RedIRIS

Strategic Plan
2021-2024

1. MISSION AND VISION

The mission and vision of RedIRIS are formulated as follows:

Mission

"To deliver **excellent connectivity** and related ICT services to the Spanish research and educational institutions, in close cooperation with those institutions and with regional and international Research and Education Networks, in order to facilitate access to e-infrastructures and remote collaboration at national and international level."

Vision

"To be recognized as the **trusted partner of reference for IT-related issues** by the Spanish research and educational institutions, promoting cooperation among these institutions, and providing them with a catalogue of world class connectivity and related ICT services, centrally managed or procured, which will boost e-science and advanced learning."
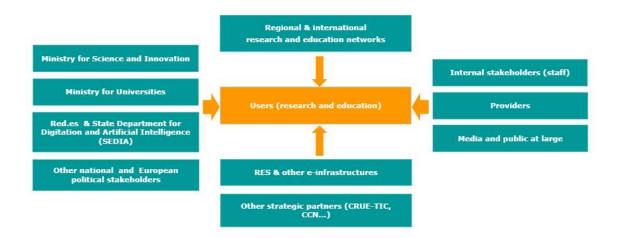
2. CONTEXT

An analysis has been carried out in order to identify the main trends and factors to be considered to determine RedIRIS' strategic direction. The conclusions will serve as a basis for defining strategic objectives and actions.

2.1. CONTEXT ANALYSIS

Before carrying out the SWOT analysis itself, consideration has been given to other prior analyses that help to define the context in which RedIRIS operates, and that have to be taken into account when making any further assessments.

Stakeholders' analysis:

One of the goals of the Strategic Plan is to take into account the needs and requirements of the main stakeholders identified, in order to meet their respective expectations:
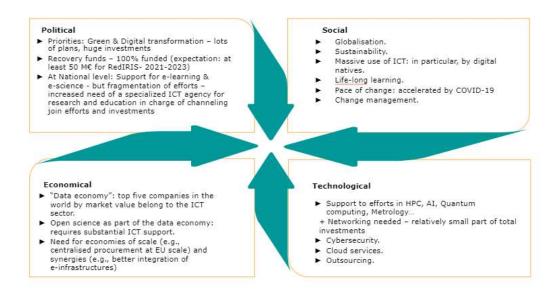

The main stakeholders are the RedIRIS users: research centres (in particular, those involved in e-science); ICTSs; universities (and their association CRUE) and other educational centres; and some relevant Governmental organisations which, for mainly historical reasons, are among RedIRIS users (Parliament, some Ministries, etc.).

There are also "**technical stakeholders**" (other research and education networks, and other e-infrastructures), which collaborate with RedIRIS, in an environment of shared users and/or services; "**political stakeholders**": The three Ministries now engaged with RedIRIS (Science, Universities and Economic Affairs and Digital Transformation), which could jointly discuss about the role which RedIRIS should play; plus other Governmental organisations (in particular, the Ministry for Taxation, in charge of funding and staff policies); and finally "**other relevant stakeholders**" (staff, providers, the general public).

PEST analysis:

This analysis identifies general environmental factors affecting the infrastructure, structured in four perspectives: Political, Economic, Social and Technological:

Political
- ▶ Priorities: Green & Digital transformation – lots of plans, huge investments
- ▶ Recovery funds – 100% funded (expectation: at least 50 M€ for RedIRIS- 2021-2023)
- ▶ At National level: Support for e-learning & e-science - but fragmentation of efforts – increased need of a specialized ICT agency for research and education in charge of channeling join efforts and investments

Social
- ▶ Globalisation.
- ▶ Sustainability.
- ▶ Massive use of ICT: in particular, by digital natives.
- ▶ Life-long learning.
- ▶ Pace of change: accelerated by COVID-19
- ▶ Change management.

Economical
- ▶ "Data economy": top five companies in the world by market value belong to the ICT sector.
- ▶ Open science as part of the data economy: requires substantial ICT support.
- ▶ Need for economies of scale (e.g., centralised procurement at EU scale) and synergies (e.g., better integration of e-infrastructures)

Technological
- ▶ Support to efforts in HPC, AI, Quantum computing, Metrology...
  + Networking needed – relatively small part of total investments
- ▶ Cybersecurity.
- ▶ Cloud services.
- ▶ Outsourcing.

3. OBJETIVES

3.1. DESCRIPTION OF THE OBJETIVES

RedIRIS proposes the following **strategic objectives** that will orientate its strategies and actions toward the horizon of 2024:

Objective 1	Progress towards consolidation of the infrastructure
Objective 2	Excellence in the delivery of secure, reliable services which provide significant added value
Objective 3	Embrace a user-centric approach in the management of the services lifecycle, in order to increase service usage and user satisfaction
Objective 4	Actively collaborate in the development of an integrated e-science environment at the European and national level

3.2. STRATEGIES FOR ACHIEVING THE OBJECTIVES

With the purpose of achieving the proposed objectives and aligning the operation of RedIRIS with the long-term vision, the following **strategies** have been defined:

Objective	Strategy	Description
O1. Progress towards consolidation of the infrastructure	**S1.1. Improve RedIRIS infrastructure**	Part of the equipment needs to be replaced (firewalls, load balancers, servers, etc.) and then it will be necessary to deploy additional equipment for high-availability and improvement of some services
	S1.2. Extend the RedIRIS-NOVA fibre footprint	In order to bring the full benefits of the RedIRIS model to additional relevant research and education centres.
O2. Excellence in the delivery of secure, reliable services which provide significant added value	**S2.1. Reinforce the IT security of RedIRIS and its users**	Deployment of new security equipment and services and implementation of security procedures and standards.
	S2.2. Increase the reliability of the services	Audit of possible points of failure, increased redundancy, strengthened service support.
	S2.3. Ensure the operational sustainability of RedIRIS	Stable budget; appropriate administrative arrangements; improved knowledge management; staff policy that tackles the current severe shortage and keeps staff motivated and up to date.
	S2.4. Constant improvement of the value proposition of RedIRIS services	Implementation of a roadmap of upgrades of the existing services; keeping track of new trends (big data, AI, quantum computing and networking, Blockchain, etc) through cooperation with relevant stakeholders (research networks, advanced users, providers).
	S2.5. Aggregation of user demand and centralised procurement	Provide added value to the members of RedIRIS by offering them a meeting point which allows them to act together in their relations with the ICT market.

O3. Embrace a user-centric approach in the management of the services lifecycle, in order to increase service usage and user satisfaction	S3.1. Enhanced collaboration with key stakeholders to improve user outreach	Collaboration with regional research networks, and other organisations (CRUE-TIC, RES, CCN-CERT, ICTSs consortiums) that can help RedIRIS to reach its users. This might include the development of new tools; joint surveys to improve knowledge about users' needs; and joint dissemination campaigns and events.
	S3.2. Improvement of RedIRIS business intelligence	Updated information about users' data and views; new internal tools; review of KPIs; RedIRIS and user dashboard; BI reports.
O4. Actively collaborate in the development of an integrated e-science environment at the European and national level	S4.1. Contribute, together with GÉANT, to the development of EU E-Science policies	Contribution to EU policies (EOSC, EDI) through GÉANT, the GNx project, and direct participation in EOSC Association, taking into account implications of these activities at a national level.
	S4.2. Network of ICTS on E-Science	Develop new ideas and projects for the development of e-science through direct participation in the Network of ICTS on E-Science created by the Ministry in mid 2020, with a special focus on coordination of all major Spanish stakeholders.
	S4.3. Enhance RedIRIS service portfolio in key areas for e-science	Focus on the services that have been identified, at an EU and national level, as most important for E-Science: data transfers; security; trust & identity; collaborative tools and shared cloud services. Possibility of providing some EOSC services for Spanish research centres and education institutions.

3.3. EXECUTION OF THE STRATEGIES (PLANNED ACTIONS)

Once the objectives and their supporting strategies have been defined, the next step is to identify the **specific actions to be carried out** to implement the Strategic Plan.

Action 1	Purchase new hardware and tools necessary for RedIRIS-NOVA 100
Objective	O1. Progress towards consolidation of the infrastructure.
Strategy	S1.1. Improve RedIRIS infrastructure
Description of the action	
Procure a new firewall, new servers, new monitoring tools.	

Action 2	Procure new IRUs for increased redundancy and for service continuity
Objective	O1. Progress towards consolidation of the infrastructure.
Strategy	S1.1. Improve RedIRIS infrastructure
Description of the action	
Purchase new IRUs to increase redundancy of the network (Northeast ring); and renew the IRUs for the connectivity to the Balearic Islands.	

Action 3	Extend the optic fibre footprint.
Objective	O1. Progress towards consolidation of the infrastructure.
Strategy	S1.2. Extend the RedIRIS-NOVA fibre footprint.
Description of the action	
Procure new optic fibre links to bring the full benefits of the RedIRIS model to additional important research and education centres, including several ICTSs.	

Action 4	Improvement of RedIRIS security equipment and services.
Objective	O2. Excellence in the delivery of secure, reliable services which provide significant added value.
Strategy	S2.1. Reinforce IT security of RedIRIS and its users
Description of the action	
Upgrade security equipment (firewall) and procure new security services (web filtering, DNS firewall, penetration testing for RedIRIS, virtual SOC for RedIRIS and ICTS, monitoring tool, etc.)	

Action 5	Deployment of new shared cybersecurity equipment and services.
Objective	O2. Excellence in the delivery of secure, reliable services which provide significant added value.
Strategy	S2.1. Reinforce IT security of RedIRIS and its users
Description of the action	
Use the 5 MEUR available from the UNI-DIGITAL project (funded by RRF at 100%) to deploy new cybersecurity services, to be identified together with CRUE-TIC and the Ministry for Universities – initial proposals: shared SIEM; IRIS-CERT; additional penetration testing centrally procured by RedIRIS; other cybersecurity services to be determined	

Action 6	New security procedures and standards.
Objective	O2. Excellence in the delivery of secure, reliable services which provide significant added value.
Strategy	S2.1. Reinforce IT security of RedIRIS and its users
Description of the action	
Implement procedures and standards from ISO 27001 and ENS ("Esquema Nacional de Seguridad", National Security Framework) that reinforce the security of the RedIRIS services, improve crisis management practices, and ensure full compliance with legal standards for this type of ICT services.	

Action 7	Identify possible points of failure and adopt mitigation measures.
Objective	O2. Excellence in the delivery of secure, reliable services that provide significant added value.
Strategy	S2.2. Increase the reliability of RedIRIS services
Description of the action	
Carry out an audit of possible points of failure; adopt measures to increase redundancy and strengthen service support.	

Action 8	Improve the RedIRIS organisational environment.
Objective	O2. Excellence in the delivery of secure, reliable services which provide significant added value.
Strategy	S2.3. Ensure sustainability of the operation of RedIRIS.
Description of the action	
Develop policies on key organisational issues related to RedIRIS (administrative structure, budget, staff) and pass the relevant messages to key stakeholders in this area. Subsequently, implement internal human resources policies within RedIRIS to foster a) life-long learning (e.g. training in the new network equipment being deployed); b) effective implementation of best practices in key issues such as crisis management; and c) "professional development" & "change management", as RedIRIS staff need to evolve from being technical experts to being service managers.	

Action 9	Upgrade RedIRIS services to increase their added value.
Objective	O2. Excellence in the delivery of secure, reliable services which provide significant added value.
Strategy	S2.4. Constant improvement of the value proposition of RedIRIS services.
Description of the action	
Improve federated digital identity service SIR; new services for support of e-administration; new features for eduroam (eduroam visitor access; new technologies; WifiMon); dissemination of GÉANT cloud framework agreement (OCRE); new shared IT services funded by UNI-DIGITAL (RRF), to be determined together with CRUE-TIC and the Ministry for Universities (VC; archive; centralised procurement of licences, etc.)	

Action 10	Launch collaboration projects related to emerging technologies
Objective	O2. Excellence in the delivery of secure, reliable services which provide significant added value.
Strategy	S2.4. Constant improvement of the value proposition of RedIRIS services.
Description of the action	
RedIRIS is already collaborating with CRUE-TIC and several universities in blockchain projects, and it is also cooperating with research groups in innovative areas such as HPC, quantum technologies and metrology. This work should be continued and expanded.	

Action 12	Specific plans for improved user outreach through key stakeholders.
Objective	O3. Embrace a user-centric approach in the management of the services lifecycle, in order to increase service usage and user satisfaction.
Strategy	S3.1. Enhanced collaboration with key stakeholders to improve user outreach.
Description of the action	

Reach specific agreements, with concrete action plans, with key stakeholders such as regional research and education networks (RRENs), CRUE-TIC (ICT Group of Spanish Universities), RES (Spanish Supercomputing Network) and CCN (National Cryptologic Centre, in charge of CERT for Public Administration), and develop specific action plans for users such as ICTSs.

Action 13	Plan to improve the quality of RedIRIS information about users for enhanced business intelligence.
Objective	O3. Embrace a user-centric approach in the management of the services lifecycle, in order to increase service usage and user satisfaction.
Strategy	S3.2. Improvement of RedIRIS business intelligence and dissemination policy
Description of the action	

Updated information on users and users' views; new internal tools to manage user information; review of KPIs; RedIRIS and users dashboard; BI reports.

Action 14	Involvement, together with GÉANT, in EOSC and other major EU programmes.
Objective	O4. Actively collaborate in the development of an integrated e-science environment at European and national level
Strategy	S4.1. Contribute, together with GÉANT, to the development of EU E-Science policies.
Description of the action	

Contribute, together with GÉANT, to the EOSC policy being developed by the European Commission. Promote implementation of EOSC at the national level. Contribute to other relevant EU policies together with GÉANT. Contribute to the GN4 project managed by GÉANT, and follow other projects, related to NRENs service portfolios, in which GÉANT also participates on behalf of its members.

Action 15	Participation in the new Network of ICTSs related to e-Ssience.
Objective	O4. Actively collaborate in the development of an integrated e-science environment at the European and national level
Strategy	S4.2. Network of ICTS on E-science.
Description of the action	

Participation in the Network of e-science ICTSs with RedIRIS and RES (Spanish Supercomputing Network), with possible inclusion of storage facilities. Draft a shared document ("White Paper") to help policymakers to understand the existing challenges and the roles that the various agents can play together to improve e-science in Spain.

Action 16	Specific action plan to improve key RedIRIS services related to e-science.
Objective	O4. Actively collaborate in the development of an integrated e-science environment at the European and national level
Strategy	S4.3. Enhance RedIRIS service portfolio in key areas for e-science.

Description of the action
Specific focus on the improvement of services identified at the European and national level as the main contribution from NRENs to e-science: data transfers; security; trust & identity; collaborative tools and shared cloud services.

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