



MEDICINA PERSONALIZADA
DE NAVARRA


DNaMed

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DE NAVARRA

NAVARRRE STRATEGY ON PERSONALISED MEDICINE

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Director Personalised Medicine & Laboratories



Pamplona, January 2023



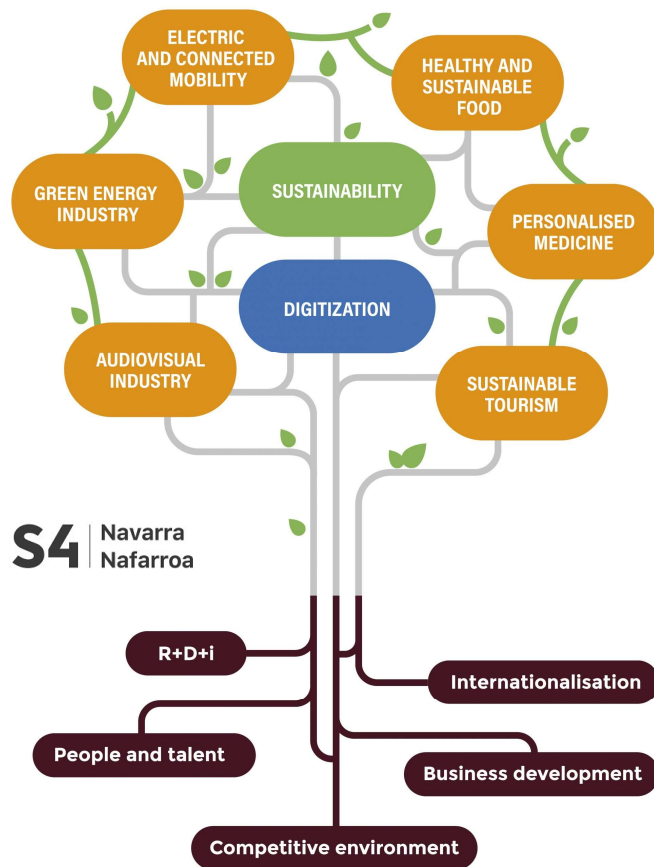
NAVARRRE REGION

- Population: 660.000. >50% in Pamplona Area
- Autonomous administration
- Highest Biotechnology business intensity in Spain
- +80 companies in health and biomedical field
- HQ of the largest pharmaceutical company in Spain
- Pioneer in Spain in digitalization and integration of health data and in Personalised Medicine R&D projects
- 1st Spanish region to design and approve a PM Strategy
- Pamplona: 3 Biomedical research centres
2 leading Hospitals
2 Universities in top-30 Spanish ranking







Personalised Medicine has become one of the Strategic Priorities in the Smart Specialization Strategy of Navarra (2021-2027)



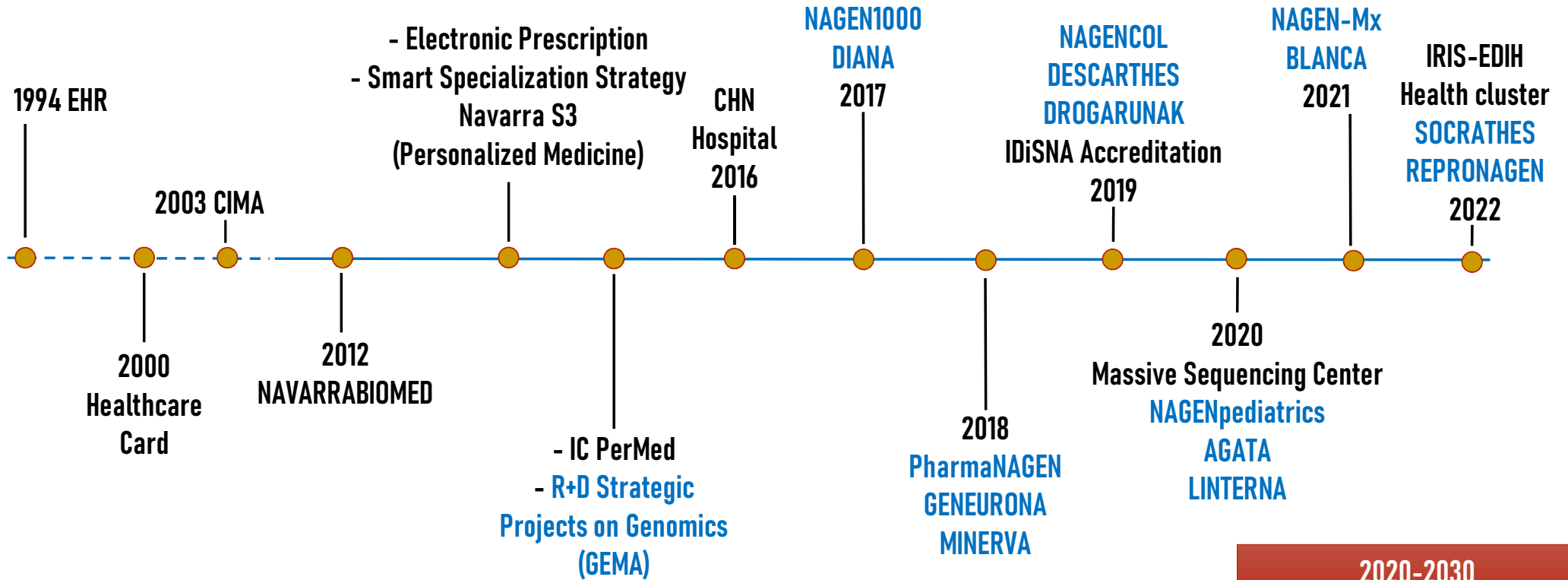
5 Thematic Priorities:

- Personalised Medicine Strategy
- Biopharmaceutical sector
- Medical equipment and healthcare technology
- Massive data analysis in healthcare
- Active and healthy ageing

Vision 2030 	Navarra is at the forefront in Europe for personalised medicine, with a competitive health sector capable of bringing to market innovative and accessible solutions to healthcare challenges
FOCUS 	<ul style="list-style-type: none"> • Development and production of customised prevention, diagnosis, and treatment solutions • Big data and artificial intelligence applied to clinical care • Healthy nutrition and well-being
Trends	<p>The main trends in health are grouped around four axes: prevention and diagnostics ('keeping healthy'), resource efficiency ('efficient health'), technology development ('health tech') and healthy lifestyles ('health&wellness everywhere')</p> <hr/> <p>Application of advances in genomics and computing for personalised medicine, in the areas of prevention, diagnosis and treatment</p> <hr/> <p>Growing involvement of citizens in the management of their own health. Growth of prevention, sports medicine, nutrition and wellness areas</p> <hr/> <p>Needs related to the progressive increase in the longevity of the population</p> <hr/> <p>Development of new medicines, especially those related to advanced therapies in international cooperation</p> <hr/> <p>Devices and systems for the realization of specific diagnoses and personalised attention</p> <hr/> <p>More efficient and less invasive drugs and therapies</p> <hr/> <p>Intelligent and robotic systems for medical care</p>



MILESTONES



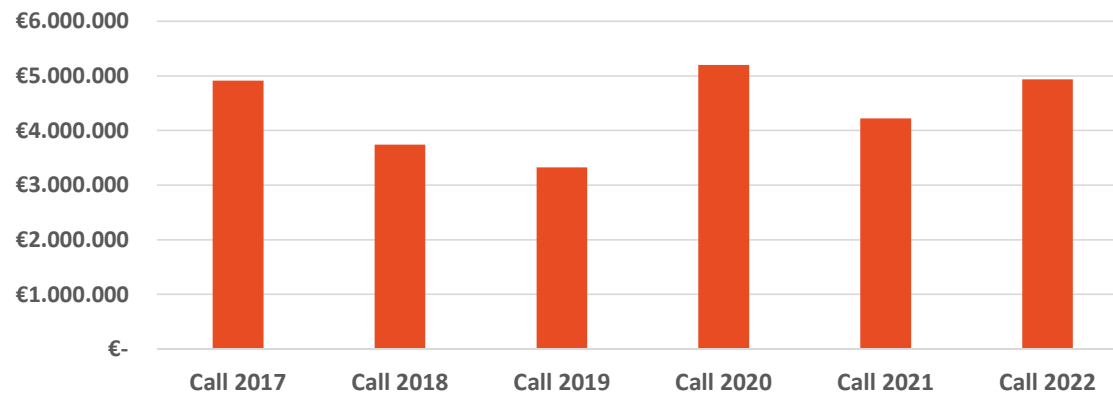
2020-2030
NAVARRA
Strategy on
Personalized Medicine



RESEARCH AND INNOVATION PROJECTS

- European Funding: EDIH, HORIZON2020, INTERREG SUDOE, SMEinst, Joint Actions, ERA PerMed, etc.
- National Funding: IMPaCT, PMP, I+D+i Salud, etc.
- Regional Funding: Proyectos I+D, Alianzas Digitales, Proyectos Estratégicos (GEMA CHALLENGE OF GENOMICS AND ADVANCE MEDICINE)

GEMA (GEnómica y Medicina Avanzada) CALL



TOTAL: +26 M€



NAGEN Program: Strategic initiative to implement genome analysis in clinical practice in the Navarre Health System



To transfer the use of the cutting-edge technology for complete human genome analysis to the public health system. To reach this objective, the genomes of **1,000 patients and their relatives with rare diseases and some types of cancer** were sequenced and analysed. [ICPerMed "Best Practice in Personalised Medicine" Award 2018](#)



Project focuses on sequencing the whole exome of patients whose clinical results indicate that their own genetic code may be impacting their **response to a specific drug**. [ICPerMed "Best Practice in Personalised Medicine" Recognition 2021](#)



Initiative to use whole-genome sequencing to offer patients with **hypercholesterolemia** personalised treatment to avoid coronary events



Implementing genomic medicine into **Pediatric care** to provide a faster and accurate diagnosis



Personalized screening of **breast cancer** in Navarre, through the study of the human genome in different risk groups of population to refer to special care those women carriers of specific gene with greater predisposition to develop breast cancer



Study of genetic factors underlying human **infertility** using whole-genome sequencing

TOTAL: ~3,000 whole genomes sequenced in Navarre





PERSONALISING NAVARRRE: INTEGRATED PERSONALISED MEDICINE STRATEGY FOR NAVARRRE



Department of Economic and Business Development
Department of Healthcare
Department of University, Innovation and Digital Transformation

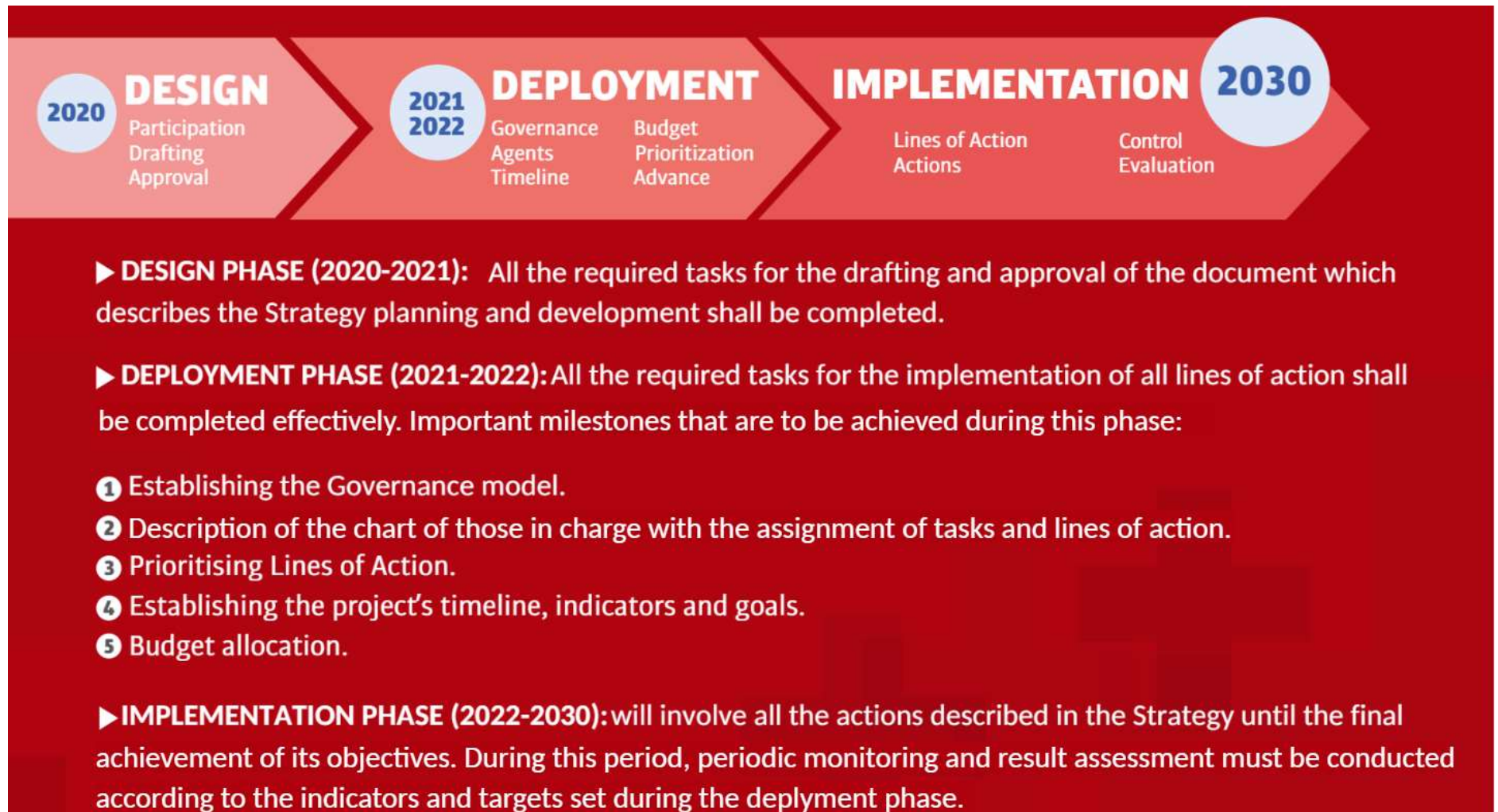


► **INTERDEPARTMENTAL COMMISSION:** Constituted by the heads of the Healthcare Departments University, Innovation and Digital Transformation; and Economic and Business Development of the Government of Navarre. In charge of defining a mission and a realistic vision to transform the healthcare system based on Personalised Medicine.

► **TECHNICAL COMMITTEE:** Consisting of representatives of the three Departments of the Government of Navarre. In charge of coordinating the different Working Groups, collecting and analysing proposals.

► **WORKING GROUPS:** Constituted by more than 50 experts of the Administration of Navarre with related experience, and by external experts in the main Strategic Areas and Transversal Axes.

HEALTH	R&D&I	EBD	INFRASTRUCTURES	REGULATION	TRAINING	COMMUNICATION
Carlos Artundo (DG Salud)	Agurtzane Martínez (DG Innovación)	Yolanda Blanco (DG Industria)	Guzmán Garmendia (DG TD)	Joseba Asialain (DG Presidencia)	Ana Burusco (DG Universidades)	Roi Villar (JG UITD)
• Alfredo Martínez Gerente SNS-O	• Sara Torres • Sara Manzano	• Sara Torres • Agurtzane Martínez	• J Andrés Otano • Agurtzane Martínez • Elias Toral • Itxaki Pinillos	• Íñigo de Miguel • Pilar Nicolás • Carlos Romero	• Ángel Alonso • Alfredo Martínez • Ana Sáez • Esther Monterrubio	• Iratzo Lamberto • Ana Etxaleku • Andrea Úcar • Amaia Arrizabalaga
• Idoia Gaminde • Javier Abad • Javier Apezteguia • Javier Turumbay	• Ana Burusco • Antonio Pineda • Elias Toral • Felipe Prósper • Íñigo Lasa	• Itxaki Casado • Izaskun Goñi • Julio Maset • Luis Goñi • María Sanz de Galdeano	• Itziar Berrospe • Javier Turumbay • Jokin Sanz • Mar González • Mikel Hernández • Patxi Echarte • Yolanda Blanco	• Ángel Alonso • Marta Beamonte • Juan Luis Beltrán • Pilar García • Christian Hidalgo • María Jorqui • Patxi Montaner • Maider Urroz	• Inma Farrán • M ^a Isabel Rodrigo • M ^a Jesús Guembe • Pablo Sánchez-Ostoz • Tomás Belzunegui	• Beatriz Irala • Consuelo Martín de Dios • Francisco Fernández • Itzizar Ayerdi • Pablo Roncal • Pilar Huarte • Silvia Astrain • Sofía Urbiola
Borrador Estrategia MP Dpto Salud 20/02/2020	• Jorge Molina • Luis Goñi • Marisol Fragoso • Mikel Irujo • Patxi Arregui • Rosario Luquin • Yolanda Blanco	• Pilar Irigoyen				





2020

DESIGN

Participation
Drafting
Approval

WORKFLOW IN THE PREPARATION OF THE STRATEGY





STRATEGY MISSION, VISION AND VALUES

MISSION

To develop a patient-centred Personalised Medicine, as a key element to improve a sustainable healthcare based on the study of the human genome. This approach will foster biomedical research and innovation and become a driver to dynamise economic development in a safe, ethical and equitable context of technological expansion.

VISION

To offer the entire population of Navarre patient-centred healthcare, based on a quality collaborative research, integrating large volumes of biomedical data from multiomics technologies and to excel in this field to be at the forefront of Personalised Medicine by 2030.

VALUES

PERSONALISED MEDICINE centred on the patient.

EMPATHY in solving the healthcare problems and interests of the population, based on evidence, sustainability and the rational use of resources.

DESIRE TO INNOVATE directed at investigative excellence, the achievement of results in terms of healthcare, social profitability, the attraction and retention of talent, and interdisciplinary cooperation and transversality.

PROTECTION, with full observance of the legislative framework, individual rights, ethical principles, citizen empowerment in the handling and administration of biomedical data.

SOLIDARITY, with equal, efficient and secure access to infrastructures for the production, processing and storage of biomedical and advanced multi-omic data.

TRANSPARENCY in the governance and distribution of resources.

COMMITMENT to an integrated educational and training model, to guarantee the education and training of professional profiles that are flexible and adapted to the challenges of the future.

CATALYST FOR INNOVATION, collective talent and entrepreneurship as promoters of economic development and generators of employment.

COOPERATION at a national and international level, in the research and generation of healthcare solutions derived from the collaborative and federated analysis of biomedical data.



SWOT ANALYSIS

Weaknesses

- Disjointed, incomplete and **insufficient legal basis**.
- **Diverse data sources** with different purposes in origin (healthcare, research, sociodemographic).
- Difficulties derived from the fact that the **long-term PM strategy** cannot currently be defined, and the threshold between research and assistance is not clear.
- Lack of awareness on the part of researchers and other stakeholders about the need to adopt data protection measures from the very design and execution of the treatment in a research project.
- Lack of lawyers with **specific knowledge in healthcare and data protection** who can support decision-making.
- There is **no Data Protection Officer** in the Healthcare field in Navarre.
- Need for **Information and Communication infrastructures** that guarantee regulatory applicability.

Strengths

- **Robust Healthcare Sector**.
- First-rate, trustworthy, and **secure ICT infrastructures** under development.
- **Citizens' trust** in public institutions.
- **Institutional Support**.
- **Small size and regional autonomy** favour management, debate, cooperation between stakeholders and coordination between legal teams.
- Background **regulatory experience** in data exploitation for research protocols.
- **Transparency and participation** in the framework of the strategy, which can mitigate the distrust of citizens towards the use of their data.

Threats

- **Citizen distrust** towards inappropriate use of health data.
- Difficulty in assimilating **regulatory changes** due to the rapid technical evolution.
- **Sensitive nature** of some genomic data.
- **Different interests** between stakeholders on regulatory aspects (internal and external voracity for data).
- Researchers' **reluctance to data sharing**.
- New technologies enable widespread **fraudulent dissemination of data**.
- **Social pressure** for rapid implementation of results.
- Possible **difficulty in aligning** with future national and European regulations.
- Use of genetic and non-genetic data of a **predictive nature**, which makes it difficult to foresee the risks and negative impact of this use.

Opportunities

- **Potential pioneering regulation** aligned ad-hoc in PM.
- **Regulation supported** by patients, researchers, and industry.
- **Change in public mindset** regarding medical data sharing for the benefit of the community, generated by the recent healthcare crisis.
- Opportunity for **consensus among stakeholders** and a forum for public participation.
- **EU regulation** in evolution, linked to changes in PM (1 +MG European Initiative).



Key factors for success:

- 1 Institutional support.
- 2 Adaptation of the Healthcare System to the implementation of the different tools of Personalised Medicine.
- 3 Generation, integration and interoperability of big omics data, clinical data and multi-source data.
- 4 Generation of new advances by promoting R&D&i projects and knowledge transfer.
- 5 Appropriate financing initiatives for an adequate development.
- 6 Provision of infrastructures for data sequencing, storage, processing and analysis.
- 7 Regulatory and ethical framework to ensure the generated data can be shared safely.
- 8 Specialised training in Personalised Medicine (incorporation of new educational curricula).
- 9 Creation of a collaborative network among the different bodies, both public and private.
- 10 Having an effective Coordination system able to manage healthcare, scientific and technological innovation and business impulse, by synchronising these actions, with transparency and regulatory rigour, ensuring the adequate use of resources.
- 11 Ensuring the right to information through an effective dissemination process that engages citizens, granting their active participation in the development of the Personalised Medicine Strategy.



STRATEGIC AREAS AND TRANSVERSAL AXES



▶ ACTION PLANS FOR STRATEGIC AREAS:

- Healthcare
- Research and Development and Innovation
- Economic Business Development

▶ ACTION PLANS FOR TRANSVERSAL AXES:

- Infrastructures and Systems
- Regulations
- Education and Training
- Communication and Participation

▶ COORDINATION MODULE



ACTION PLANS FOR STRATEGIC AREAS AND TRANSVERSAL AREAS

HEALTHCARE

PERSONALISATION FOR AN IMPROVE HEALTHCARE

To improve healthcare quality by implementing state-of-the-art technology, placing the individual at the heart of a system closely linked to scientific knowledge and sustainability.

Specific objectives	Lines of Action
H.OE1 Adapt the Planning of the Healthcare Strategy.	H.LA1 Connection With the Planning of the Healthcare Strategy.
H.OE2 Strengthen Genomic Medicine.	H.LA2 Coordination and strengthening of capacities in genomic services in SNS-O
H.OE3 Integration and interoperability of big data.	H.LA3 Enhanced healthcare service based on the integration of big data in SNS-O.
H.OE4 Management of knowledge and Sustainability.	H.LA4 Management of knowledge and sustainability.

REGULATIONS

Operational Objectives	Lines of Action	STRATEGIC AREAS		
		Health	R&D&i	EBD
R.OOP1 Legal-Ethical Framework	R.LA1 Data Processing Plan (DPP)	●	●	●
	R.LA2 Regulatory Framework	●	●	●
	R.LA3 Monitoring Committee	●	●	●

EDUCATION AND TRAINING

Operational Objectives	Lines of Action	STRATEGIC AREAS		
		Health	R&D&i	EBD
F.OOP1 Education and Training Roadmap	FLA1 Education and Training Roadmap	●	●	●
F.OOP2 Undergraduate Training	FLA2 Degree Education	●	●	●
F.OOP3 Specialists in Health Sciences	FLA3 Specialist in Health Sciences	●	●	●
F.OOP4 Postgraduate Education	FLA4 Postgraduate Education	●	●	●
F.OOP5 Continuous Learning	FLASA Continuous Learning for Healthcare professionals	●	●	●
F.OOP6 Vocational Training	FLASB Continuous Learning for other professionals	●	●	●
	FLA6 Vocational Education and Training	●	●	●

RESEARCH, DEVELOPMENT AND INNOVATION (R&D&I)

RESEARCH, DEVELOPMENT AND INNOVATION TO ACHIEVE THE FUTURE PERSONALISED MEDICINE

To ensure that Navarre becomes a leading region in research excellence in terms of obtaining results in healthcare, social rate of return, talent attraction and retention, transversality and interdisciplinary collaboration.

Specific Objectives	Lines of Action
RDI.OE1 Promote R&D&i Projects	RDI.LA1 Steady long-term R&D&i funding. RDI.LA2 Innovation as a driver of change.
RDI.OE2 Support the R&D&i Community	RDI.LA4 Creation of support and advisory units.
RDI.OE3 Assess and Monitor	RDI.LA2 Innovation as a driver of change. RDI.LA4 Creation of support and advisory units.
RDI.OE4 Expand the R&D&i Community	RDI.LA1 Steady long-term R&D&i funding. RDI.LA2 Innovation as a driver of change. RDI.LA3 Attraction, return and retention of talent. RDI.LA4 Creation of support and advisory units.
RDI.OE5 Promote multidisciplinary profiles	RDI.LA3 Attraction, return and retention of talent. RDI.LA4 Creation of support and advisory units.
RDI.OE6 Place the R&D&i in Navarre at the forefront of this field internationally	RDI.LA5 Strategic alliances. RDI.LA6 Internationalisation.

COORDINATION

Objective	Lines of Action	Actions
C.O1 Coordination	CLA1 Coordination	<ul style="list-style-type: none"> • Technical Coordination Unit • Integrated Data Management Plan • Global benefits and sustainability agenda

ECONOMIC AND BUSINESS DEVELOPMENT

LEADING PERSONALISED MEDICINE

To be at the forefront of Personalised Medicine by foresting the creation of a specialised industry in this field and throughout the whole value chain, with the aim to improve the economy of the region and the social wellbeing of its citizens.

Specific Objectives	Lines of Action
EBD.OE1. Companies	EBD.LA1. Increase the participation of companies in the different sectors of the Personalised Medicine value chain.
EBD.OE2. Competitiveness	EBD.LA2. Public Procurement for Innovation (PPI).
EBD.OE3. Investments	EBD.LA3. Investment attraction.
EBD.OE4. Startups	EBD.LA4A. Ideation, validation and market access for startups EBD.LA4B. Study and creation of validation units
EBD.OE5. Cooperation	EBD.LA5. Launch of the Personalised Medicine Hub.

COMMUNICATION AND PARTICIPATION

Operational Objectives	Lines of Action	STRATEGIC AREAS		
		Health	R&D&i	EBD
CP.OOP1 Consistency and alignment of expectations	CPLA1 Consistency and alignment of expectations	●	●	●
CP.OOP2 Positioning	CPLA2 Regional positioning and European collaborations	●	●	●
CP.OOP3 Public Awareness	CPLA3 Public Awareness	●	●	●

INFRASTRUCTURES AND SYSTEMS

Operational Objectives	Lines of Action	STRATEGIC AREAS		
		Health	R&D&i	EBD
IS.OOP1 Infrastructures	IS.LA1 Infrastructures	●	●	●
IS.OOP2 Systems	IS.LA2 Systems	●	●	●
IS.OOP3 Plataformas	IS.LA3 Data plataformas	●	●	●



ACTION PLANS FOR STRATEGIC AREAS

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Lines of Action	Actions	Suggested indicators
H.LA1	<ul style="list-style-type: none"> •Include specific PM objectives in Healthcare Strategies. •Coordinate and promote public-private partnerships in PM. 	<ul style="list-style-type: none"> •No. of PM objectives in the Healthcare Plan. •No. of PM objectives in the SNS Plan.
H.LA2	<ul style="list-style-type: none"> •Establish a new genomics plan for the SNS-O: <ul style="list-style-type: none"> ◦Define and coordinate the provision of genomic services. ◦Classify existing Professional Profiles . ◦Establish protocols for genomic analysis. ◦Design the integration of genomic data into the EHR. •Adapt HHRR policy to the real needs for specialisation and new profiles in PM. 	<ul style="list-style-type: none"> •Genomic Plan: 1 •Specialisation and training: Consultant Clinical Geneticist; Genomic Laboratory Specialist; Specialist with specific training. •New professional profiles: Genetic Counselor, BioIT.
H.LA3	<ul style="list-style-type: none"> •Reinforce and redirect the SNS-O Results Evaluation Strategy: <ul style="list-style-type: none"> ◦Standardise coding and parametrisation systems for biomedical data and integration of omic results in EHR. ◦Generalise Access to tools for the systematic assessment of clinical results. ◦Implement AI clinical decision support tools available in EHR. ◦Implement data interoperability systems from different sources: research repositories, portable devices, applications, social networks, questionnaires. 	<ul style="list-style-type: none"> •> 50% encoded entries. •Access to assessment tools granted to all doctors. •>50 New AI tools to support clinical decisions. •Health data interoperability environment; biosensors and trackers, portable devices; questionnaires; research repositories.
H.LA4	<ul style="list-style-type: none"> •Appoint and equip a delegated unit to develop and accelerate PM in SNS-O: <ul style="list-style-type: none"> ◦Administrative management of PM projects. ◦Advice on procedures and data access. ◦Identification of partners-technological solutions. ◦Streamline the healthcare technology assessment cycle (HTA, HNA, HIA). ◦Implementation support in SIS. •Development of Living-lab environment and test bench for PM projects. •Reinforce agreements between academic research and clinical application. •Promote the professional intensification programme in PM. •Assess cost-effectiveness and impact of PM procedures in SNS-O. •Guarantee availability of biomedical data for other secondary uses defined in the Strategy. 	<ul style="list-style-type: none"> •Delegated unit: 1 •Living-lab: 1. •Sustainability impact report (annual): 1 •Bilateral agreements: >2. •PM professional intensification: 2



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RDI.OE6 Place the R&D&i in Navarre at the forefront of this field internationally	RDI.LA5 Strategic alliances. RDI.LA6 Internationalisation.

Lines of Action	Actions	Suggested indicators
RDI.LA1	<ul style="list-style-type: none"> •Creation of a new funding programme for the development of long-term PM research lines (10 years): <ul style="list-style-type: none"> oIdentification of 5-10 preferential specific lines of research in the field of PM in Navarre. A Working Group of experts will perform the analysis and selection of these lines (see Internationalisation- Creation of a Working Group for more details) oResearch progress will be reviewed on an annual basis to assess the achievement of expected results or the fulfilment of previously developed contingency plans to guarantee progress. oThe program will promote short-term stays in prestigious international bodies (3-6 months), attendance to scientific conferences and first-rate scientific production. •Analysis and update of the call for grants for Strategic R&D Projects to achieve steady funding for a 5-year period. As aforementioned, intermediate evaluations are proposed to assess progress according to expectations. •Increase existing funding for R&D programs and initiatives for PM. 	<ul style="list-style-type: none"> •Number of applications submitted for approval in each line of research. •Number of scientific publications in renowned journals. •Number of strategic projects submitted. •Number of additional projects. •Annual increase percentage in funding allocated to programs and initiatives.
RDI.LA2	<ul style="list-style-type: none"> •Creation of a funding program for innovative R&D projects. Groundbreaking projects focused on Genomics and Data Science for the development of PM will be financed through this programme. •Series of Conferences on PM innovation, where internationally renowned speakers promoting R&D innovation (eg. TED speakers, Google innovators, South Summit, etc.) will meet and discuss applicable methodologies, good practice, opportunities for collaboration and innovation, etc. •Creation of the Award for innovation in PM, which recognises the work of people and/or bodies from Navarre developing innovative projects and/or initiatives in the field (Navarre's innovator of the year in PM). •Creation of an Innovation Promotion Unit (see Support and Advisory Units-Creation of an Innovation Promotion Unit for more details). 	<ul style="list-style-type: none"> •Number of projects submitted to the R&D projects funding programme. •Number of requests for participation in the programme •Number of attendees to the sessions. •Satisfaction surveys. •Number of innovative projects submitted. •Number of queries. •Unit users satisfaction surveys.
RDI.LA3	<ul style="list-style-type: none"> •Creation of a talent return programme for Navarre, aimed at promoting return to the region of researchers and/or innovators specialised in PM. To achieve this, the following specific actions are proposed: <ul style="list-style-type: none"> oDefinition, by regional biomedical stakeholders, of the desired or required profile to achieve the objectives defined in this strategy. oTracking of researchers and innovators from Navarre working abroad via the NEXT programme and the IdISNA network of researchers; and identification of the appropriate profiles resulting from the analysis performed in the previous point. oEstablishment of a 'welcome pack' with benefits for the returnee (e.g. advice in ERC submissions, assistance for accommodation, identification of bilingual schools, etc.) oCreation of a webpage with useful information and main contact points for returned researchers/innovators. •Development of a programme to attract national and international talent so that researchers can select among working entities in Navarre and settle and develop their lines of research there. oNeeds analysis and definition of the desired profile. oDefinition of a specific communication plan aimed at the promotion of Navarre and the benefits of the region for researchers. oCreation of a 'talent attraction pack' detailing benefits for the researchers/innovators who decide to develop their work in Navarre, (e.g. advice on ERC submissions, assistance for accommodation, identification of bilingual schools, etc.) oCreation of a webpage with useful information and main contact points for researchers/innovators deciding to work in Navarre. •Creation of a talent retention programme fostering settlement in Navarre for researchers and innovators who are already developing their professional careers in the region. oAnalysis of the desired professional profile in order to achieve the objectives defined in the PM Strategy for Navarre 2020-2030. oNew line of funding for the consolidation of profiles with a long professional record in the region. oCreation of a webpage with useful information and main contact points for researchers/innovators who want to consolidate their activity in Navarre. 	<ul style="list-style-type: none"> •Number of returned researchers or innovators. •Number of queries made through the webpage/programme section. •Number of attracted researchers or innovators who were not initially working in Navarre. •Number of queries made through the webpage/programme section. •Number of researchers or innovators participating in the programme who are not originally from Navarre. •Number of queries made through the webpage/programme section.



ACTION PLANS FOR STRATEGIC AREAS

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RDI.OE6 Place the R&D&i in Navarre at the forefront of this field internationally	RDI.LA5 Strategic alliances. RDI.LA6 Internationalisation.

RDLLA4	<ul style="list-style-type: none"> -Creation of a researcher support unit facilitating progress in the different stages of the researcher's career, from the identification of calls and specific grants for the different profiles, to advice on the preparation of applications for European grants. The main goal of the unit will be to provide guidance to researchers to maximise regional, national and international resources to support the development of their activity. -Creation of a unit for the promotion of innovation supporting, among others, PM, to provide advice to individuals and bodies about innovation-based working methodologies, support in the different stages of development and implementation, and guidance in the exploitation and application of results. -Creation or identification of a regional body acting as a 'hub' (one-stop shop) for PM actions to be implemented in the region. This hub will collect information (calls, events, activities, etc.) through its webpage and social networks. It will also hold dissemination events and promote collaboration among stakeholders. -Creation of a network of regional mentors to advise junior researchers who want to apply for European funding. Each mentor would have priorly benefited from the grant/all on which they will subsequently provide advice (e.g. ERC starting and consolidator, MCSA IF, etc.). Likewise, mentors will receive, in exchange for their participation, advice in the preparation of their own applications for international projects. 	<ul style="list-style-type: none"> -Number of enquiries handled and resolved. Rating on service quality through satisfaction surveys. -Number of projects submitted by researchers as a result of the activity of the unit. -Number of researchers receiving advice. -Number of enquiries handled and resolved. -Rating on service quality through satisfaction surveys. -Number of researchers/innovators receiving advice. -Number of enquiries handled and resolved. Rating on service quality through satisfaction surveys. -Number of interactions through social networks. -Number of attendees at events. -Number of researchers advised by the mentor network. -Number of projects submitted by researchers as a result of the mentoring process.
RDLLA5	<ul style="list-style-type: none"> -Establishment of collaboration agreements with leading European regions in PM (included in networks such as ICPeMed, Euroregion, EUREGHA, new European Partnership on Personalised Medicine, etc.) Likewise, to establish alliances with non-European regions and/or entities providing a positive exchange of knowledge for Navarre. -Establishment of specific agreements with European regions to attract international talent. 	<ul style="list-style-type: none"> -Number of joint actions by Navarre and associated countries in the framework of the collaboration agreement. -Number of joint actions by Navarre and associated countries in the framework of the collaboration agreement.
RDLLA6	<ul style="list-style-type: none"> -Creation of a programme to support internationalisation of R&D&i in PM, including: <ul style="list-style-type: none"> oHelpline to recruit consultants/bodies specialised in European projects development. oGrants for mobility and attendance to international conferences, seminars and events for technical and research staff. oGrants for mobility and attendance to European networking events, brokerages/matchmakings for non-research staff, specialised in international projects. oHelpline to conduct specialised courses in international Project management, European policies, networks and partnerships management, preparing effective discourse and presentations in international contexts, etc. -Foster the active participation of Navarre's stakeholders in European networks and partnerships, through: <ul style="list-style-type: none"> oEstablishment of an 'international dynamisation node' of stakeholders in Navarre in the field of PM. This body will coordinate the process of event identification, information sharing and specific support to stakeholders who want to participate in European networks and partnerships. oSign agreements and collaboration agreements with different regional bodies (international dynamisation node or nodes) to provide support to stakeholders in Navarre with regard to European participation in networks and partnerships. oRegistration in PM-specialised European networks and partnerships (S3 Health Platform, European Alliance for Personalised Medicine, EIT Health Spain, etc.) -Establish a Working Group composed by experts in international PM projects, located in Navarre. The main tasks of this Group would be: <ul style="list-style-type: none"> oDefine the 'vision-message-slogan' to be communicated by Navarre's stakeholders in their international activity in PM. oContinuous review of the international projection needs of stakeholders in Navarre. oReview of future opportunities for Navarre in PM, and selection of the 5 lines of research to be financed in the long-term by the region. oSelect the main networks and partnerships to participate in. oEstablish the annual objectives regarding international participation. oCollection of successful best practice in international projects and definition of strategies for their dissemination. -Creation of its own certificate of Specialisation in European Project Management. (Supplementing this action, a definition of competitive advantage (s) is proposed for those bodies in Navarre prioritising recruitment of students who have completed this specific training. -Promotion of successful best practice of PM R&D&i internationalisation (documentary filming, promotional collaborations with online science and technology communicators (youtubers) preparation of dissemination podcasts, organisation of webinars, etc.) -Study visits by international organisations to the main PM bodies in Navarre. oVisits for international committees, specialised companies, managers of innovative projects in the field, experts, etc. oAgendas by representatives of the Government of Navarre and managers of leading PM bodies in Navarre. 	<ul style="list-style-type: none"> -Number of international projects submitted, approved and awarded. -Number of attendees to conferences, events, meetings. -Number of attendees from Navarre to international specialisation courses. -Number of queries for participation in European networks and partnerships. -Number of participants in European events. -Number of networks in which one or more stakeholders from Navarre participate. -To be defined, according to the final tasks to be performed by the Working Group. -Number of students registered per year. -Number of contracts by Navarre's bodies to students having the specific training certificate. -Number of press appearances. -Number of participants in webinars. Number of interactions in social networks. -Number of study visits. -Number of participants/organisations in the study visits.



ACTION PLANS FOR STRATEGIC AREAS

ECONOMIC AND BUSINESS DEVELOPMENT

LEADING PERSONALISED MEDICINE

To be at the forefront of Personalised Medicine by foresting the creation of a specialised industry in this field and throughout the whole value chain, with the aim to improve the economy of the region and the social wellbeing of its citizens.


Specific Objectives	Lines of Action
EBD.OE1. Companies	EBD.LA1. Increase the participation of companies in the different sectors of the Personalised Medicine value chain.
EBD.OE2. Competitiveness	EBD.LA2. Public Procurement for Innovation (PPI).
EBD.OE3. Investments	EBD.LA3. Investment attraction.
EBD.OE4. Startups	EBD.LA4A. Ideation, validation and market access for startups EBD.LA4B. Study and creation of validation units
EBD.OE5. Cooperation	EBD.LA5. Launch of the Personalised Medicine Hub.

Lines of Action	Actions	Suggested indicators
EBD.LA1.	<ul style="list-style-type: none"> *Industry Discovery Forum's targeted at local, national and international companies, hospitals, etc. *Establishment of the Personalised Medicine Hub as a benchmark for meetings and participation. *Strategic diversification plans: capitalise on the productive capacity of companies from other sectors (automotive, energy, etc.) for the production of medical devices, applications, etc. (SODENA). Help funding these strategic diversification plans. *Foster Spinout creation: transfer of new business ideas from companies not being interested in developing them to other companies (e.g. BioVentureHub). 	<ul style="list-style-type: none"> *Annual hired staff increase. *Number of companies participating in the Hub. *Number of accesses to the Hub. *Percentage of company participation. *Number of created spinoffs-startups *Percentage of funding for diversification. *Number of companies applying for diversification grants. *Number of spin-outs.
EBD.LA2.	<ul style="list-style-type: none"> *Pre-commercial Public Procurement aimed at companies and/or startups. Healthcare challenge. *Innovative technology Public Procurement. *Association for innovation. 	<ul style="list-style-type: none"> *Number of calls. *Number of applications to the call.
EBD.LA3.	<ul style="list-style-type: none"> *SODENA (Navarra Development Society) investment attraction programme. *Promotion of the line of contacts with SODENA's public and private investors. *Complementing or enhancing investments in PM programmes in order to grant greater visibility to projects and investors. *Hub promotion to attract investment. *Visibility of Personalised Medicine patents to attract investment. Investors club: meetings and investment opportunities. 	<ul style="list-style-type: none"> *Number of calls. *Number of participants. *Number of contacts with investors. *Number of investments. *Number of appearances in different media of the innovative projects. *Number of hits on the web. *Number of meetings.
EBD.LA4a.	<ul style="list-style-type: none"> *Promotion of the Mentorship Programme for business profile ideation, validation, assistance and advice. *Promotion of the MEDTECH Academy: Healthcare entrepreneurship programme. Business idea. Maturation and configuration of ideas for project development. Awards for the best project. Direct access to Entrepreneurial Drive. *Strengthening the Entrepreneurial Drive: Acceleration and implementation of business initiatives. New specific Healthcare call. New business model Accelerator. 'From your project to a scalable company in 4 months'. It offers: mentors, funding, acceleration and workspace. *Promotion of innovation incubators for Startups (generic theme, with high participation from the healthcare sector). Strengthening competitiveness, consolidation and market scaling. It offers: tutoring, funding access support, contacts with large companies, premises, pilot plant. *Entrepreneurial Discovery itinerary for Healthcare. *Creation of an open call for startups and projects in order to grant access to capital and/or the incubation/acceleration process of the business project. *Promotion of the best startup award (bioengineering, biomedicine, data science, AI, cybersecurity, etc.) *Promotion of startup-company agreements (local, national or international) in the Personalised Medicine sector. *Promotion of the creation of validation units: an express validation unit for startups, prototype validation unit. *Creation of a regulatory validation unit. *Establishment of a distinctive funding programme-Business Plan 	<ul style="list-style-type: none"> *Number of calls *Number of applicants *Number of participants *Budget percentage *Number of startup-company agreements. *Number of awards *Number of validated prototypes *Funding percentage
EBD.LA4b	<ul style="list-style-type: none"> *Pre-feasibility study for centralisation of public and private trial units: clinical trials (e.g. phases 1 and 2 of drug development; nutritional trials; e-health devices, genetic diagnosis, observational, population, epidemiological, etc., validation trials). *Study about the creation of the validation unit of technology, e-health monitoring computer applications for prevention and well-being. *Study on the creation of the rapid prototyping unit for medical devices, e-health. 	<ul style="list-style-type: none"> *Number of meetings *Number of participants
EBD.LA5.	<ul style="list-style-type: none"> *Creation of the Personalised Medicine Hub for economic development *The Hub as a central point for meetings dynamization and generation of opportunities *Promotion of European funding research through the Hub *Networking 	<ul style="list-style-type: none"> *Number of platform updates *Number of registrations in the platform *Number of platform hits *Number of Hub activities *Number of Hub initiatives *Number of collaborative projects *Number of meetings among IRC working groups *Number of international or national hits *Number of new generated initiatives



ACTION PLANS FOR TRANSVERSAL AXES

REGULATIONS

Operational Objectives	Lines of Action	STRATEGIC AREAS		
		Health	R&D&i	EBD
 R.OOP1 Legal-Ethical Framework	R.LA1 Data Processing Plan (DPP)	●	●	●
	R.LA2 Regulatory Framework	●	●	●
	R.LA3 Monitoring Committee	●	●	●

Lines of action	Actions	Suggested indicators
R.LA1	<p>Develop a Data processing Plan with the following components:</p> <p>Data processing lawfulness</p> <ul style="list-style-type: none"> -Identify the data sources and the legal ground(s) for management in the context of the Strategy. - Identify people in charge and other subjects involved in data management. <p>Minimization</p> <ul style="list-style-type: none"> -Determine the amount of data to be kept for the purposes of the Strategy. -Prepare a model request form to access databases and a model agreement form for the data transfer by researchers. -Establish the application, review, approval and access protocol. <p>Transparence</p> <ul style="list-style-type: none"> -Prepare documentation to inform citizens in general and patients in particular about data management in the Strategy. -Provide a protocol for deceased people's data management. -Provide a protocol for underage people's data management. -Provide mechanisms to ensure transparency and exercise of rights by citizens. -Prepare documentation models for exercise of rights. <p>Purpose limitation</p> <ul style="list-style-type: none"> - Identify the Strategy's and data management's purpose(s) <p>Accuracy</p> <ul style="list-style-type: none"> - Verify data accuracy <p>Limitation of the conservation period</p> <ul style="list-style-type: none"> - Establish a link between terms and purpose. <p>Integrity and confidentiality</p> <ul style="list-style-type: none"> - Identify or establish security measures for data mining, storage and flow. <p>Proactive accountability</p> <ul style="list-style-type: none"> - Prepare an impact evaluation of data processing. -Appoint a Healthcare data Protection Delegate. -Prepare agreements for data flow between institutions including, where appropriate, the person in charge of the data management. 	<ul style="list-style-type: none"> • Data processing Plan
R.LA2	<ul style="list-style-type: none"> •Regional Regulation adaptation 	<ul style="list-style-type: none"> •Proposal
R.LA3	<ul style="list-style-type: none"> •Monitoring Committee 	<ul style="list-style-type: none"> •Monitoring Committee



ACTION PLANS FOR TRANSVERSAL AXES

EDUCATION AND TRAINING


Operational Objectives	Lines of Action	STRATEGIC AREAS Health R&D&i EBD			
F.OOP1 Education and Training Roadmap	FLA1 Education and Training Roadmap	●	●	●	●
F.OOP2 Undergraduate Training	FLA2 Degree Education	●	●	●	●
F.OOP3 Specialists in Health Sciences	FLA3 Specialist in Health Sciences	●			
F.OOP4 Postgraduate Education	FLA4 Postgraduate Education	●	●	●	●
F.OOP5 Continuous Learning	FLA5A Continuous Learning for Healthcare professionals	●			
F.OOP6 Vocational Training	FLA5B Continuous Learning for other professionals	●	●	●	●
	FLA6 Vocational Education and Training	●	●	●	●

Lines of Action	Actions	Suggested indicators
ET.LA1	<ul style="list-style-type: none"> Define a training roadmap of professional profiles in PM. <p>Established degrees</p> <ul style="list-style-type: none"> Reinforce PM contents in Medicine, UNAV. Reinforce PM contents in Nursing UPNA/UNAV. Reinforce PM contents in Biochemistry UNAV. Reinforce PM contents in Biology, UNAV. Reinforce PM contents in Pharmacology, UNAV. Reinforce PM contents in Nutrition and Dietetics, UNAV. Reinforce PM contents in Computer Engineering and Telecoms, UPNA. Reinforce PM contents in Law, UPNA/UNAV. 	<ul style="list-style-type: none"> Roadmap Optional subjects. Specialisation Diplomas. Specific credits on PM. New degrees.
ET.LA2	<p>Degrees being developed</p> <ul style="list-style-type: none"> Reinforce PM contents in Medicine UPNA. Reinforce PM contents in Biotechnology UPNA. Reinforce PM contents in Biomedical Engineering, UPNA/UNAV. Reinforce PM contents in Data Science, UPNA. <p>New degrees</p> <ul style="list-style-type: none"> Explore new (Innovative) degree in Genomics and PM. Explore new dual degrees. Explore open degrees in PM. 	
ET.LA3	<ul style="list-style-type: none"> Propose new PM content for specific Official Specialised Healthcare Training Programmes. Propose new and specific transversal PM content in all Specialised Healthcare Training Programmes. Support the creation of specialised studies in Clinical Genetics. Introduce new specific transversal PM content in specialised Healthcare Training Programmes at accredited centres in Navarra. Propose an internationalisation programme (Erasmus-MIR) with specific transversal PM content in Specialised Healthcare Training Programmes in accredited centres in Navarra. 	<ul style="list-style-type: none"> Proposal to the HHRR Commission of the Spanish National Healthcare System, via the DG for Professional Organisation and the Interregional Healthcare Council. Proposal for a new Royal Decree on Specialised training, via the Interregional Healthcare Council. Modification of the Transversal Training Programme. Grants from the Healthcare Department for internationalisation programmes in PM.
ET.LA4	<ul style="list-style-type: none"> Increase the offer of non-official degrees related to PM (Bioinformatics, genetic counselling, Healthcare Big Data, Regulations and Data Protection, etc.) Propose a specific PM Doctorate Programme. Promote the development of Doctorates related to PM. 	<ul style="list-style-type: none"> New master's degree. New non-official degrees. New doctoral programmes. Doctoral Thesis in PM.
ET.LA5a	<ul style="list-style-type: none"> Include PM as part of the Preferential subjects in continuous learning. Integrate PM into the Healthcare and Healthcare Centres Teaching Plan. Integrate PM into the Healthcare Plan. Fund the offer on PM courses. Foster PM training agreements. Foster the PM training role in Medical Services. 	<ul style="list-style-type: none"> Proposal to the HHRR Commission of the Spanish National Healthcare System, via the DG for Professional Organisation and the Interregional Healthcare Council. Proposal for a new Royal Decree on Specialised training, via the Interregional Healthcare Council. Modification of the cross curricular Training Programme. Grants from the Healthcare Department for internationalisation programmes in PM.
ET.LA5b	<ul style="list-style-type: none"> Promote PM Continuous Learning activities. 	<ul style="list-style-type: none"> PM continuous Learning Activities: courses/workshops/seminars/ scientific meetings.
ET.LA6	<p>Specialised advanced vocational education and training</p> <ul style="list-style-type: none"> Specialisation in genomic lab and PM (Clinical and Biomedical lab; Pathological Anatomy and Cytology). Bioinformatics (Computer Systems Administration). <p>New advanced vocational education and training</p> <ul style="list-style-type: none"> Healthcare documentation and administration. Radiotherapy and Dosimetry. Production of Pharmaceutical, Biotechnological and related products. 	<ul style="list-style-type: none"> Specialisation Programmes. Offer Dual advanced vocational education and training courses.



ACTION PLANS FOR TRANSVERSAL AXES

INFRASTRUCTURES AND SYSTEMS


	Operational Objectives	Lines of Action	STRATEGIC AREAS		
			Health	R&D&i	EBD
	IS.OOP1 Infraestructures	IS.LA1 Infraestructures	●	●	●
	IS.OOP2 Systems	IS.LA2 Systems	●	●	●
	IS.OOP3 Plataformas	IS.LA3 Data plataformas	●	●	●

Lines of action	Actions	Suggested indicators
IS.LA1	<ul style="list-style-type: none">•Massive Sequencing Centre•High performance computing cluster•Connections	<ul style="list-style-type: none">•Number of genomic studies.•Number of HPC Services•Number of new connections
IS.LA2	<ul style="list-style-type: none">•Systems	<ul style="list-style-type: none">•New system.
IS.LA3	<ul style="list-style-type: none">•IRIS Digital Hub•New platforms	<ul style="list-style-type: none">•Number of digital platform enquiries.



ACTION PLANS FOR TRANSVERSAL AXES

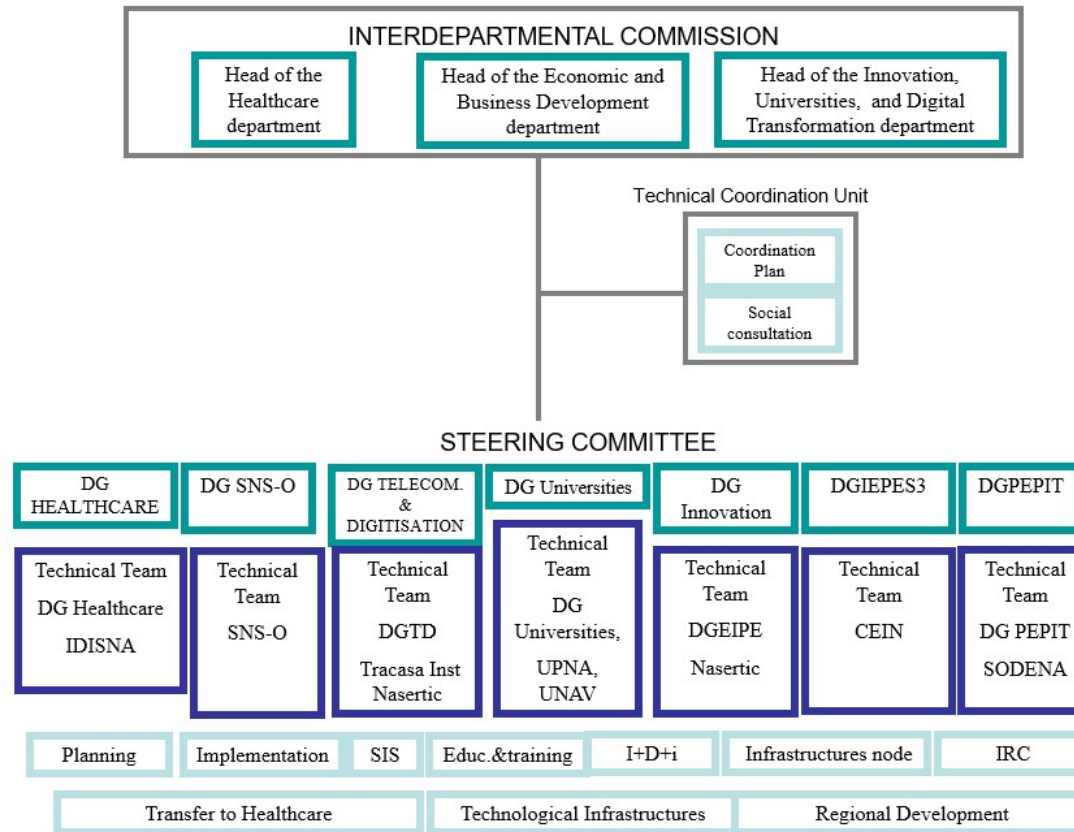
COMMUNICATION AND PARTICIPATION

Operational Objectives	Lines of Action	STRATEGIC AREAS		
		Health	R&D&i	EBD
 CP.OOP1 Consistency and alignment of expectations	CPLA1 Consistency and alignment of expectations	●	●	●
CP.OOP2 Positioning	CPLA2 Regional positioning and European collaborations	●	●	●
CP.OOP3 Public Awareness	CPLA3 Public Awareness	●	●	●

Lines of Action	Actions	Suggested indicators
CP.LA1	<p>Structural actions:</p> <ul style="list-style-type: none"> •Creation of a specific website for the Personalised Medicine strategy. •Organisational chart (coordination and supervision). •Registry of services, units/departments, labs, professionals involved in PM. <p>Operational Actions:</p> <ul style="list-style-type: none"> •Organisation of activities designed to raise awareness of the importance and benefits of Personalised Medicine in Navarre among professionals in the fields of Healthcare, R&D&i, Education and training, etc. •Organisation of events on Personalised Medicine where professionals from Navarre in different fields share and exchange scientific, clinical or business progress. •Transfer of content to different communication platforms (newsletters, social media, impact on local specialised and general press). •Virtual communication spaces where information can be shared among internal target audiences (intranet within the Personalised Medicine website). 	<ul style="list-style-type: none"> • Number of individual projects (e.g. startups set up, submitted projects at regional/national/international level). • Size of investment (public and private). • Number of collaborative projects per year (agreements, contracts, joint actions). • Number of physicians prescribing genomic tests. • Number of genomic tests ordered per quarter. • Number of interactions: B2B, communications via the PM website. • Number of attendees per year and average rating (per survey). • Number of subscribers to the PM newsletter (open rate, number of readings). • Inverse: prescribed commercial tests (e.g. oncotype dk).
CP.LA2	<p>Structural Actions:</p> <ul style="list-style-type: none"> •Creation of a brand for the Personalised Medicine strategy, as well as a single interlocutor to capture and reallocate resources. •Mapping of international stakeholders and strategic markets. Search for international target audiences to identify potential stakeholders as well as best practices. •Translation and interpretation into English of the activities performed, ensuring their dissemination (news, mailing, RRSS, media outside Navarre). <p>Operational actions:</p> <ul style="list-style-type: none"> •'Let us be seen' •Active participation of Navarre in European Networks (ICPerMed, ERRIN, EUREGHA, etc.). •Raise awareness of the progress in PM in Navarre, as well as the organisation of events, through the Permanent Forums portal (Healthcare Section). •Event organisation and participation at an international level (symposia, presentations at congresses, trade fairs, invitation of KOLs to B2B events organised in Navarre, etc.), search for alliances with other participating regions or organisers. •Foster the expansion of the international collaborative network through trips to regions identified in the stakeholders' map, exchange meetings, European projects. 	<ul style="list-style-type: none"> •Number of international collaborations. •Number of projects receiving European funding. •Amount raised as non-refundable grants from Europe. •External investments in startups. •Amount invoiced to non regional entities for services. •Attracted delegations. •Number of interactions (B2B at fairs/meetings per year). •Impact in the media (social networks, newspapers, TV, radio, etc.).
CP.LA2	<p>Operational Actions:</p> <ul style="list-style-type: none"> •'Let us be found' •Assistance to the delegation/consultation of professionals. Contacting the appropriate stakeholder. •Manage international delegations Soft landing of professionals/bodies interested in being part of the Personalised Medicine network in Navarre. •Organise additional tours the days before or after a related fair. •Record keeping of bodies and research groups in Navarre for potential collaboration. •'To provide resources to stakeholders from Navarre' •Provide resources to researchers, assistants, entrepreneurs, teachers, etc. such as grants/assistance for work trips/travel, training, advice, access to contacts, international mentoring, speaking opportunities •To allocate public and private resources, securing them through European projects (interreg/Cosme/HEU calls), or generate them through agreements with other regions (e.g., access to contacts). 	<ul style="list-style-type: none"> •Number of international collaborations. •Number of projects receiving European funding. •Amount raised as non-refundable grants from Europe. •External investments in startups. •Amount invoiced to non regional entities for services. •Attracted delegations. •Number of interactions (B2B at fairs/meetings per year). •Impact in the media (social networks, newspapers, TV, radio, etc.).
CP.LA3	<p>PUBLIC AWARENESS:</p> <ul style="list-style-type: none"> •'Actions aimed at discussing and incorporating' •Open Participation Days (opening ceremony by institutional representation). •Informative talks by experts in the Personalised Medicine Strategy to the different citizen groups •Living Lab: co-creation with interest groups to detect needs. •'Actions aimed at dissemination' •Preparation of educational material to disseminate and communicate the importance and benefits of Personalised Medicine in Navarre for the general public (different groups: adult centres, community workshops, etc.). •A simple, visual guide integrating the Personalised Medicine Strategy. •Mass mailing of personalised letters to all households from the Citizen Participation Delegation with specific information about the participation process in PM. •Open days at the Personalised Medicine key centres (Nasertic; Sequencing and HPC Centre; Navarrabiomed, CIMA, UPNA, UNAV, etc.). •Advertising campaigns at key locations in the region (posters, banners, etc.). 	<ul style="list-style-type: none"> •Number of attendees at talks, PM events. •Number of students enrolled in PM-related degrees. •Number of enquiries (degree of participation by segments). •Number of contributions made(degree of opinion). •Number of accepted contributions. •Number of contributions not accepted and reasons why. •Satisfaction surveys.



GOVERNANCE





TIMELINE AND BUDGET

	LÍNEA DE ACTUACIÓN	FASE																					
		DESPLIEGUE	EJECUCIÓN 2022-2030																				
SALUD	S.LA1	Adaptar el Sistema Sanitario																					
	S.LA2	Refuerzo capacidades servicios genómicos en SNS-O.																					
	S.LA3	Integración de grandes datos en SNS-O.																					
	S.LA4	Gestión de Conocimiento y Sostenibilidad.																					
I+D+i	IDI.LA1.	Financiación I+D estable y a largo plazo																					
	IDI.LA2.	Innovación como motor del cambio																					
	IDI.LA3.	Atracción, retorno y retención de talento																					
	IDI.LA4.	Creación de unidades de apoyo y asesoramiento																					
	IDI.LA5.	Alianzas Estratégicas																					
	IDI.LA6.	Internacionalización																					
DEE	DEE.LA1	Incremento de la participación de empresas.																					
	DEE.LA2	Compra pública innovadora (CPI).																					
	DEE.LA3	Atracción de la inversión.																					
	DEE.LA4a	Ideación validación y llegada al mercado startups.																					
	DEE.LA4b	Estudio y creación de unidades de validación.																					
INFRAESTRUCTURAS Y SISTEMAS	IS.LA1	Infraestructuras																					
	IS.LA2	Sistemas																					
	IS.LA3	Plataformas																					
NORMATIVA	N.LA1.	Plan de Tratamiento de Datos (PTD)																					
	N.LA2.	Revisión Normativa																					
	N.LA3.	Comité de Seguimiento																					
FORMACIÓN	F.LA1.	Mapa de Formación																					
	F.LA2.	Formación Grado																					
	F.LA3.	Especialistas en CC de la Salud																					
	F.LA4.	Formación Postgrado																					
	F.LA5a.	Formación Continuada de Profesionales Sanitarios																					
	F.LA5b.	Formación Continuada de Otros Profesionales																					
COMUNICACIÓN Y PARTICIPACIÓN	F.LA6.	Formación Profesional																					
	CP.LA1.	Cohesión y alineamiento de expectativas																					
	CP.LA2.	Posicionamiento regional y colaboraciones europeas																					
COORDINACIÓN	CP.LA3.	Sensibilización ciudadana																					
	C.LA1.	Coordinación																					
	C.LA2.	Plan de Gestión de Datos																					

	LÍNEA PRESUPUESTARIA	PRESUPUESTO
1	SERVICIOS Y PRODUCTOS SANITARIOS	€
	S.LA1 Adaptar el Sistema Sanitario	
	S.LA2 Coordinación y refuerzo capacidades servicios genómicos en SNS-O.	
	S.LA3 Integración de grandes datos en SNS-O.	
	S.LA4 Gestión de Conocimiento y Sostenibilidad.	
	DEE.LA4a Ideación validación y llegada al mercado startups.	€
2	HERRAMIENTAS, MEDIOS (IMPULSO)	€
	IDI.LA1. Financiación I+D estable y a largo plazo	
	IDI.LA2. Innovación como motor del cambio	
	IDI.LA3. Atracción, retorno y retención de talento	
	IDI.LA4. Creación de unidades de apoyo y asesoramiento	
	IDI.LA5. Alianzas Estratégicas	
	IDI.LA6. Internacionalización	
	DEE.LA1 Incremento de la participación de empresas.	
	DEE.LA2 Compra pública innovadora (CPI).	
	DEE.LA3 Atracción de la inversión.	
	DEE.LA4b Estudio y creación de unidades de validación.	
	DEE.LA5 Fomento, gestión y transferencia de la innovación en el SNS-O.	
	N.LA1. Plan de Tratamiento de Datos (PTD)	
	N.LA2. Revisión Normativa	
	N.LA3. Comité de Seguimiento	
	CP.LA1. Cohesión y alineación expectativas	
	CP.LA2. Posicionamiento regional y colaboraciones europeas	
	CP.LA3. Sensibilización ciudadana	
	C.LA1. Coordinación	
	C.LA2. Plan de Gestión de Datos	
3	INFRAESTRUCTURAS	€
	IS.LA1 Infraestructuras	
	IS.LA2 Sistemas	
	IS.LA3 Plataformas	
4	COMPETENCIAS Y CONOCIMIENTOS	€
	F.LA1. Mapa de Formación	
	F.LA2. Formación Grado	
	F.LA3. Especialistas en CC de la Salud	
	F.LA4. Formación Postgrado	
	F.LA5a. Formación Continuada de Profesionales Sanitarios	
	F.LA5b. Formación Continuada de Otros Profesionales	
	F.LA6. Formación Profesional	



IMPLEMENTATION 2030

Lines of Action
Actions

Control
Evaluation

MAPPING OF STAKEHOLDERS

Phase 1: Identification of the key stakeholders around Personalised Medicine in Navarre.

Phase 2: Interviews with key stakeholders around Personalised Medicine in Navarre and drafting of Capabilities reports.

Phase 3: Analysis and mapping of stakeholders

Phase 4: Integration with SODENA-CEIN mapping





COMMUNICATION AND DISSEMINATION MATERIALS

Design, layout and production of Strategy summary



Informative guides of the Strategy





COMMUNICATION AND DISSEMINATION MATERIALS



Video of
the Strategy



Posters of Strategy summaries

- English and Basque translation of the Strategy documents
- Design of the official webpage



INTEGRATED DATA MANAGEMENT PLAN

- ✓ **Market analysis, functional and technical design of a federated platform for the management of genomic data.**
 - ✓ **Benchmarking, analysis and proposals for genomic data integration into the Navarre's Personalised Medicine Research.**
 - ✓ **Regulatory and Ethical framework for the processing of data from minors and deceased subjects in the context of the implementation of a Personalised Medicine Strategy.**
 - ✓ **Regulatory and Ethical framework for the prospective processing of data derived from R&D projects with scientific and clinical purposes.**
-



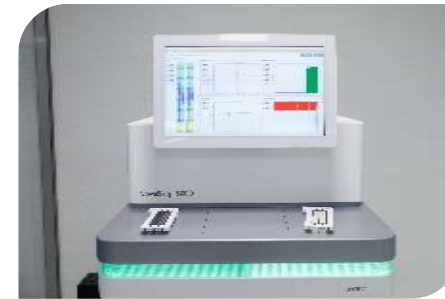
INFRASTRUCTURES PLAN

SEQUENCING CAPABILITIES – NASERTIC MASSIVE SEQUENCING CENTRE



Whole Human Genome and Whole Exome
Microbial genomes
Transcriptomes
Metagenomes

...



DATA ANALYSIS CAPABILITIES – NASERTIC HPC CENTRE



High Performance Computing
Storage Security
2 Data Centers

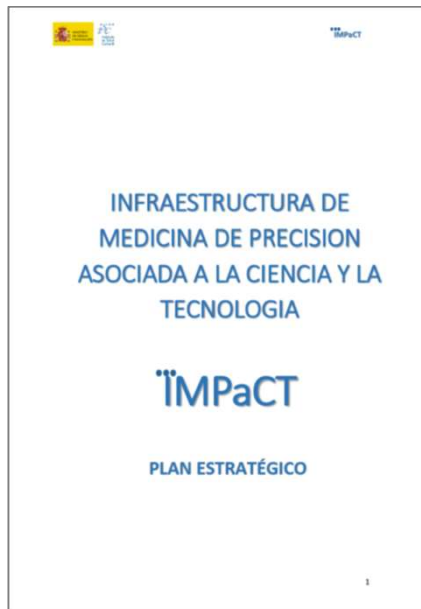
Bioinformatics
Big Data & AI
Data Science
Deep Learning





NATIONAL COLLABORATIONS

IMPACT Program 2021-2023



Network of Sequencing and analysis laboratories

- Definition of SOPs for management, laboratory, sequencing and analysis
- Coordination of WGS, WES and transcriptome
- Design of QC and result reports
- Proposal of use cases
- Accreditation and intercomparison
- LIMS and annotation and filtering software
- Design and implementations of cloud architecture
- Sequencing and analysis of 2,000 WGS



EUROPEAN COLLABORATIONS

EU4HEALTH (joint action)

Preparatory actions for a European Health Data Space; primary use of data (for healthcare) and reuse of data

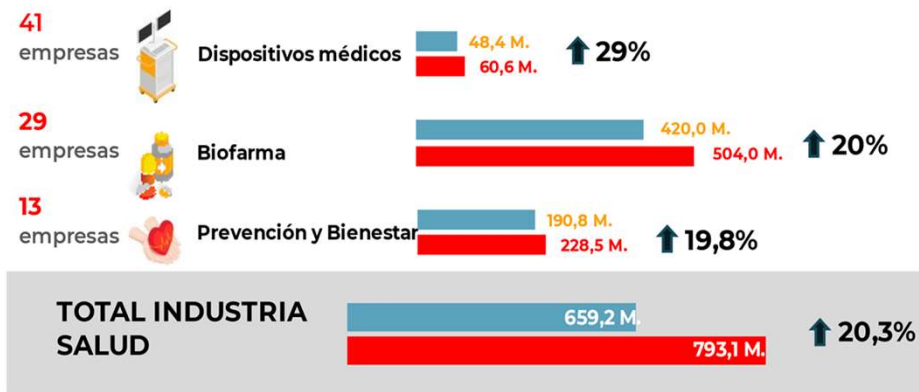
1+ Million Genomes Initiative

Spanish National Mirror Groups



DEVELOPMENT OF REGIONAL ECOSYSTEM

NAVARRA HEALTH CLUSTER



EMPLEO DE LA CADENA DE VALOR

1. INVESTIGACIÓN:	2. INDUSTRIA DE LA SALUD:	3. SERVICIOS ASISTENCIALES:	TOTAL
1.065 personas	2.465 personas • Biofarma: 1.410 • Prevención y Bienestar: 553 • Dispositivos médicos: 499	27.981 personas	31.508 personas

AREAS OF SPECIALIZATION:

- Personalised Medicine
- AI and Data Science
- High Performance Computing
- Synthetic Biology



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DNaMed

MEDICINA PERSONALIZADA
DE NAVARRA

NAVARRRE STRATEGY ON PERSONALISED MEDICINE

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Pamplona, January 2023