovate and compete, and rise to the social challenges discussed in this plan. The achievement of scientific excellence is understood to be a process of continuous improvement that reinforces scientific leadership and international recognition in areas of specialization.
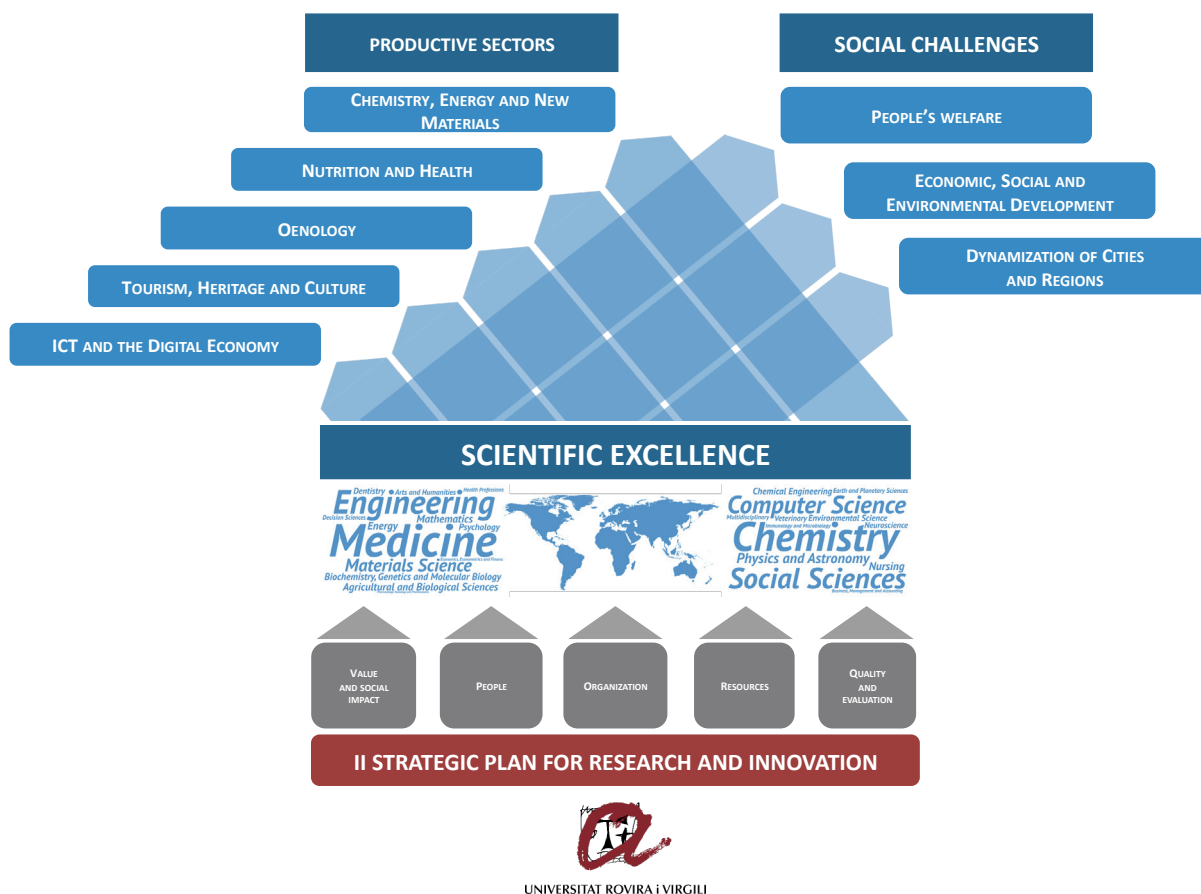
Figure 3. Strategic vision.

Source: Technical Committee. Areas of scientific importance, extracted from Scopus-Scival.

Based on policies for guaranteeing and increasing scientific excellence, this strategic plan aims to show the desire to ensure the social impact of our research and give greater importance to the role of innovation at the URV using our own instruments and joining forces with the companies and institutions of the region so that we can construct a true regional system of knowledge and innovation that will improve the welfare of people, encourage sustainable development and revitalize the region.

5. AXES, STRATEGIC GOALS AND LINES OF ACTION

The Strategic Plan has been structured in five working axes, which were debated by the committee, the committee's various sub-committees and other collectives:

1. The value and social impact of research
2. The people involved in research and innovation
3. The organization of research and innovation
4. Resources and infrastructures
5. Quality, evaluation and recognition

Figure 4. The five working axes that structure the strategic goals and lines of action.

Source: Technical Committee

Three strategic objectives have been defined for each axis and various lines of action for each objective (see below).

AXIS 1: THE VALUE AND SOCIAL IMPACT OF RESEARCH

Objective 1.1.	To create an institutional environment favourable to the social impact of research, and responsible research and innovation
Lines of action	1.1.1. Promote awareness and the necessary competencies
	1.1.2. Integrate the social impact of research into institutional mechanisms
	1.1.3. Visibly incorporate research into training programmes

Objective 1.2.	To develop mechanisms to maximize the social impact of research
Lines of action	1.2.1. Integrate the social impact of research throughout the cycle: design, planning, implementation, samples and communication
	1.2.2. Involve research and innovation support structures

Objective 1.3.	To catalyse vision and joint action in key social challenges
Lines of action	1.3.1. Catalyse reflection and joint action in important challenges for future generations
	1.3.2. Develop multi-actor research and innovation ecosystems designed to rise to social challenges

AXIS 2: THE PEOPLE INVOLVED IN RESEARCH AND INNOVATION

Objective 2.1.	To improve the capacity to attract and retain talent
Lines of action	2.1.1. Attract more and better doctoral students
	2.1.2. Design and implement a programme of contracts for post-doctoral students and visiting teaching staff
	2.1.3. Facilitate the integration of new contracted researchers

Objective 2.2.	To plan a professional career
Lines of action	2.2.1. Improve the employability of doctors
	2.2.2. Encourage training, professionalization and mobility
	2.2.3. Improve the professional support given to research activities
	2.2.4. Drive actions for the management of diversity and measures of the URV's Equality Plan

Objective 2.3.	To plan the handover to the next generation
Lines of action	2.3.1. Predict and facilitate the renewal of senior staff
	2.3.2. Bring teaching needs into line with research

AXIS 3: THE ORGANIZATION OF RESEARCH AND INNOVATION

Objective 3.1.	To increase the efficiency of departments and other research clusters
Lines of action	3.1.1. Encourage research groups to seek external accreditation
	3.1.2. Review the definition of research groups

Objective 3.2.	To encourage transversal research and collaborations
Lines of action	3.2.1. Drive projects and interdisciplinary research environments
	3.2.2. Reinforce the relations and collaborations between the CEICS agents and, by extension, in southern Catalonia

Objective 3.3.	To set up management structures that facilitate research and innovation
Lines of action	3.3.1. Improve the management of research and innovation
	3.3.2. Encourage interaction between public and private research, and stimulate transfer and innovation

AXIS 4: RESOURCES AND INFRASTRUCTURES

Objective 4.1.	To encourage the application for external funds
Lines of action	4.1.1. Provide researchers with greater support so that they can access competitive funds more easily
	4.1.2. Provide researchers with greater support so that they can increase the impact of their research results
	4.1.3. Encourage sponsorship as a tool for acquiring funds for research and innovation
	4.1.4. Review the policy of overheads so as to implement a system of real costs

Objective 4.2.	To manage facilities, resources and infrastructures more efficiently
Lines of action	4.2.1. Manage facilities for strategic uses
	4.2.2. Facilitate access to and use of the documents, facilities, equipment, tools and support services in the Learning and Research Resource Centre
	4.2.3. Improve the IT tools used to support R&D

Objective 4.3.	To have access to scientific equipment that is appropriate for quality research and innovation
Lines of action	4.3.1. Promote the sustainable acquisition of scientific equipment
	4.3.2. Ensure that the scientific equipment is maintained
	4.3.3. Guarantee s more efficient use of the scientific equipment

AXIS 5: QUALITY, EVALUATION AND RECOGNITION

Objective 5.1.	To extend the scope of the mechanisms to guarantee the quality of research and innovation
Lines of action	5.1.1. Review the Code of Good Practices in Research, Training for Research, Development and Innovation, and implement it throughout the University
	5.1.2. Review and activate the URV's Ethics Committee
	5.1.3. Set up a new system for managing the quality of the research and innovation activity of research groups and structures

Objective 5.2.	To set up efficient and effective processes of evaluation
Lines of action	5.2.1. Update and unify internal evaluation criteria
	5.2.2. Make provisions for external evaluation processes

Objective 5.3.	To promote the recognition of research and innovation
Lines of action	5.3.1. Encourage and recognize quality among research personnel
	5.3.2. Add a transversal vision of R&D activity to the institutional information system
	5.3.3. Make the excellence of the URV's research visible

Axis 1. The value and social impact of research and innovation

In the 7th R&D Framework Programme, the European Commission stressed the need for the *social impact of research* (SIR), not just the scientific impact. The issue is complex, but according to the *research councils* and the *Research Evaluation Framework* of the United Kingdom, SIR consists of the provable contributions that excellent research makes to society, culture, public policies or services, the economy, health, the environment and quality of life. It includes the variety of ways in which knowledge-based research benefits people, organizations, nations and the world.

SIR is now a priority on all scientific, social, economic and political agendas. The main reasons for this are, on the one hand, the variety and complexity of challenges on the local and global scale, and the ever-widening gap between science, the technology available and the technology society uses (which depends on linear processes of transfer and the interests of a select few), and, on the other, the need to show that the public resources being invested in research are actually having an impact.

The University's strong position now presents us with the opportunity to maximize the impact of our research production by mobilizing our full potential, in cooperation with our environment and the global knowledge networks of which our researchers are members.

We should also bear in mind that that both SIR and science require the generation of proven knowledge of excellence as well as the capacity to be linked to the global flows of leading science and thought.

Finally, we should also underline the role that universities in general should play – and that the URV's sense of responsibility makes it determined it should to play since it is part of its mission – in transforming knowledge into wisdom for the common good and the benefit of all.
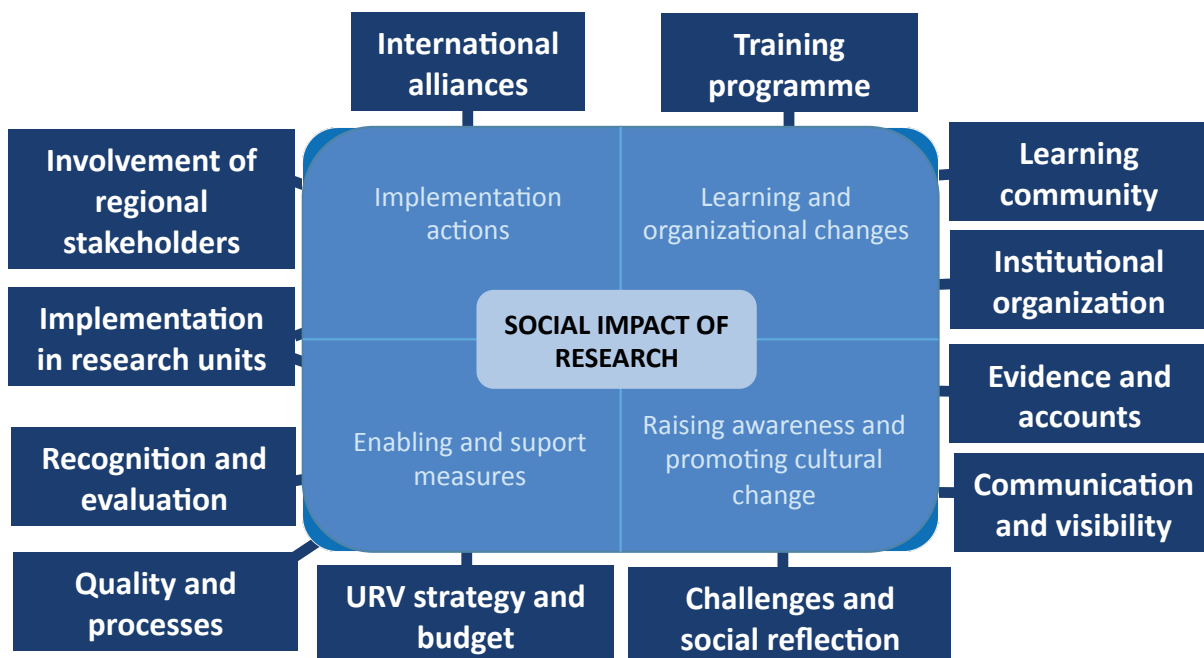

Figure 5. Four dimensions of change management aimed at boosting the social impact of research, and related action areas.

Source: Technical Committee

Objective 1.1. To create an institutional environment favourable to the social impact of research, and responsible research and innovation

The URV will integrate SIR functionally and organizationally into its responsible research and innovation activities, bearing in mind that this cultural change will require the University and its researchers to be heavily involved and that current disciplinary differences and the implications of this change will need to be considered at all times.

➤ Line of action 1.1.1. Promote awareness and the necessary competencies

◇ Generate activities to promote communication, recognition and visualization of SIR in the various institutional areas.

◇ Activate formal and informal training mechanisms on the impact of research (e.g. a learning community) that include researchers in the training.

◇ Make progress to incorporate the concepts of responsible research and innovation (social involvement, open access, gender and gender equality, ethics, and scientific education).

➤ Line of action 1.1.2. Integrate the social impact of research into institutional mechanisms

◇ Incorporate SIR into the mechanisms for assessing the commitment, recognition and evaluation of the research conducted by URV personnel and organizations.

◇ Establish measures to ensure quality and innovation in SIR-linked processes.

➤ Line of action 1.1.3. Visibly incorporate research into training programmes

◇ Promote the visualization of research in the structure and curricular content of training programmes, teaching and evaluation methodologies, and training activities. Guarantee this visualization especially in the final degree and final master's projects.

◇ Implement mechanisms to ensure that the scientific contents of training programmes are regularly updated.

◇ Ensure that students are involved in research projects throughout their period of training and that these projects are appropriate for their educational level.

Objective 1.2. To develop mechanisms to maximize the social impact of research

Research structures and research and innovation support units should incorporate these processes and practices (if this leads to improvement) so as to maximize the potential impact of the research and scientific knowledge of our researchers.

- ➢ Line of action 1.2.1. Integrate the social impact of research throughout the cycle: design, planning, implementation, samples and communication
  - ✧ Incorporate SIR into research-related design, planning, implementation, sampling and communication processes while taking into account internationally recognized practices.
  - ✧ Promote the inclusion of research in the strategies and actions of the principle agents of the social, economic and political system.

- ➢ Line of action 1.2.2. Involve research and innovation support structures
  - ✧ Identify and implement the roles and processes needed to integrate SIR into the support units that can contribute to it.
  - ✧ Establish a mechanism for ensuring coordination and stable collaboration between every URV unit that participates in the promotion of SIR.

Objective 1.3. To catalyse vision and joint action in key social challenges

Local and global challenges require collective responses whose levels of thought and joint action are more developed than those that created those challenges. As is being demonstrated in pioneering environments and experiences, to produce this development new architectures are needed that can combine the scientific-technological-innovation system (STI) with the socio-economic-political system (SEP) and transcend the reasoning of the public-private consortia (such as clusters and other alliances) that have been created over the last few decades.

The URV can play a central role in creating these ecosystems because, as well as being a knowledge stakeholder with expertise in several fields and social challenges, it can provide the stability, neutrality and institutional leadership to ensure their long-term sustainability.
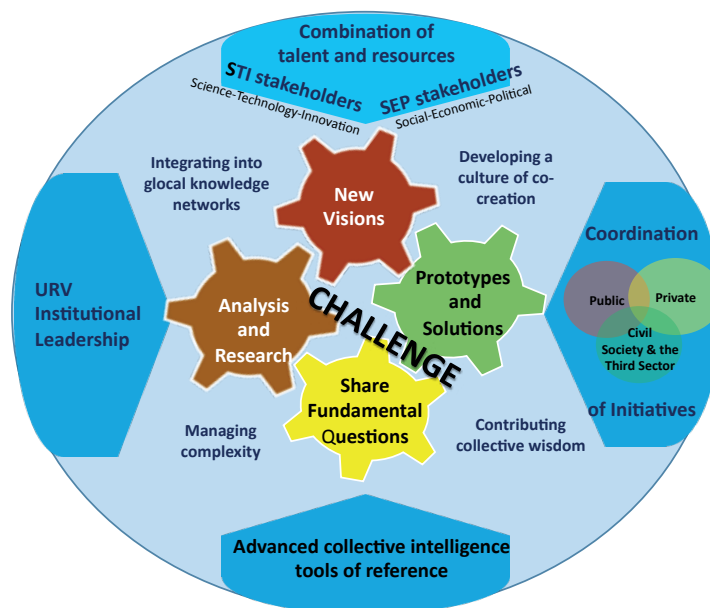

Figure 6. Collaborative research and innovation ecosystems.

Source: Technical Committee

➢ Line of action 1.3.1. Catalyse reflection and joint action in important challenges for future generations

◈ Periodically focus the potential of the URV community on global and local challenges and opportunities while prioritizing those in which the URV has the greatest potential impact so as to generate shared visions and actions by taking advantage of all the URV's areas of action.

➢ Line of action 1.3.2. Develop multi-actor research and innovation ecosystems designed to rise to social challenges

◈ Create stable collaborative environments within the quadruple helix so as to meet specific challenges in which researchers and social, economic and political stakeholders may share their basic questions, analyse these questions, and find solutions together.

◈ Catalyse the creation of European regional networks of research and innovation ecosystems that focus on significant challenges for southern Catalonia, a region in which the URV has distinctive capacities to respond to them.

Axis 2. The people involved in research and innovation

Research is conducted by people, and research is excellent only if people are passionate about it. The URV has always been and must remain a research university. In fact, any institution that does not conduct research should not be called a university. Research, which is intimately linked to educational quality, has always been the URV's trademark thanks to all the people who have been involved in its construction on a daily basis.

Despite the budget cuts and recruitment restrictions that have been implemented in recent years and that continue to affect us, we have been able to maintain the personnel that have enabled us to continue to fulfil our teaching, research and knowledge transfer missions with vigour and therefore to comply with our commitment to society.

In 2016 the URV's PDI (teaching and research staff) comprised 1,137 members (540 women and 597 men), while the URV's PAS (administration and service personnel) comprised 705 members (479 women and 226 men), roughly half of whom are involved in research tasks. Also involved in transfer and innovation activities are the 17 employees of the CTTI (Centre for Technology Transfer and Innovation) plus all employees subcontracted to conduct research and innovation projects.

Research and innovation activities that generate value for society as a whole, in the broadest sense of the term, require an appropriate strategy to help the researchers involved to develop their professional careers.

Excellence in research and innovation is achieved through talent, collaboration, institutional tools that offer support, organization, management and infrastructure, and, of course, the external funding that provides these tools. Since the URV's foundation its main strategy has been to constantly bring in new talent, a strategy that was consolidated in 2012 by the introduction of the Martí i Franquès programme, which offers positions for trainee research staff and postdoctoral fellows.

Our strategy of dedicating a part of our budget's chapter I to doctoral students (which dates back to 1994), together with the concepts of the active researcher and the commitment agreement (2005), have forged the trajectory of the URV, helping us to achieve our current level of excellence.

Guided by the European Charter for Researchers, the URV's main people-related policies have traditionally been organized along the following lines of action:

- ✧ Improving individual abilities and strengthening our institutional mission
- ✧ Promoting physical and occupational health
- ✧ Focusing on people and diversity

These lines of action are part of the deployment of the Human Resources Strategy for Researchers included in the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers, signed by the URV in 2008. This strategy lists 40 principles divided into four main groups: *i*) professional and ethical aspects, *ii*) the recruitment of research staff, *iii*) working conditions and social security and *iv*) training. The URV has been a pioneer in Spain in obtaining the *HR Excellence in Research* award from *Euraxes*.
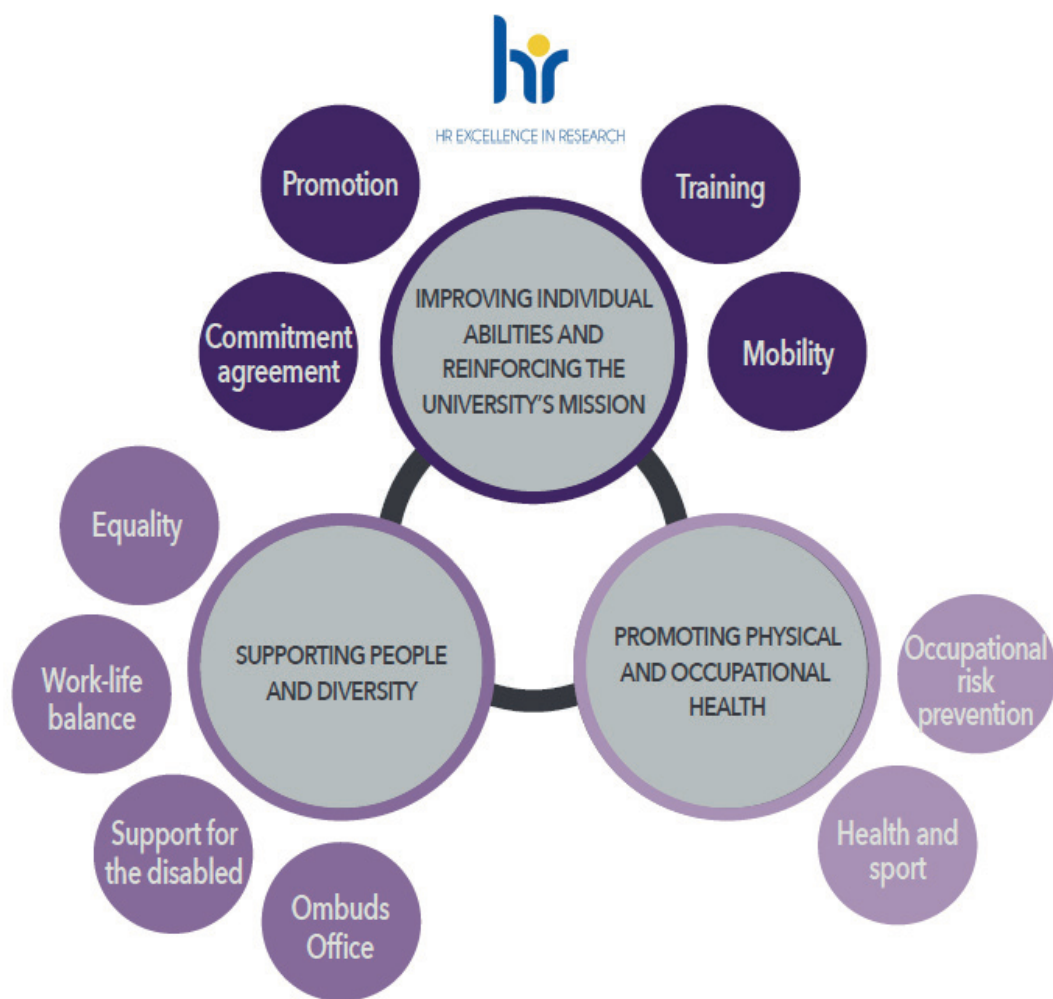
Figure 7. Overview of people-related policies.
Source: The people who make up the URV (2016 Report).

Objective 2.1. To improve the capacity to attract and retain talent

It is essential to continue to attract and develop international research talent, focusing not only on the recruitment of promising researchers but also on the recruitment of students with the competences needed to respond to the future requirements of companies and public institutions. It is also extremely important to retain individuals whose talent speaks for itself.

In addition, the actions aimed at increasing the talent of individuals who conduct and support research and innovation activities are fundamental to improving the impact of our research results, increasing the transfer of knowledge to society and the productive system, and enhancing the quality of our students' training.

Line of action 2.1.1. Attract more and better doctoral students

- ◇ Encourage departments to set aside a certain percentage of their staff budgets to predoctoral contracts.
- ◇ Maximize the resources of the Active Researcher programme that are reserved for predoctoral contracts.
- ◇ Encourage research groups to help fund the recruitment of talent using resources from research projects.
- ◇ Make certain types of grants for doctoral students more flexible, for example, by establishing scholarships only for tuition or travel, participation at scientific meetings or seminars, short foreign stays, etc.
- ◇ Urge departments and researchers to become directly involved in applications for predoctoral grants with external funding and encourage doctoral students with a URV Martí Franquès contract to participate in these calls.
- ◇ Consolidate the Postgraduate and Doctoral School as a key element in providing doctoral programmes of the highest quality and prestige to enable the URV to attract the best doctoral students.
- ◇ Improve publicity for our doctoral programmes and public announcements for predoctoral contracts.

Line of action 2.1.2. Design and implement a programme of contracts for post-doctoral students and visiting teaching staff

- ◇ Design our own Martí i Franquès postdoctoral research programme with two-year contracts (1+1).
- ◇ Maximize participation in external competitive calls for research projects such as ICREA, Ramón y Cajal, Marie Curie, Juan de la Cierva, Beatriu de Pinós, etc. in order to attract new researchers and new research projects (especially in less traditional areas).
- ◇ Create our own programme for visiting researchers. The aim is to establish collaborations with institutions and research groups of prestige to carry out joint research projects, research mobility, seminars, postgraduate programmes, and knowledge transfer, etc.

Line of action 2.1.3. Facilitate the integration of new contracted researchers

- ◇ Encourage departments and research groups to design a package of measures that take into account the workplace and scientific equipment requirements of newly recruited researchers. Help newly recruited researchers to settle in by paying special attention to their family, relationship and accommodation conditions.

Objective 2.2. To plan a professional career

The URV must support the professionalization, training and mobility of all its personnel involved in research and innovation by consolidating: the URV Postgraduate and Doctoral School and the training activities it conducts to enhance the employability of URV doctoral students; the entrepreneurial section of the CTTI; and the activities of the ICE, which aim to improve the training of URV research staff and develop the competences of research support staff.

One objective of the second URV Gender Equality Plan was to implement positive actions to eliminate discrimination in University activities. Of its six axes those that are more directly involved in research and innovation are axis 2, on equal employment and promotion opportunities and the organization of working conditions for the entire university community from the gender perspective, and axis 5, on gender and science at the URV. This Strategic Plan for Research and Innovation must ensure that the measures set out in the above document are carried through.

We should also bear in mind that cultural, social and demographic diversity improves the quality of research and innovation and contributes to excellence. Diverse research groups generate more innovation, more unconventional ideas and more alternative approaches that help to advance the progress of knowledge.

➢ Line of action 2.2.1. Improve the employability of doctors

    ✧ Offer doctoral students a training programme in cross-disciplinary skills that will improve their employability.

    ✧ Identify companies and other organizations as a way to promote doctorates in industrial fields and steer doctors towards the non-academic world.

    ✧ Establish specific collaboration agreements between the URV and the private sector in order to develop specific research and innovation projects that include URV doctors.

➢ Line of action 2.2.2. Encourage training, professionalization and mobility

    ✧ Improve and increase mobility grants for research staff and promote specific collaboration agreements to enable research and knowledge exchange visits to research institutes and centres, technology centres, universities, companies and public institutions . The aim of this measure is to enable research staff to raise their level of professionalism and receive external accreditations to add to their curriculums.

    ✧ Promote continuous improvement in the careers of research staff through training activities that involve research projects and professional competencies.

    ✧ Design a specialized training programme in areas such as creativity, innovation, entrepreneurship, industrial and intellectual property, digital competence and internationalization in order to foster these skills among the university community.

➢ Line of action 2.2.3. Improve the professional support given to research activities

    ✧ Increase the professional skills of URV management staff (of the UGAD, UDR, SRCiT, CRAI, CTTI, Unit of Congresses, ComCiència, UIRIDT, Publications Unit, etc.) through specialized training

programmes intended to improve performance in tasks in which researchers require technical support. This includes preparing, presenting and managing research and innovation projects (especially international projects), preparing documentation for the six-yearly recognitions of research performance, searching for specific bibliography, organizing conferences, transferring knowledge, etc.

- ✧ Ensure the professionalization of research support staff through specialized training and reviews in order to analyse whether the support provided to researchers matches their needs.

➢ **Line of action 2.2.4. Drive actions for the management of diversity and measures of the URV's Equality Plan**

- ✧ Visualize and foster positive attitudes towards cultural, social and demographic diversity in research groups.

- ✧ Define mechanisms to achieve greater social equity, increase competitiveness in order to attract and retain the best talent, and correct any unequal female representation in management and leadership positions in order to achieve greater levels of efficiency and better quality in our research and knowledge transfer results.

- ✧ Promote equal opportunities through specific training aimed at developing interpersonal skills in research and innovation.

- ✧ Provide grants to enable URV staff who have abandoned their research activities in order to take care of dependents to return to those activities.

Teaching and research staff (*) (FTE) by age, gender and category. 2016

	Men 412.6 FTE		Women 333.7 FTE
≥ 60	9%	6%	
55-59	7%	5%	
50-54	11%	8%	
45-49	12%	8%	
40-44	6%	6%	
35-39	5%	5%	
30-34	3%	3%	
< 30	2%	4%	

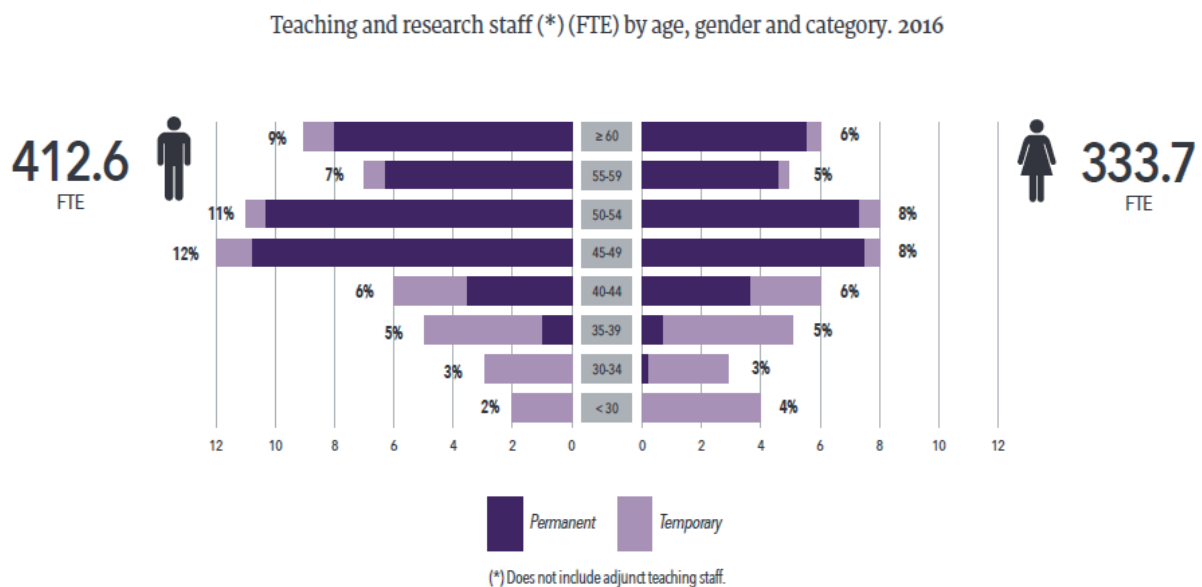Permanent   Temporary

(*) Does not include adjunct teaching staff.

Figure 8. Teaching and research staff* in FTE (Full-Time Equivalents) by age, gender and category (2016).

Source: Rector's Technical Bureau

➢ Line of action 2.3.1. Predict and facilitate the renewal of senior staff

✧ Analyse the situation with regard to the University's teaching and research staff from projections of future retirements.

✧ In collaboration with the departments, prepare a report, by scientific field and research group, that outlines the University's educational needs and research priorities in order to plan the handover to the next generations in the short, medium and long terms. This analysis should ensure that the University's future teaching, scientific results and transfer activities are safeguarded.

➢ Line of action 2.3.2. Bring teaching needs into line with research

✧ Take into consideration the conditions of each research field and research group but also ensure that the teaching needs of each degree course are covered. Policies for managing and organizing the University's teaching and research staff should strike a balance between satisfying the demands generated by carrying out teaching activities and satisfying the demands generated by the various lines of research conducted by the University's research groups. When implementing the solutions, specific proposals should be designed to strike a balance between the University's research activity and its teaching mission and guarantee both teaching and research of the highest quality to prevent any problems from being caused by the handover to the new generations.

Axis 3. The organization of research and innovation

Efficient structural organization is essential for conducting research of excellence and responding adequately both to new global challenges and to external and internal demands.

Article 11 of the URV Statute defines departments as the basic structures for organizing research. Current trends focus on helping departments strengthen their research structures, while quality assurance systems and systems to accredit departmental or other research structures are also foreseen. AQU (the Catalan University Quality Assurance Agency) has published a manual for evaluating the productivity, quality, relevance, vitality and organizational capacity of university departments.

Article 124 of the URV Statute defines a research group as a basic research unit comprising members of the teaching and research community, research support staff, administration personnel and affiliated service staff who share scientific objectives and are coordinated by a responsible researcher. Currently, in accordance with the regulations, 142 groups are registered. However, only 90 of these groups are recognized by the Catalan government and no one-to-one relationship exists between the recognized groups and those of the URV map of research groups.

Under articles 33 and 127, seven URV research centres have been created. These are CRAMC (2007), EMaS (2008), CEDAT (2009), C3 (2009), CREIP (2010), MARC (2014), and CECOS (2015). The aim of these centres is to promote interdisciplinary or highly specialized research, transfer and postgraduate teaching activities in order to improve management and collaboration between research groups and enhance scientific visibility. They are configured as virtual centres that do not affect the assignation of staff at the departments of origin.

The URV and, in particular, the CEICS, comprises five research institutes (ICAC, IPHES, ICIQ, IISPV and IREC).

In the field of innovation, the URV also has two TECNIO centres (AMIC and TECNATOX) and participates in four technology centres (EURECAT, CTQ, VITEC and PCTTO).

We should also mention the proliferation of University-company/society chairs, which promote and disseminate the research conducted at the URV.

With regard to the management of research and innovation, the URV possesses several specific structures responsible for providing direct support for researchers. These are: the Decentralized Administrative Management Unit (UGAD), the Learning and Research Resource Centre (CRAI), the Doctorate and Research Unit (UDR), the Technology Transfer and Innovation Centre (CTTI-FURV), the Scientific and Technical Service (SRCiT), the Research, Innovation and Territorial Development Impulse Unit (UIRIDT), the Unit of Scientific Communication (ComCiència), as well as other units and general services involved in research.
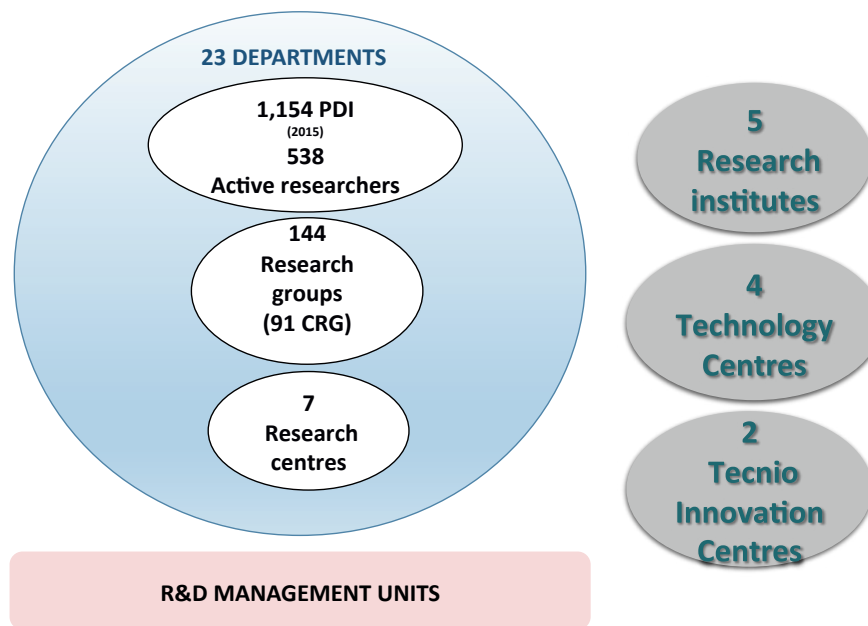
Figure 9. R&D structures and management units.

Source: Technical Committee

Objective 3.1. To increase the efficiency of departments and other research clusters

The aim is to facilitate management and improve the redistribution of internal resources in order to become more competitive in acquiring external finance. This should help to improve our scientific leadership and enhance our visibility on the international scale.

➢ Line of action 3.1.1. Encourage research groups to seek external accreditation

    ✧ Provide support for any department or structure such as a research centre or institute that submits an application for an external call for recognition or accreditation that may involve external financing, and promote their application.

    ✧ Encourage departments to develop research strategies that improve their efficiency and prepare them for future accreditations.

    ✧ Promote collaboration between departments or the combination of departments that on their own would be unable to obtain recognition, provided the external calls permit this strategy.

➢ Line of action 3.1.2. Review the definition of research groups

    ✧ Align the URV's research groups with the group-recognition criteria of the Catalan system in order to draw up a single map of groups within two years. The regulations on research groups should therefore be reviewed.

    ✧ Maintain indicators-based funding for research groups (current Research Promotion Programme), which is oriented towards productivity and excellence and is aligned with the criteria for the external funding of research.

Objective 3.2. To encourage transversal research and collaborations

In general, research centres have helped to conduct interdisciplinary work, achieve collaboration between groups, and obtain external recognition. Research centres may be interdepartmental, thus taking advantage of synergies and collaboration. Alternatively, they may result from a departmental strategy to focus on a specific field that achieves international recognition. We must progress with this notion so that centres may possess a critical mass, have a strategic plan with a clear objective and clear, impactful projects, represent a significant proportion of the knowledge generated both regionally and nationally, develop their own human and materials resources policy, provide support for master's and doctoral studies, and organize joint activities that enjoy the maximum visibility.

Internal communication should be strengthened in order to better inform the URV community about the projects carried out at the University and thus enhance collaboration and interdisciplinarity.

The connection between the various agents that create knowledge and innovation in the region, and between these agents and the productive sector, should be protected. Aggregation enables us to make maximum use of the potential for excellence and to obtain the critical mass that is required for scientific leadership at the European level.

➢ Line of action 3.2.1. Drive projects and interdisciplinary research environments

   ✦ Promote the creation of interdisciplinary groups of excellence with a preference for unconventional and innovative research proposals that unite experts from several fields who have a desire to tackle social and scientific challenges from varied points of view and with greater complexity.

   ✦ Support the continuation of existing research centres, demanding even more from them and the maintenance of excellence, measured in terms of their position in national and international rankings of centres of a similar nature.

   ✦ Evaluate whether to include research centre funding in the Programme for Research Promotion, which is based on indicators and takes into account the level of aggregation, in order to promote association.

   ✦ Promote community-based research projects. Finance these projects to allow crowdfunding actions to be undertaken to co-finance them.

   ✦ Establish channels of systematic communication among the URV research community.

➢ Line of action 3.2.2. Reinforce the relations and collaborations between the CEICS agents and, by extension, in southern Catalonia

   ✦ Promote staff mobility among the various agents, share facilities and equipment, create joint units for promoting and managing projects, encourage joint research activities, and establish collaborations for presenting joint projects.

   ✦ Involve active researchers from the region in environments where they can share the challenges and progress of their research projects so that they can later be disseminated.

   ✦ Increase joint dissemination activities with other research agents in the region.

Objective 3.3. To set up management structures that facilitate research and innovation

Consolidate and strengthen the structures for managing and promoting research and innovation in order to facilitate research and improve relationships with the social and productive sector.

➢ Line of action 3.3.1. Improve the management of research and innovation

- ✧ Consolidate and strengthen the management structures that facilitate research and innovation in order to increase the efficiency of procedures and administrative tasks.
- ✧ Strengthen the synergies between the various structures and units, encourage researchers to submit applications for competitive calls for research projects, and support them in their applications.
- ✧ Review how research support staff are assigned to research groups in order to ensure that objective activity and productivity criteria for research and innovation are taken into account.
- ✧ Improve project management by incorporating new computer applications.

➢ Line of action 3.3.2. Encourage interaction between public and private research, and stimulate transfer and innovation

- ✧ Promote innovative projects, such as support for the preparation of prototypes, encouraging market interest in their technology and redefining the URV's business incubator.
- ✧ Review transfer management policy by reviewing the relationship model between the URV and the FURV.
- ✧ Review the URV's policies for collaboration with nearby research institutes and technology centres.

Axis 4. Resources and infrastructures

The resources devoted by the University to research and innovation are substantial. Indeed, the University has consolidated its commitment to continue to be an active research and innovation institution.

The URV directly allocates over 10 million euros to R&D every year. To this figure we should add the 46 large scientific facilities (valued at over seven million euros), the bibliographic resources available at the various CRAI, the shared use policies for infrastructures, and the premises available for conducting research and innovation.

Related to these resources allocated for R&D is the financial model of the government of Catalonia for public universities. A small part of this finance is proportional to our weight in the system in terms of results (active research premiums, income from competitive and non-competitive sources, the creation of spin-off companies, revenues from patent licenses, defended theses, etc.). Obviously, for our research and innovation to grow, we need to increase our financial resources and to obtain them from outside the URV. Acquiring public and private funds for R&D is becoming increasingly competitive. Agents who conduct research and innovation have increased globally, but the finance that is available for these activities has not increased proportionally. For this reason the search for funding has become a race that can only be won by allying professionalization and expert presentation of proposals to excellence and quality of research. Moreover, the sources of information on available funding have also multiplied, making it necessary to make strategic choices and create a much more personalized information process for research personnel. Also important is the increase in co-financed calls to attract talent (e.g. COFUND, Ramón y Cajal) and purchase scientific equipment (e.g. ERDF infrastructure projects).

All of these resources have helped us to achieve what we have achieved. We now need to establish certain objectives and lines of action that will enable us both to maintain these achievements and to grow so that we can guarantee our research and innovation infrastructures and acquire more competitive, efficient and impactful facilities that will help us to recruit talent, innovate, and conduct research of excellence.

Since 2009 the CRAI model has been implemented at all our campuses. This has involved introducing structural changes in order to integrate services with library and technological resources and convert premises and facilities. Their user-centred approach, redesigned premises, concentration of resources, convergence of services, and excellent, sustainable management have made the CRAI the focal points of our campuses. The CRAI, whose function is to provide quality support for lecturers, students and researchers, encourage interaction and the integration of people, technology and services. In addition to this mission, research support services have today acquired a new dimension in matters such as evaluation, accreditation and publication to enable them to improve the accessibility, recognition and impact of the research conducted at the URV.

Objective 4.1. To encourage the application for external funds

Encourage researchers and the University to make greater and more combined efforts to obtain external funding for the URV's research and innovation activities. Also, analytical accounting will enable the University to define which general costs are directly attributable to each of the activities conducted by its staff and, therefore, to review the policy of overheads directly applied to external financing.

➢ Line of action 4.1.1. Provide researchers with greater support so that they can access competitive funds more easily

  ✦ Provide researchers with closer support when requesting funds for drafting competitive proposals, including specialized technical support, specific funding programmes for seeking external support or support via a unit that employs personnel specialized in promotion (personalized information and the drafting of proposals) or other initiatives suggested by the researchers themselves (networking, lobbying, etc.).

➢ Line of action 4.1.2. Provide researchers with greater support so that they can increase the impact of their research results

  ✦ Promote internal and external support programmes for increasing the impact of research results.

  ✦ Analyse other instruments (e.g. knowledge brokers) that may enhance the impact of research results, thus increasing their value and promoting their transfer to the productive sector, and accompany researchers throughout the process.

  ✦ Include scientific communication as another tool for appraising the results of our researchers.

➢ Line of action 4.1.3. Encourage sponsorship as a tool for acquiring funds for research and innovation

  ✦ Encourage researchers to participate in sponsorship initiatives aimed at raising funds for their research, innovation and transfer projects.

➢ Line of action 4.1.4. Review the policy of overheads so as to implement a system of real costs

  ✦ Identify which general University expenses are attributable to research and innovation activities and use that information to review the policy for allocating indirect costs.

Objective 4.2. To manage facilities, resources and infrastructures more efficiently

The exhaustive analysis of facilities and infrastructures conducted by the Material Resources Service and the Scientific and Technical Servi,ce for the purposes of this Strategic Plan shows that the URV's research and innovation activity has grown. It is therefore necessary for the University to rethink its policy for managing its facilities and infrastructures. Moreover, so as not to miss out on opportunities, the University must be able to make expeditious decisions that will enable it to meet the challenges presented by new, impressive projects.

We need safer, more comfortable and more efficient laboratories and a system for periodically reviewing all scientific equipment in order to manage the removal of obsolete or unused equipment and free up space for new opportunities.

The modernization and reorganization of the University's services has presented a unique opportunity to combine them and create the CRAI. We must continue to work together, making best possible use of the facilities and equipment available at each CRAI and, as far as possible, making the resources researchers need available to them.

Figure 10. CRAI services (2015).

Source: Efficacy and efficiency in the use of URV resources. Rector's Technical Bureau (2016 Report).

Similarly, institutional relations must continue to be cultivated with the region's R&D agents in order to share facilities and infrastructures, obtain economies of scale, synergies and strategic associations, and achieve excellence and efficiency in the use of resources.

➢ Line of action 4.2.1. Manage facilities for strategic uses

✧ Conduct periodic actions to keep the inventories of existing research facilities and their uses updated.

✧ Encourage the efficient and reversible use of facilities and, in agreement with the departments, develop a plan for managing the URV's research facilities.

✧ Ensure that suitable facilities are available for all researchers to complete the competitive research projects in which they participate. The use of these facilities should be consistent with the activity to be conducted and the duration of the research projects.

✧ Existing facilities must be available for offices and laboratories to enable them to deal with strategic policies for attracting talent or large projects. These facilities must be managed in a planned and centralized manner and accessed through competitive or strategic means for a specified length of time.

➢ Line of action 4.2.2. Facilitate access to and use of the documents, facilities, equipment, tools and support services in the Learning and Research Resource Centre

✧ Enable researchers to access basic documentary resources.

✧ Increase the University's advertising of the CRAI's resources and services for researchers, enable researchers to have access to the digital library, and apply technological solutions to improve their access and use from any place.

✧ Collect, preserve and visualize the URV's scientific production, promote the repositories, and ensure interconnection of data between the repository and the research management system.

✧ Identify the resources and services the CRAI can provide to increase dissemination, impact and access to data and research results, establishing frameworks for collaboration with the other services involved. In particular, investigate the acquisition of computer applications for bibliometric indicators of scientific production.

✧ Encourage the production of synergies for enhancing bibliometric analysis and visibility factors in the search engines that operate in scientific visibility rankings.

✧ Offer researchers advice on how to devise a plan to manage their research data and provide them with the necessary infrastructure or recommend the most suitable repositories for publishing these data.

✧ Take advantage of the integration and interoperability possibilities provided by technology to promote the implementation of information-systems-related ICT projects, providing users with tools and contents in digital format.

➢ Line of action 4.2.3. Improve the IT tools used to support R&D

✧ Urgently acquire a research management computer application that facilitates tasks for researchers and administrators and is properly interconnected with, for example, the economic, academic and human resources management systems.

✧ Possess computer applications that conduct the bibliometric analysis of scientific production in order to make decisions and facilitate the presentation of calls.

- Improve the management systems for scientific equipment and premises.
- In the context of the URV's current Customer Relationship Manager (CRM), design and implement a platform for improving and extending available information about companies and institutions that have had, have, or may have some form of contact with the URV. This measure aims to generate and maintain good interaction and communication with the URV's environment and enable better dissemination and commercialization of specialized services, research and innovation.
- Take into account collaboration systems and group work in the virtual world, safeguarding privacy and content security.
- Embrace open innovation platforms in order to energize interdisciplinary projects or knowledge marketplaces for transferring the results of research and innovation, online crowdfunding platforms, and open science matters.

Objective 4.3. To have access to scientific equipment that is appropriate for quality research and innovation

An active policy is needed to plan for the replacement of our scientific equipment and evaluate maintenance costs, missed opportunities and loss of results of excellence as a consequence of equipment becoming obsolete (as opposed to that of our competitors). Figure 9 shows various parameters that should be taken into account when assessing the obsolescence of scientific equipment. Strategic plans should also be specified for obtaining large infrastructures that would allow us to apply for prestigious calls and awards (e.g. Singular Scientific and Technological Infrastructures (ICTS) and the European Strategy Forum on Research Infrastructures (ESFRI).
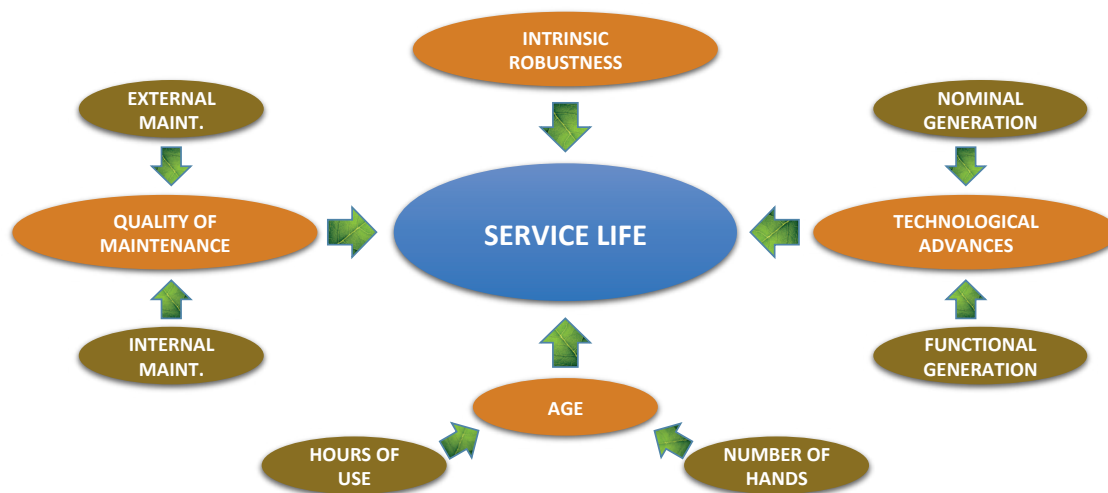

Figure 11. Parameters for assessing the shelf life of scientific equipment.

Source: Technical Committee

➢ Line of action 4.3.1. Promote the sustainable acquisition of scientific equipment
- Provide suitable budget entries for accessing competitive funds to acquire large scientific facilities and co-finance the equipment needed by research groups.

➢ Line of action 4.3.2. Guarantee that the scientific equipment is maintained

✧ Include the cost of replacing and maintaining equipment in the fees charged for using it.

✧ Include suitable budget items to ensure the maintenance of scientific equipment and, if necessary, improve management criteria to make them more efficient.

➢ Line of action 4.3.3. Guarantee more efficient use of the scientific equipment

After analysing the distribution of scientific equipment, it is necessary to:

✧ Establish a mechanism for ensuring that the scientific equipment will be used more efficiently, taking into account adequate training for its users, the experience gained by using it, the non-allocation of equipment, the suitability of the laboratories used, and the efficient use of the energy and resources employed.

✧ Perform periodic actions to keep inventories of scientific equipment up to date.

Axis 5. Quality, evaluation and recognition

Scientific research is the principle means by which science enriches the flow of knowledge about the natural and social reality all around us. However, it acquires its full significance only when it is driven by quality in the exposition of the scientific problem, the methods used to solve that problem (the quality of the research), and the practices employed during the research process (quality in research).

Both the knowledge and the practices must be measurable, and therefore evaluable, so that, first of all, the quality and the appropriateness of the R&D activities can be verified, and second so that the research, support and management activities can be recognized.

In this respect, the URV has been at the vanguard of the Catalan university system. In 1999 we launched the Research Assessment Programme to recognize the scientific merits of our research personnel. One clear aim of this programme, which was updated in 2004, was to allocate human, economic and material resources.

In 2003 the URV approved the Code of Good Practices in activities involved in the transfer of knowledge and technology and the provision of services for companies, administrations and organizations. The aims of this Code were to guarantee maximum quality (especially in areas such as the environment and economic development, where society is more sensitive) and ensure the accurate and effective communication of our scientific results. This regulation also established the creation of an Ethics Committee, the functions of which currently need updating.

In 2005, mechanisms to ensure quality assurance in research were introduced via the External Quality Certification Support Programme, which was implemented in the research groups and centres of the URV. Recently, however, contextual changes and the different needs for and availabilities of current resources have led us to rethink the development of this programme.

Several years later, in 2013, the URV approved the Code of Good Practices in research, research training, development and innovation, which until then had not been adequately developed. Despite its coverage, the Code reveals numerous shortcomings in terms of possible acts of non-compliance.

In the area of personal recognition, as well as creating the figure of distinguished professor, in 2011 a specific programme was set up to recognize quality in research and identify teaching and research staff whose research activity has a significantly higher impact than the world average in their field.

To collaborate in decision-making, the Institutional Quality Plan, approved at the November 2014 session of the University Senate, defined an institutional information system as the reference instrument for analysing and measuring the development of the URV's quality management system and for providing support for the design and development of the strategy and the objectives defined by the institution in its fields of activity.

Since the launch of the URV's Unit of Scientific Communication, mechanisms have been put in place to communicate research results and promote activities to disseminate scientific knowledge. Such activities need reinforcing. External projection helps to promote scientific culture and enables society to recognize the work conducted by the researchers of the University.

Objective 5.1. To extend the scope of the mechanisms to guarantee the quality of research and innovation

Ensure that quality assurance for R&D activities is consolidated among the URV's research groups and structures so that it becomes a hallmark of the University in the context of responsible research and innovation.

➢ Line of action 5.1.1. Review the Code of Good Practices in Research, Research Training, Development and Innovation, and implement it throughout the University

  ✧ Review and update the Code of Good Practices for research, research training, development and innovation, which covers both legislative and normative changes and the current operational and organizational research needs of the URV.

  ✧ Promote the effective implementation of the Code, monitor its implementation in order to evaluate its suitability, and establish mechanisms to ensure that all those involved in research and innovation at the URV comply with it.

➢ Line of action 5.1.2. Review and activate the URV's Ethics Committee

  ✧ Review the composition and functions of the URV Ethics Committee and redefine it. The ensuing body should ensure that the ethical criteria included in the Code of Good Practices for research, research training, development and innovation are met. It should also become the reference body for addressing any ethics-related issues in research and innovation that may arise from the University's activities.

➢ Line of action 5.1.3. Set up a new system for managing the quality of the research and innovation activity of research groups and structures

  ✧ Design and launch a new system of good practices in research and innovation that is based on the current R&D quality management system for the URV's research groups and innovation centres and the Code of Good Practices and that can be accessed by all the University's research groups and structures. The aim of this system of good practices is to disseminate the principles that safeguard the quality and experience the URV has gained over the ten years in which the quality management system has been in operation and extend the scope of these mechanisms among the research and innovation structures of the University.

  ✧ Incorporate the documentation of research processes into daily practice (using images, audiovisuals, infographics, etc.) in order to help justify future research results.

Objective 5.2. To set up efficient and effective processes of evaluation

The complex and dynamic nature of R&D activities requires the availability of assessment methods and instruments that cover the wide range of processes that characterize both the science and innovation systems and their social consequences. We must adapt our evaluation processes to this reality, developing methods and indicators that measure knowledge production from both the quantitative and qualitative perspective and take into account both commercialization in the productive sectors and social impact on the quality of life of citizens.

➢ Line of action 5.2.1. Update and unify internal evaluation criteria

✧ Establish indicators for measuring research capacity (e.g. human and financial resources), scientific and innovation production (e.g. publications and patents) and collaborations, and make progress towards including the social impact in a structured way and in accordance with the quantitative, qualitative, structural and social dimensions.

✧ To prevent differences in criteria, simplify and harmonize the evaluation indicators as far as possible (while bearing in mind the different areas of knowledge), and make the processes more efficient and effective.

✧ Incorporate communication and scientific dissemination into the mechanisms for evaluating the commitment, recognition and assessment of researchers and research groups.

➢ Line of action 5.2.2. Make provisions for external evaluation processes

✧ Enable the URV's teaching and research staff to achieve the best results in external evaluation processes for R&D activities through internal mechanisms that may be recognized by the international scientific community.

Objective 5.3. To promote the recognition of research and innovation

Scientific recognition results from the evaluation of R&D activities to determine the quality of the research that has been conducted by a researcher or research group. It involves assessing the scientific merits of the person or group from among the other members of the scientific community when performing one of their and the University's main functions. In this context, promoting the recognition of R&D activities is both an obligation of scientific institutions and a right of the teaching and research staff involved. Among the benefits for institutions and researchers are the encouragement it provides for conducting research and the possibilities it provides for disseminating scientific knowledge and showcasing scientific activity both among the University community and wider society.
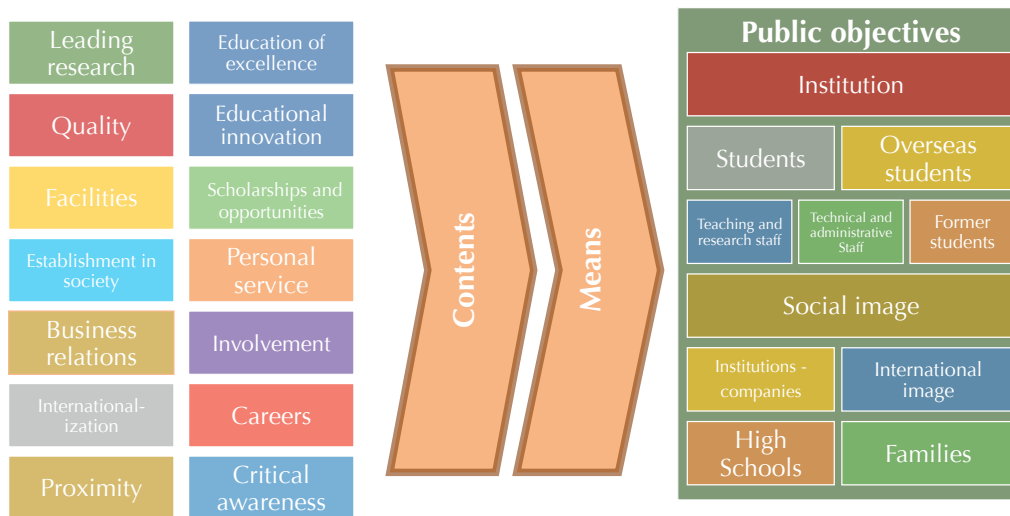
Figure 12: Communication process.

Source: Technical Committee

> Line of action 5.3.1. Encourage and recognize quality among research personnel and research groups

  ◇ Establish the conditions that enable URV teaching and research staff to achieve optimum results in internal recognition processes for R&D activities by updating the evaluation criteria for scientific activities, participating in URV programmes for recognizing excellence, disseminating and visibilizing R&D activity on the web and on social networks, etc., and complying with quality standards for collections of books and journals published by the URV.

  ◇ Establish the conditions that enable URV teaching and research staff to achieve optimum results in external recognition processes for R&D activities, including research accreditation, the recognition of research premiums, and nominations for international awards.

> Line of action 5.3.2. Add a transversal vision of R&D activity to the institutional information system

  ◇ Review the model of R&D data so as to align it with the strategic objectives and lines of work, maximizing transversal analysis and the shared vision of information between the internal and external agents linked to the process for generating and transferring knowledge.

➢ Line of action 5.3.3. Make the excellence of the URV's research visible

✧ Promote the dissemination of research and innovation reports, open science, and researchers' participation in activities to disseminate scientific knowledge, decision centres and collaborative projects and articles.

✧ Consolidate the collections of books and journals produced by the URV's Publications Service in accordance with the scientific quality criteria recognized for each area of knowledge and promote the publication of the scientific collections produced by the Service to publicize the research conducted at the University, thereby increasing its social impact.

✧ Be proactive in helping to improve our position in international rankings. Create an interdisciplinary work group on bibliometric analysis to encourage the production of synergies and improve the visibility factors involved in scientific visibility rankings.

✧ Update the regulations on unique bibliographic names in order to clearly identify affiliation to the Universitat Rovira i Virgili.

✧ Structure scientific communication through a scientific publisher network in each field and increase appearances in the media and on social networks via the Unit of Scientific Communication (ComCiència).

ANNEXES

I. COMPOSITION OF COMMITTEES

Committee for the second URV Strategic Plan for Research and innovation

MEMBERS	POSITION
Josep Manel Ricart Pla	Vice-rector for Scientific Policy and Research, president
Miquel Àngel Bové Sans	Vice-rector for Transfer and Innovation, president
Lluís Marsal Garví	Vice-rector for Teaching and Research Staff
Montserrat Giralt Batista	Vice-rector for Quality Assessment
Ignasi Salvadó Estivill	Office of the General Manager, designated by the General Manager
Francesc Díaz González	Director of the Postgraduate and Doctoral School
Joan Pedrerol Gallego	President of the University Council
Oriol Romaní Alfonso	Department of Anthropology, Philosophy and Social Work
Carme Oriol Carazo	Department of Catalan Studies
Anthony Pym	Department of English and German Studies
Aitor Gómez González	Department of Pedagogy
Jordi Miró Martínez	Department of Psychology
Xavier Rius i Ferrús	Department of Analytical Chemistry and Organic Chemistry
Josep Font Capafons	Department of Chemical Engineering
Lluís Arola Ferrer	Department of Biochemistry and Biotechnology
M. José Figueras Salvat	Department of Basic Medical Sciences
Josep Ribalta Vives	Department of Medicine and Surgery
M. Francisca Jiménez Herrera	Department of Nursing
Bernd Theilen	Department of Economics
Lucía Casado Casado	Department of Public Law
Xavier Correig Blanchar	Department of Electronic, Electrical and Automatic Engineering
Joan Manel Vallès Rasquera	Department of Mechanical Engineering
Josep Domingo Ferrer	Department of Computer Engineering and Mathematics
M. Dolores Jiménez López	Department of Romance Studies
José Ignacio Muro Morales	Department of Geography
Josep M. Poblet Rius	Department of Physical and Inorganic Chemistry
Mireia Valverde Aparicio	Department de Business Management
Sergio Nasarre Aznar	Department of Private, Procedural and Financial Law
Bernat López López	Department of Communication Studies
Joaquín Ruiz de Arbulo Bayona	Department of History and History of Art
Josep Lluís Ginovart	School of Architecture

Carles Garcia Mellado	Administration and Service Personnel, secretary
Gabriela Espinosa Porragas	Administration and Service Personnel
Sergi del Amo Castellví	Science parks
José Manuel Giménez Gómez	CREIP
Magdalena Aguiló Díaz	EMaS
Urbano Lorenzo Seva	CRAMC
Manola Brunet India	C3
Jordi Farré Coma	MARC
Antoni Pigrau Solé	CEDAT
Àngel Belzunegui	CECOS
Leila Isach Dacasa	Student
Thaïs Morata Rosillo	Student

Drafting Committee for the second URV Strategic Plan for Research and Innovation

MEMBERS	POSITION
Josep Manel Ricart Pla	Vice-rector for Scientific Policy and Research, president
Miquel Àngel Bové Sans	Vice-rector for Transfer and Innovation, president
Ignasi Salvadó Estivill	Office of the General Manager, designated by the General Manager
Bernd Theilen	Social and Legal Sciences
Sergio Nasarre Aznar	Social and Legal Sciences
Bernat López López	Social and Legal Sciences
Carme Oriol / Jordi Ginebra	Humanities
Joaquín Ruiz de Arbulo	Humanities
Josep M. Poblet Rius	Sciences
Xavier Rius i Ferrús	Sciences
Josep Font Capafons	Engineering and Architecture
Xavier Correig Blanchar	Engineering and Architecture
Lluís Arola Ferrer	Health and Life Sciences
Jordi Miró Martínez	Health and Life Sciences
Josep Ribalta Vives / María José Figueras Salvat	Health and Life Sciences
Carles Garcia Mellado	Administration and Service Personnel representative

Technical Committee for the second URV Strategic Plan for Research and Innovation

Presidents: the vice-rector for Scientific Policy and Research and the vice-rector for Transfer and Innovation

AXIS	SERVICE/SUPPORT UNIT	PEOPLE
1. The value and social impact of research and innovation	GR, GTR, UDR, EPD, CTTI, GC, IC	DB, JCC, CGM, AJ, ISE, LJ, IS/MC, JC, MC
2. The people involved in research and innovation	UDR, SRH, UGAD, CTTI	CGM, AJ, ISE, JG, GM, LJ
3. The organization of research and innovation	UDR, UGAD, CTTI	CGM, AJ, GM, LJ
4. Resources and infrastructures	UDR, SRCiT, SRM, CRAI, UGAD, TIC, CTTI	CGM, MY, MB, JR, GM, LA, LJ
5. Quality, evaluation and recognition	UDR, CRAI, SRH, GC, GTR	CGM, JR, JG, IS/MC, SG
Technical Coordination	R&D	ISE, YH

AJ: Àngels Jové Guasch
DB: David Basora Bosch
JCC: Josep Carbó Carbó
CGM: Carles Garcia Mellado
IS: Ignasi Soler Seras / MC: Montse Cartanyà Guasch
JC: Jordi Cartanyà Solé
JG: Josepa Gallofré Pujol
GM: Gisela Molas Barberà
ISE: Ignasi Salvadó Estivill
LJ: Lourdes Jané Ros
LA: Lluís Alfons Ariño Martín
MY: Martí Yebras Cañellas
MB: Marina Berasategui Canals
MC: Marina Casals Sala
JR: Josepa Rius Masip
SG: Sara Gimeno Vila
YH: Aleyois Haro Peralta

II. THE METHODOLOGY BEHIND THE PRODUCTION OF THE SECOND STRATEGIC PLAN

The proposal to draft the second Strategic Research and Innovation Plan was presented to the University Senate and approved on November 26, 2015.

The proposal listed a series of working axes and an organizational structure (committees).

The proposed working axes were:

1. The value and social impact of research and innovation

2. The people involved in research and innovation

3. The organization of research and innovation

4. Resources and infrastructures

5. Quality, evaluation and recognition

To prepare and draft the document, three committees were set up: the Committee for the Strategic Plan for Research and Innovation (which expanded the Research Committee defined in article 128 of the URV Statute), the Drafting Committee, and the Technical Committee.

To prepare the diagnosis, a SWOT template was sent to all the departments, URV research centres, offices and units that formed the Technical Committee to identify, by working axis, which internal and external factors may help or hinder the fulfilment of objectives in the field of research and innovation at the URV.

All the committees met during the first quarter of 2016. Four working subgroups were created from the Drafting Committee responsible for continuing with the diagnosis and defining the specific objectives and actions for axes 2, 3, 4 and 5.

Due to its novelty and scope, it was decided that work on axis 1 should be conducted separately and in parallel. For this axis, two full-day workshops were organized in 2016 in which the importance of working for and with society was demonstrated.

At the Senate session held in November 2016, the current status of the Plan and the next steps to be taken were presented.

During the first quarter of 2017, the Technical Committee and all the working groups of the Drafting Committee met to discuss axes 2, 3, 4 and 5 and agree on a first document.

On April 6 the Strategic Plan for Research and Innovation Committee met to review and agree on the first draft of the text, which was made available to the public during the first two weeks in May.

After taking into account the comments received, the final version was drafted (version 2.4) and on May 19 the Committee approved this document, which was then presented to the University Senate and approved on June 1, 2017.

The timeline for the preparation of this Plan was as follows:

NOV - DEC 2015	JAN - MAR 2016	ABRIL - OCT 2016	NOV 2016	JAN – MAR 2017	ABRIL - MAY 2017	JUNE 2017
Presentation of the project to the URV Senate Creation of the committees	URV SWOT Gathering of information for each **working axis**	Defining the **strategic goals and lines of action** *Internal working dynamics Axis 1* Define the **strategic goals and lines of action** *Drafting Committee Working groups by axis Axes 2–5*	Presentation of the state of the plan to the University senate	Development of the lines of action Drafting of the document	Public informed Final draft	Plan approved by the URV Senate

Gathering information > **Analyzing the documents** > **Meetings** > **Defining objectives and lines of action** > **Drafting the document** > **Public informed** > **Plan approved by the URV Senate**

III. SWOT

As explained in the previous section, the majority of the departments, research centres, offices and units responsible for the research conducted at the URV helped to perform this analysis.

The two tables below summarize the most important points identified.

STRENGTHS	WEAKNESSES
University guidance on research, innovation and transfer	Ability to attract and retain high-quality talent could be improved
Strategic areas defined in line with regional specialization and the CEICS	The average age of the URV's principal researchers is high
Researchers with international recognition	The management of the URV's research and innovation installations could be improved
Consolidated research groups and centres	Organizational structure is fragmented and R&D structures, URV competences and centres are duplicated
Consolidated and sustained policies for attracting talent (PMF)	Interdisciplinary work is insufficient and room exists for new synergies
The University's own policies for evaluating and recognizing research (PD, IA)	Ageing scientific equipment
The URV is well positioned with a good relationship with its socioeconomic environment	URV research is not strongly focused on the needs of society
URV management structures geared towards research or the impact of research	The URV provides support for finding and drafting international projects

OPPORTUNITIES	THREATS
Calls (H2020, ERC, Plan N., MM, RyC, JdeC, FPU, EJ, DI, BP, ICREA, SGR, IC, etc.)	Reduction in funding
Internationalization of the URV	Trend towards concentration
Specialization and quality of life in the region	Society not sufficiently aware of the importance of research
The URV appears in prestigious rankings	Brain drain
Sufficient critical mass for initiating interdisciplinary projects	New URV personnel not foreseen in the medium term
Collaboration with external agents	National and international competition for public resources is increasing
New culture of innovation and transfer in business circles is important for the economy. The URV participates in business clusters.	Resources intended directly for industry have increased

IV. DOCUMENTATION GENERATED

Estructura del II Pla estratègic de recerca i innovació. University Senate (November 2015)

Estat situació del II Pla estratègic de recerca i innovació. University Senate (November 2016)

Aprovació del II Pla estratègic de recerca i innovació. University Senate (June 2017)

Document de fets rellevants en la recerca de la URV (2016)

Informe Jornada URV Impacte Social de la Recerca (May 2016)

Informe Jornada URV Impacte Social de la Recerca (July 2016)

Informe dels laboratoris de docència i recerca de la URV (2016)

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V. DOCUMENTATION CONSULTED

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