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THE STRATEGIC PLAN 2022-2024

Nicola D'Alterio, Giacomo Migliorati, Lucio Ambrosj © 2022 Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise Edizioni IZST**e-press** - Digital Publishing 38 pp. (Collana Documenti Tecnici, 1)



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Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise

THE STRATEGIC PLAN 2022-2024

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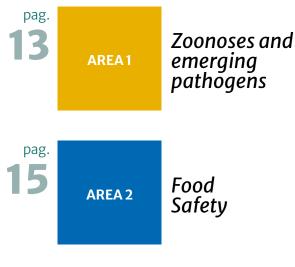




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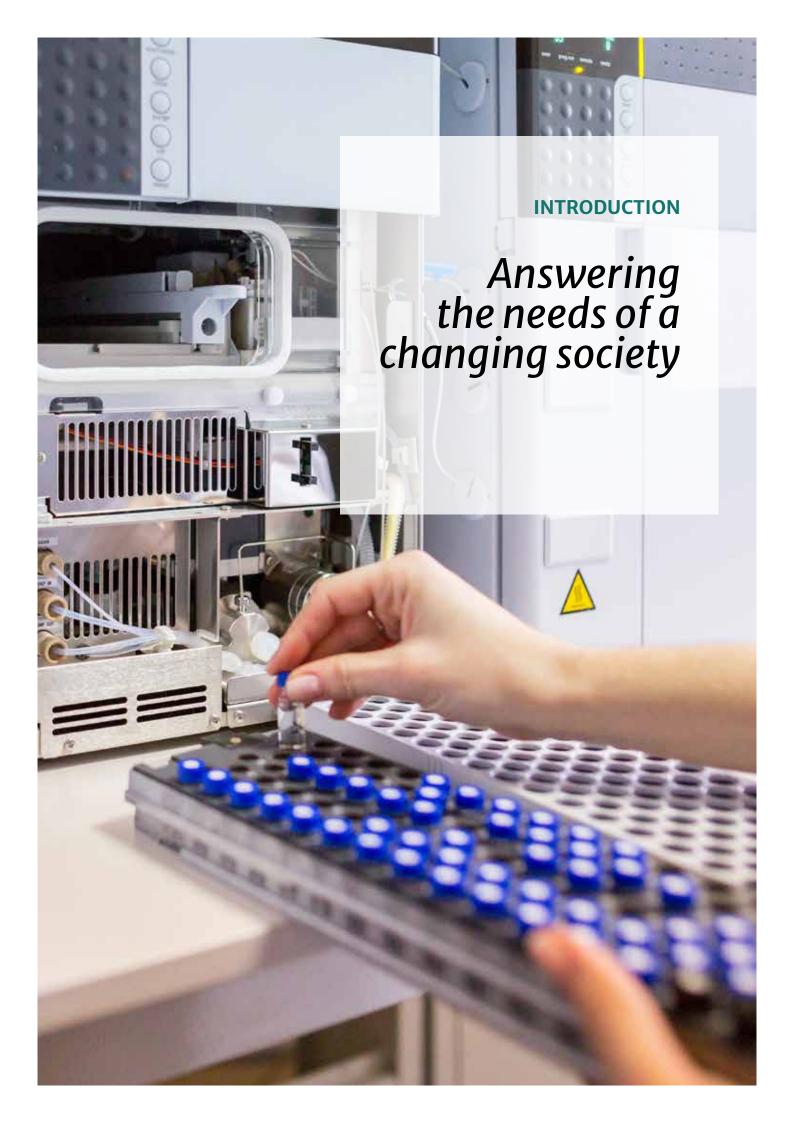
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ISTITUTO
ZOOPROFILATTICO
SPERIMENTALE
DELL'ABRUZZO
E DEL MOLISE
"G. CAPORALE"



The World is getting through complex times, of global change and ever-changing scenarios, of events shacking both the society and the ecosystems, altering the fragile, millenary balance between environment, animal and humans. Often, the consequences are dramatic, with inevitable economic, social and legal impacts. Addressing this complexity requires a broad and polycentric vision, a holistic approach capable of considering the system as a whole, analyzing the interconnection of multiple factors and their mutual influence.

Public institutions, especially those involved in the health sector, are called to quickly understand this evolution, developing cognitive tools capable of forecast and prevent future events thanks to a wealth of advanced scientific and technological skills. A successful public health system must therefore have a dynamic and flexible structure in order to adapt in real time to various emergency situations, to provide answers and to be highly competitive.

The Experimental Zooprophylactic Institute of Abruzzo and Molise (IZS – Teramo) takes up the challenge, embracing with courage and determination a vision capable not only of confirming, but also of strengthening and extending its leading role on the international scene.

Professionalism, equipment, technologies, cooperation and a work environment promoting an integrated and interdisciplinary research: these are the foundations on which IZS - Teramo will build its development in the next three years.

The One Health approach is the common thread that guides and links visions, perspectives and analyzes. An integrated approach to animal, human and environmental health, in a constant interaction with each other. In the following pages, this perspective will be articulated along various strictly interdependent and harmonized levels, resulting in the strategic development of all the components of the Institute.

The pillar supporting this strategy is the institution's ability to tackle competitiveness on a global scale by leveraging on various actions: enhancing already existent skills, adhering to the logic of interdisciplinarity and intersectoriality, strengthening international collaborations with research organizations and with the main stakeholders. This process, inspired by the principle of mutuality and collaboration, will give a strong impulse to research and training so to guarantee, according to a system of logic, support for Countries crucial for the supply of raw materials and for the study of pathologies which, in the near future, could reach our territory and, consequently, Europe.

Technological development generates an exponential growth in the volume of data. The IZS - Teramo always recognized their value and always worked for their effective and efficient

The evolution of the media provided means and opportunities, making "the world comparable to a village". The key factor for creating, maintaining and strengthening trust between IZS – Teramo and the stakeholders will be corporate communication, maximizing the dissemination of knowledge so to bring it back to the scientific community, the institutions and the people. A permanent dialogue will ensue, strictly following the modern concept of participatory science.

The Institute has a staff of around 600 employees with various

contractual forms and in compliance with gender equality. They will act synergistically and in a coordinated way to achieve the goals outlined in this strategic document, born from a training course launched in 2021 and involving the General Management and the Board of Directors, for providing strategic orientations, as well as the managers and the researchers for technical–scientific issues. The main goal is to improve the action of the IZS – Teramo in parallel with the routine activities relevant to its institutional role.

In light of the scenarios described above, and in consideration of the chosen approach, it must be highlighted that the three-year strategy will be annually reviewed, so to maintain them constantly updated in order to calibrate the institution's planning.









The Management of the IZS – Teramo implemented an internal process of elicitation of integrated and participatory knowledge, oriented towards consensus, to identify and define the Priority Scientific Areas and the Cross Priorities which the **2022–2024 Corporate Strategic Plan** is based on.

A CONTEXT THAT EVOLVES, IN A LINEAR AND RAPID WAY, TOWARDS A SCIENCE BASED ON SHARING.

On this basis, an underlying theme develops, one that unifies and integrates the areas of intervention described below in a logic of system aimed at protecting "Man, Animal and Environment" as a whole, in compliance with the mandate given to the IZS – Teramo from the Abruzzo and Molise Regions, the Ministry of Health, the European Commission, the FAO and the WOAH.

The interdisciplinary approach, inspired by "One Health" concept, is modeled on the current competitive positioning of the Institute, in the light of its intrinsic development potential and its reference context.







Zoonoses and emerging pathogens

The pandemic crisis due to the spread of the SARS-CoV-2 zoonotic virus, probably linked to human-wildlife interaction, demonstrates how the only way to prevent similar future scenarios is to deepen knowledge in a multidisciplinary context envisioning One Health as the main point of reference.

To date, most emerging infectious diseases originate from an animal reservoir. Epidemiological surveillance is mostly limited to pathogens recognized for their major economic impact in domestic animals and, to a much lesser extent, to the ones affecting wild animals.

This gap could be filled by the use of innovative techniques, enabling a more accurate knowledge of the global state of health and a consequent improvement in the ability to control emerging pathogens, as well as the antibiotic resistance phenomenon.

The most adequate response to emergencies arising from a globalized and rapidly changing world is in a new combination of interdisciplinary approaches. In this scenario, IZS – Teramo strategy capitalizes on the pioneering experience of the Institute in the fight against infectious diseases, aiming to outline new scenarios of development and research, in support of One Health.



GENERAL OBJECTIVE

Expand knowledge on emerging pathogens and develop new control and management strategies in order to mitigate their impact on animal and human health in the One-Health context



SPECIFIC OBJECTIVES

Objective 1 | Improve and innovate management and control of emerging infectious diseases and fight antibiotic resistance

Measures

- Develop and validate, according to recognized international standards, new methodologies for the detection and characterization of pathogens
- Promote, thanks to both new and existent collaborations, surveillance activities aimed at the discovery of pathogenic microorganisms in different geographical contexts, in terrestrial as well as aquatic fauna
- Support the development of control, surveillance and monitoring plans aimed at addressing national veterinary urban hygiene priorities
- Promote new molecular epidemiological tools for the characterization of pathogens
- Investigate the role of wildlife and arthropod vectors in the emergence of pathogens, including zoonotic ones, and their transmission to domestic animals
- Identify and evaluate the effectiveness of new technologies based on genome editing, such as CRISPR, for the control of pathogenic and antimicrobial resistance

 Develop new genome manipulation-based platform for the production of next generation vaccines and optimize the production of stable vaccines

■ Objective 2 | Improve knowledge on host-pathogen interaction

Measures

- Promote research on interaction at the cellular level
- Analyze processes regulating innate and acquired immunity
- Implement pathogenesis and characterization studies based also on genome manipulation and on the most up to date analysis technologies

Objective 3 | Promote responsible use of animals in scientific research

- Develop alternative methods to animal testing for the study of the efficacy and safety of vaccines, for the evaluation of toxicological effects and for studies on the etiopathogenesis of viral and bacterial infectious diseases
- Apply Deep Critical thinking in the use of experimental animals in accordance with current legislation





Food Safety

Over the last twenty years, the agri-food chain faced an increasing level of globalization, with obvious repercussions also in terms of necessary standards and guarantees to protect the safety, healthiness and quality of food products. Consumption of contaminated food constitutes one of the main ways of exposure to chemical and microbiological hazards, potentially producing adverse effects on the health of humans and animal populations. From this perspective, food safety is one of the cornerstones on which the IZS - Teramo focuses its diagnostic and research activities.

The relationship between the use of antibiotics and the development of antibiotic resistance in the livestock sector is well known, as is the risk of transmission of resistant bacteria to humans. Less well known are the mechanisms by which antibiotic-resistance genes can be transferred through the consumption of food, as well as the risk for consumers. Both elements require further investigation.

In addition, tracking and tracing of

foods along the agri-food chain, as well as enhancing diffusion of traditional and sustainable products, represent critical points for the placing on the market of products with high quality standards, for the benefit and protection of consumers.

In this context, IZS - Teramo will be a pioneer in exploring new frontiers in food safety and in the fight against antibiotic resistance.

GENERAL OBJECTIVE

Ensure food safety and improve sustainability, quality and typical characteristics, in order to protect human health and support the economic growth of the entire supply chain at local, national and international level

SPECIFIC OBJECTIVES

■ Objective 1 | Improve and innovate prevention and control systems for the presence of chemical or



and feed

Measures

 Develop diagnostic systems for detection and characterization of microorganisms that allow to minimize response times

microbiological contaminants in food

- ▶ Design and conduct research concerning the genomic epidemiology of the main food-borne microorganisms (Campylobacter, Listeria, Salmonella, Hepatitis E virus, etc.) for source attribution, identification of epidemic clusters, exposure assessment and analysis of the risk
- Improve and make more effective the integrated surveillance activity involving different public health sectors, aiming at the rapid identification and resolution of foodborne outbreaks
- Develop analytical systems based on mass spectrometry to detect undesired substances (in particular emerging contaminants) for a more accurate assessment of the risk of exposure
- Develop innovative tools and approaches for prevention of and response to epidemics through data analysis techniques based on Artificial Intelligence systems
- Objective 2 | Promote quality, safety, sustainability and traceability of food products, in compliance with the reference regulatory framework

Measures

- Monitor and improve quality and hygiene standards of local companies' traditional products
- ▶ Develop and validate innovative analytical systems (for example spectrometric methods and NGS) to ensure authenticity and exclude the presence of fraud in food intended for human consumption

- ► Identify new artificial intelligence-based solutions in the field of food labelling, supporting blockchain technologies for product traceability throughout the supply chain
- Objective 3 | Mitigate the onset and spreading of antibiotic-resistant bacteria and resistance-carrying genes along the entire food chain

- Develop and activate a system for monitoring and analyzing antibiotic resistance in the food supply chain, also using Artificial Intelligence and data sharing
- Develop methods and technologies alternative to the use of antibiotics, such as bacteriophages and their components, CRISPR-Cas and sustainable management systems of primary production
- Develop rapid methods for detecting antibiotic resistance by Machine Learning techniques, useful also for clinical purposes







Environmental sustainability, residues, contaminants and pollutants

The over-exploitation of the planet's resources and the widespread use of pollutants are generating environmental problems of increasing importance and complexity. The evolution of the general landscape, accompanied by the growing awareness of consumers, put under the spotlight the need for sustainable production, from both an economic and environmental point of view. In a medium-term perspective, research and innovation are keys to continue guaranteeing the needs of populations without jeopardizing future generations.

Over the years, IZS - Teramo paid a particular attention to these issues, that are becoming more and more important for a research institute aiming to protect public health by taking into account the economic and environmental sustainability of production processes.

This strategy, in line with the European

"From Farm to Fork" and "New Green Deal", aims to contribute to environmental sustainability in all its aspects and to provide useful data to the competent authorities for the implementation of control measures.

GENERAL OBJECTIVE

Promote the reduction of environmental and biota contamination levels in order to protect global health and related economic activities in a sustainable way

SPECIFIC OBJECTIVES

■ Objective 1 | Enhance and innovate detection procedures and monitoring systems of environmental contaminants of chemical and biological origin, protect aquatic species and ecosystems by supporting fishery and aquaculture

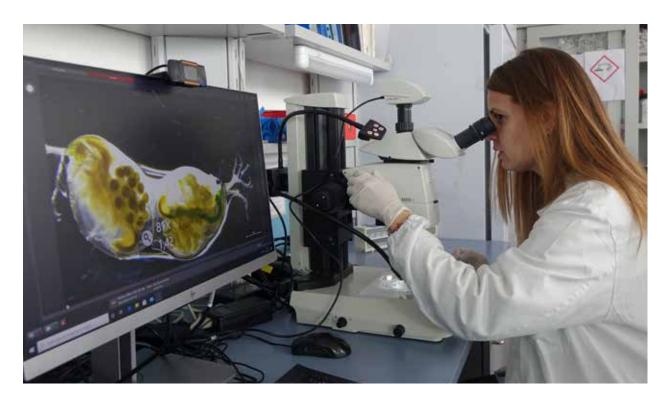
Measures

- Improve detection and monitoring of pathogens, invasive species, harmful algal blooms, toxins, biological / chemical biomarkers and xenobiotics in the aquatic environment in order to protect health and coastal economies
- Develop and apply ecotoxicological methodologies for assessing the harmful effects of chemical contaminants on aquatic organisms
- Detect and analyze, also by artificial intelligence techniques, environmental DNA (eDNA), microbiota and Earth observation satellite data in order to support fishery and aquaculture resources, protect aquatic species and ecosystems and protect related vulnerable species
- ▶ Introduce validated analytical methods to quantify and characterize micro / nanoplastics and related contaminants transported in water, aquatic organisms, food and feed matrices. The reliable data generated by these procedures will be useful both for the assessment of dietary exposure and for

the identification of sources of contamination

■ Objective 2 | Strengthen activities in the field of animal welfare for the sustainability of livestock production and for stray dog population control

- Study and promote the application of new animal welfare indicators in the framework of precision farming
- Design and conduct research activities for the identification and implementation of methods alternative to the use of antibiotics
- Develop guidelines, aimed to operators in the agro-zootechnical chain, on best practices for the reduction and correct use of antibiotics
- ▶ Develop certification and traceability processes in the agro-zootechnical sector to ensure the quality of sustainable productions, including animal-based indicators for the assessment of animal welfare through the application of objective methods of observation and analysis. This measure will involve also food



- labelling in the light of European and international regulatory developments
- ► Implement activities aimed at improving human-animal relationship, with particular reference to management programs for canine populations aimed to reduce the incidence of stray dogs, functional to the control of zoonoses

■ Objective 3 | Deepen the understanding of epidemiology and pathogenesis of the main neoplasms of domestic animals, in correlation with human ones in specific environmental contexts

Measures

- Develop NGS molecular methods and implement immunohistochemical techniques for the characterization of animal tumors
- Create a scalable and reproducible model functional to the study of the pathogenesis of the main neoplasms in domestic animals

■ Objective 4 | Innovate and improve the management of non-epidemic emergencies

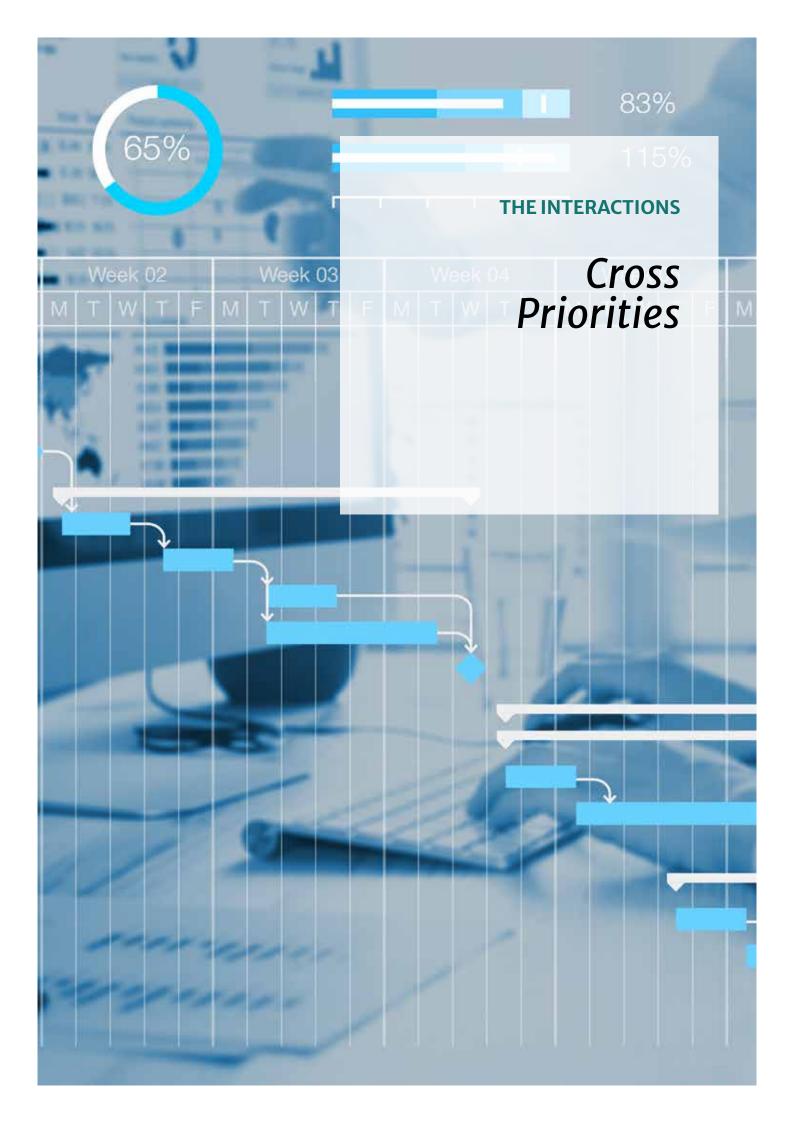
Measures

- Develop predictive models, procedures and tools functional to the management of all the phases characterizing non-epidemic emergencies, such as earthquakes, severe weather events and environmental pollution
- ▶ Promote the continuous development of skills related to the management of non-epidemic emergencies at the local, regional, national and international level through the Reference Centers, the Collaboration Centers and their respective networks

■ Objective 5 | Systematize the approach to environmental sustainability and circular economy by making the Institute a point of reference in the area of interest

- Optimize the disposal of plastic waste, with particular attention to laboratory waste by classifying them, after specific compatibility study, as urban waste
- Orient the construction of infrastructures towards complete energy and environmental sustainability
- Orient the drafting of tender specifications, the assignment of services and the purchase of goods to full environmental and energy sustainability
- Orient the realization of public events to a plastic-free principle
- Carry out awareness campaigns on eco-sustainability aimed to staff and stakeholders







Human capital in the work context and the internal and external training

The identity of contemporary human being is profoundly marked by the digital society: in recent years a process of profound change affected the cognitive, relational and working spheres of individuals. This new scenario requires a radical rethinking of personnel management policies combining new technologies with an attention to work and personal needs and aspirations. So reorienting the recruitment processes to the Institute's needs, enhancing hard and soft skills of the staff, improving quality of work and its interaction with daily life are the objectives that outline the operational horizon of the institution. From this perspective, the corporate organizational structure will be redesigned by combining the needs and complexity associated with an increased centrality on a technical and social level. A scientific management of the relationship with the staff will therefore make it possible to employ it according to the knowledge and skills possessed,

as well as to the individual aptitudes and characteristics. The process will give birth to a two-way relationship, in which the greater recognition of professional activities will be functional to a stronger motivation and a more incisive achievement of objectives. In this perspective, internal training will also play a decisive role in fully achieving the expected change.

In a rapidly evolving context such as the one outlined, training must also transform itself, keeping pace with the contemporary society and with the ways in which we communicate and work (or communicate to work). Paradigms change: the classroom, understood as a physical place, widely gives way to dematerialization, becoming virtual, just as virtual can be the work environments in which simulate practical tasks. Furthermore, the scalability of some specific technologies now makes it possible to redesign training in order to offer

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ample access to knowledge, according to personalized learning paths, with maximum space-time flexibility and with a significant reduction in organizational time and costs. Aware of the economic benefits deriving from the application of modern solutions and the new approaches to training processes, even complex ones, the IZS - Teramo, which in this field holds a solid pre-eminent position in the national and international scenario, intends to take up this challenge in advance. This will be achieved by redesigning its offer of services, interconnected and intended for both internal and external customers, to create a new value chain with measurable results.

GENERAL OBJECTIVE

Enhance human capital for the competitive development of the organization through the growth of individuals and, through them, of the structures in an open business system

SPECIFIC OBJECTIVES

■ Objective 1 | Orientate recruitment, allocation, management and training of human resources and related careers in order to improve organizational well-being, effectiveness, innovation and competitiveness

Measures

- Design and apply an organizational model based on the assessment, monitoring, development and certification of staff skills
- ► Introduce Artificial Intelligence in personnel selection and recruitment processes
- Introduce means of strengthening and extending rewards, including the use of project resources, in any case external to the National Health Fund
- Orient the use of non-permanent or temporary contract to the

- recruitment and enhancement of individuals with high and specific skills, introducing elements of gratification linked to the ability to attract funding and produce knowledge
- Develop innovative work methods combining operational efficiency with attention to the environment, well-being and quality of life of the staff, also through the use of digital tools favoring remote work
- Objective 2 | Promote innovation in the training of IZS - Teramo staff as well as of all the external beneficiaries for the development and the updating of technical-scientific and managerial skills, in line with One Health context needs

- ▶ Adopt IT systems-based approaches and tools, such as Artificial Intelligence, to the analysis of training needs in order to assess, on an individual level, the knowledge and competence gaps with respect to predefined teaching objectives, functional to the development of multi-year individual training dossiers
- ▶ Design and implement the corporate training plan of the IZS – Teramo to meet the training needs identified through the analysis of technical–scientific and managerial needs and related to the implementation of the 2022–2024 strategic plan
- ▶ Implement innovative interactive platforms for learning management, including personalized actions. Moreover, new experiential training methodologies will enable to raise the Return of Investment (ROI) of internal and external training initiatives, also projecting a strong distinctive image of the training offer of the Institute in its reference market, both nationally and internationally



Business Information Systems, Data Science and Artificial Intelligence

Technological development underwent a strong acceleration in recent times of pandemic emergency, especially in the field of omics technologies, bioinformatics and Artificial Intelligence. This made it possible to collect, archive and process huge amounts of data in order to produce the necessary information and knowledge to address the risks to the health of animals, humans and the planet, in a systemic and transversal way.

The availability of large amounts of heterogeneous data, produced within the national health system and the national system for the protection of the environment, pushes to promote innovative analysis strategies capable of providing advanced tools to address new health challenges. In this context arises the need to strengthen multidisciplinary skills related to data science and to increase knowledge of emerging technologies such as Big Data Analytics and Artificial Intelligence.

This will enable decision-makers to reach more informed choices, guided by evidence-based approaches.

These activities will be supported by a technological infrastructure capable of ensuring high levels of IT security, provision of innovative services, adequate computing power and storage space. The opportunity to evolve the Data Center into a National Strategic Pole (PSN) will make it possible to grasp new perspectives, with the possibility of providing services in the Cloud and hosting large amounts of data, also from other Institutions. The adoption of innovative development methods based on microservices architectures will favor the creation of highly scalable Artificial Intelligence infrastructures to support data science.

A complex and integrated vision, aiming to strengthen the position of IZS - Teramo as a reference point in the development and re-engineering of information systems, artificial

Intelligence and data science at a

GENERAL OBJECTIVE

Strengthen the technological infrastructure and enhance skills on emerging technologies, Big Data Analytics, learning techniques and Artificial Intelligence

SPECIFIC OBJECTIVES

■ Objective 1 | Strengthen omics analytical technologies, Bioinformatics, Computational Biology and Artificial Intelligence as foundations to build research innovation on

Measures

- Expand the infrastructure for the production of genomic sequences, their interpretation and sharing
- Strengthen software and hardware infrastructure to improve storage capacity and data processing / analysis
- ▶ Use internal techniques of Big Data Analytics and Artificial Intelligence to support effective decisions in complex scenarios, analyzing heterogeneous data deriving from: genomic sequences, high resolution satellite images, health and environmental information, veterinary use of drugs and environmental contamination
- Create early warning systems based on data science to reduce the health, social and economic impact of diseases arising in humans, animals and shared ecosystems, at the same time forecasting the introduction of infections and of foodborne infections from other countries



■ Objective 2 | Rationalize and simplify the internal digital infrastructure in order to increase efficiency, on the basis of information sharing, and to enhance interoperability between information systems so to meet the needs of the competent authorities and for the development of the One Health approach

Measures

- ▶ Reengineering the Institute's INTRANET through the development of a portal dedicated to the staff. Following the guidelines defined for the institutional website, not only it will be a collection of services but it will represent an area of communication, information, collaboration, management of activities and simplification of organizational processes
- ▶ Develop digital platforms to standardize existing databases by strengthening cooperation between the Experimental Zooprophylactic Institutes (IIZZSS) and the National Reference Centers
- Reengineering the analytical accounting system in order to make available online to the public the progress of specifically funded projects

■ Objective 3 | Evolve the internal Data Center to National Strategic Pole (NSPS)

Measures

 Complete certifications for the recognition as National Strategic

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- Pole: Business Continuity certification and process certification
- Create a second mobile Data Center (for example to be located in the new headquarters) connected to the main Data Center in order to have Business Continuity
- ➤ Create an adequate infrastructure capable of hosting servers from other Institutions. Deliver Infrastructure as a Service (IaaS) and Software as a Service (SaaS) in Cloud, also hybrid, based in part on the proprietary infrastructure and in part, in case of need for additional storage space or computing power, on external private Clouds

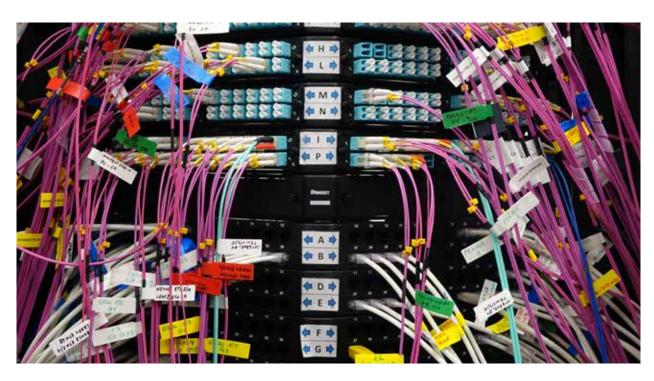
■ Objective 4 | Increase global cybersecurity and ensure the Digital Transition

Measures

- Promote security-by-design approaches in software design and development, enhancing the detection of security problems
- ▶ Reorganize the software development process on the basis of the principles set out in ISO 27001 and 9000
- ► Enhance cybersecurity through the use of preventive, proactive and behavioral defense techniques

- ▶ Implement, monitor and manage the Three-Year Plan for IT in order to facilitate the Digital Transition so to ensure availability, management, access, transmission, conservation and usability of digital information to all interested parties
- Objective 5 | Implement application development methods focused on microservices communicating each other via well-defined APIs, ensuring high availability and scalability

- ▶ Implement new approaches for design, implementation and organization of software, so to provide independent, small-sized services, communicating with each other via Application Programming Interfaces (API)
- Upgrade the infrastructure in order to activate microservices, ensuring high availability and scalability with particular reference to the provision of services based on artificial intelligence (Machine Learning and Deep Learning)
- ► Enhance the use of containers, such as docker, and systems for their orchestration such as Kubernetes, enabling to manage containers in clusters





Research, planning, publishing and communication

Research is the beating heart of the IZS - Teramo institutional activities, aimed at generating knowledge through fundamental tools such as scientific articles and monographs. The IZS – Teramo invested resources and professionalism also in the field of scientific publishing, with the publication of Veterinaria Italiana, an international journal impacted and indexed by biomedical databases. The skills acquired offer now the opportunity to implement the necessary organizational and managerial transformations for the evolution of the magazine into an editorial brand / publishing house (modeled on the University Press). In addition to enhancing internal products, the aim is to offer an editorial platform to universities, national and international organizations, as well as project partners.

Moreover, essential for quality research is the Institute's planning capability, expressed in the context of initiatives promoted by national and international institutions, and the expertise of

scientists and researchers. The latter is expressed not only with respect to their specific area of investigation and study, but also through the application of recognized project management models, fundamental elements for growing in terms of reliability and of the ability to attract new sources of funding.

All these choices, appropriately harmonized taking into account the entire strategic framework of the three-year period 2022-2024, contribute to building – through institutional communication – a corporate identity aimed at affirming the IZS - Teramo as a point of reference, in the pre-identified strategic areas, for the stakeholders, the community and the public. This action aims also to create a growing and lasting climate of trust toward the Institute within the complex framework of the One Health, on a global scale. It is a winning choice for the Institute, therefore, to invest in an integrated communication, optimizing the available resources, focusing messages and addressing the various target audiences in a



comprehensive way through the various media.

GENERAL OBJECTIVE

Consolidate the image of IZS - Teramo as a research institution meant to play a high social impact role in the national and international scenario to protect the One Health in a global perspective

SPECIFIC OBJECTIVES

■ Objective 1 | Raise the relevance, methodological quality, ethics and integrity of research in the framework of the Institute's priorities through the application of recognized international standards.

Measures

- Implement the Code for Ethics and Research Integrity
- ► Implement recognized international standards for research activities
- Define and apply internal and / or external processes for evaluating and accompanying the institution's scientific production

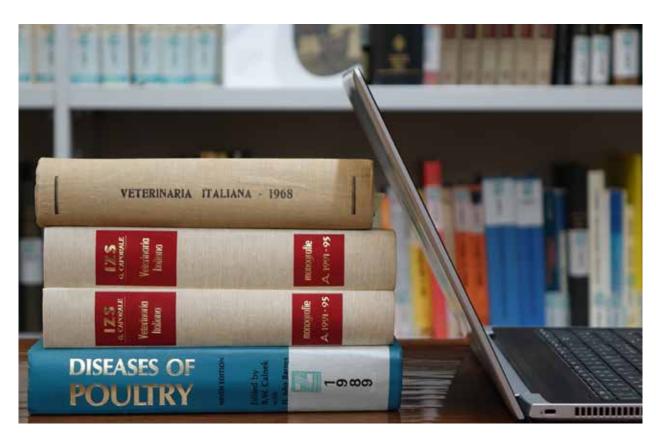
- Apply widely recognized project management models to research projects
- ▶ Raise the project design capacity of the institution in the field of research through the support of qualified companies in the European context, in particular for the Horizon Europe program
- Objective 2 | Support free access to research results through transparency and data sharing at all stages of development

Measure

- Update and disseminate the policy for free access to research data produced by the institution
- Objective 3 | Redefine the image of the IZS - Teramo for a new strategic positioning at a regional, national and international level, addressing proper communication to all stakeholders

Measures

 Revise the corporate communication plan in order to affirm the IZS - Teramo as a One Health institute in a global dimension,



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- planning communication activities on an annual basis – in agreement with the Institute management and with representatives of structures – pursuing its strategic goals
- Convey the scientific production of the institution for dissemination through the plurality of media
- Develop and consolidate public relations with competent authorities, research centers, bodies and institutions, industry and citizens through initiatives at local, national and international level
- Develop the institutional website in a modern, innovative and multilingual way so to communicate Institute's image at all levels and in a global dimension

■ Objective 4 | Revamp the scientific journal "Veterinaria Italiana"

Measures

 Consolidate the impact of Veterinaria Italiana on the international publishing scene by increasing citation index

- ▶ Implement editorial procedures aimed at the publication of special issues on the subjects of One Health, international cooperation and current topics of scientific relevance
- Realize the new Veterinaria Italiana editorial plan aiming at an evolution from magazine to publishing house on the University Press model
- Launch a new editorial policy in order to identify and enhance homogeneous branches of technical-scientific and popular publications of the IZS - Teramo – monographs, reports – to be managed in the form of Italian Veterinary Series
- Define and identify, for each editorial product, policy, committee and creative commons licenses, as well as introduce peer review to guarantee the scientific congruity of each individual publication
- Develop the OJS platform to host new journals, pre-press archives or institutional repository for internal and external institutions (Ministry, institutions, organizations, universities)





Acknowledgments, collaborations and partnerships

This priority represents a key link in the virtuous chain that IZS - Teramo designed through the strategic plan 2022–2024. It is necessary to push forward the "One Heath" approach through various tools, first of all networking. The enhancement of existing collaboration networks, their expansion at a geographical and sectorial level, also through public-private partnerships, and the creation of networks of networks, will become crucial for the development of scientific production and the improvement of the quality of research. Such a result, in the One Health dimension, will also arise from the development of professional skills at a global level. Official laboratories, reference centers and collaboration centers, both already accredited and to be accredited, will be decisive for this purpose.

In addition, on an international scale, new networks will be generated by ERFAN – Enhancing Research For Africa Network – funded by the WOAH and already coordinated by IZSAM and the REMESA program, in which the IZS - Teramo actively participates.

GENERAL OBJECTIVE

Effectively define the strategic positioning of the IZS - Teramo in the field of research for One Health in the national and international reference context, in a medium-long term perspective

SPECIFIC OBJECTIVES

■ Objective 1 | Obtain new recognitions at regional, national and international level further accrediting the IZS - Teramo as a research center for One Health and strengthening its laboratories and centers

Measures

 Participate in the official, regional and national working groups oriented to One Health 29

- Propose the Institute for recognition as:
 - Reference Center for zoonotic coronaviruses of United Nation Food and Agriculture Organization (FAO)
 - "One Health" Reference Center by international organizations
 - Regional Reference Center for arbovirosis
- Submit applications for the recognition of the institute as a European Reference Laboratory for strategic priority diseases for the European Commission
- ▶ Innovate and consolidate the already assigned mandate of the laboratories and of the reference and collaborating centers on the basis of evolving trends identified in the reference contexts.
- Objective 2 | Establish, through Reference Centers, Reference Laboratories, Collaborating Centers and networks, stable, lasting and mutually successful collaboration

networks with the main international stakeholders for the promotion of research and the development of scientific, technical-specialist and managerial skills required from professionals working in the One Health sector

- ▶ Stipulate new collaboration agreements with the main research institutions operating in the Balkans, Eastern Europe and former Soviet bloc, South America, China, Southeast Asia and African continent. These agreements will be functional to the research and development of professional skills in the strategic areas defined by the 2022–2024 plan
- ➤ Strengthen existing collaborations in the geographical areas of interest at regional, national and international level, or stipulate new collaboration agreements with research institutions of excellence in the strategic areas defined by this 2022–2024 plan. These collaborations will lead to access in consortium to National Recovery





and Resilience Plan (PNRR) and Horizon Europe Program funds, pursuing at the same time mutual transfer of knowledge and skills, also through study visits

- Pursue projects within the Twinning Programs promoted by the WOAH and the European Commission, in order to collaborate with institutions of interest located in countries of strategic importance
- Encourage the participation of the institution's staff in initiatives and training courses promoted by relevant international Organizations
- Collaborate in a stable and organized way with universities, both national and international, to train through joint, common or shared post-graduate courses young highly specialized professionals who can operate in the field of scientific research for One Health



■ Objective 3 | Develop technology transfer initiatives aimed at exploiting the results of the scientific research promoted by the institution

- Establish public-private partnerships at national and international level to support research
- Promote the emergence of spin-offs and start-ups from research results
- Develop patents originating from information systems and research results produced by the Institute's activities having market potential







Quality and biosecurity management systems

Since 1994, IZS - Teramo established a quality system in order to offer high-level services, able to effectively and efficiently answer to the needs of its customers. Quality System has always been an essential tool for Institute's corporate management and governance, with the aim of improving the organization, ensuring reliability of performance and, last but not least, respecting national and international legislation requirements. Therefore, the quality management system was created and accredited by an external body, according to the general requirements for the operation of laboratory tests stated by UNI EN ISO 17025. Training and design services are also certified according to the ISO 9001 standard. Quality management through certified systems is the tool used by management to improve services, reduce Institute operating costs and increase competitiveness on a national and international level.

The IZS - Teramo, as an instrumental body of the Ministry of Health, is called to constantly renew itself. It is a

seamless process modeled on the new global approach aimed at protecting the health of humans, animals and the environment. In this context, it is appropriate to further extend, in an organic and organized way, the concept of quality management systems to the production of diagnostic devices to be used in laboratory tests, which must be validated and authorized. The achievement of these acknowledgments cannot ignore the identification and implementation of diligent organizational models operating through planning, monitoring, constant training and constant improvement.

All products and reference materials must be managed through a system guaranteeing their traceability over time and allowing the retrieval of all the identification and descriptive data of the materials, including genomic sequences, where available, through a recognized system of Biobanks.

In this vision of organizational growth, there is a need to extend the quality system to information systems, privacy,



Finally, it is essential to establish "ad hoc" procedures for the management of the breeding farms and for the use of animals for scientific and educational purposes, in compliance with current legislation and in order to guarantee animal welfare.

This priority aims to ensure the constant improvement of the organization, performance, services and products of the Institute, aiming to the protection of the environment and the community, from a national to international level.

GENERAL OBJECTIVE

Achieve the necessary acknowledgments in order to guarantee the quality of the production of diagnostic and vaccine devices, of animal experiments and of the information systems created and managed by the Institute

SPECIFIC OBJECTIVES

Objective 1 | Certify the Pharmaceutical Facility according to Good Manufacturing Practice (GMP)



Measure

Write all documentation and Standard Operating Procedures for the Pharmaceutical Facility according to Good Manufacturing Practices (GMP), to be presented to the Competent Authority for certification

■ Objective 2 | Certify activities involving biological assays according to the principles of Good Laboratory Practices (GLP)

Measure

 Draw up the documentation to obtain the certification of the IZS - Teramo Facility as a test center

■ Objective 3 | Certify the information systems created by the Institute according to recognized standards

Measure

► Achieve certification of Business Continuity (service levels guaranteed



24 hours a day and 7 days a week) and certification of process relating to the collection of requirements and software development

■ Objective 4 | Certify the Biobank for biological materials of interest and genomic sequences

Measures

- Draw up Standard Operating Procedures in accordance with the WOAH guidelines for biobanks
- ➤ Implement the new software (FreezerPro) for the management of biological materials and genomic sequences of Biobanks

■ Objective 5 | Strengthen activities related to the promotion of ethics and legality for prevention of corruption

Measures

- Draw up the documentation of the Management System and the Standard Operating Procedures in compliance with the ISO 37001 standard
- Certify, through a nationally recognized body, the system developed in compliance with the ISO 37001 Standard – Management systems for the prevention of corruption
- Objective 6 | Protect the material and intangible know-how of the IZS Teramo in compliance with current legislation and ensure the protection of personal data managed by the Institute

Measures

- Obtain data protection certification for the Information System of the Laboratories in accordance with the GDPR
- Register, where applicable, rights on intellectual property and industrial inventions arising from the activities developed by the Institute

Objective 7 | Develop and apply biosecurity management procedures in laboratories and facilities for breeding and using animals

Measures

- Draw up procedures and certify, according to recognized international standards, the training of personnel assigned to the management of level 3 and 4 pathogens (acceptance, handling, transport)
- Update the risk analysis document on biosecurity in laboratories and facilities for breeding and use of animals for scientific and educational purposes
- Draw up protocols for field operations in case of health emergencies

■ Objective 8 | Adapt test methods to the requirements of recent European legislation

Measure

 Validate test methods in accordance with new European rules

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Structures and spaces

Structural deficiencies of the Institute's buildings slow down the development of activities that can no longer be postponed. In order to maintain and develop its national and international role, to ensure the current qualitative and quantitative standards and to continue to be a point of reference for bodies and institutions, it is necessary to rely on adequate structures. In fact, headquarter spaces reached a saturation levels preventing the enhancement of any activity and no longer meeting the indicated requirements. This was already evident in the early 2000s, when it was decided to start a process of profound modernization of the entire system. From that date on, many steps have been taken, but others still need to be

It is therefore necessary to proceed with the restructuring and expansion of the structures, in order to adapt them at a logistical-functional level, both for the adaptation of spaces and the compliance with European safety standards. This priority also intends to satisfy the need to have spaces facilitating the intersectoral

and multidisciplinary "sharing" and "contamination".

To this end, it becomes crucial:

- ▶ Build the New Headquarters (Technological Center) at Colleatterrato Alto, in order to meet the institutional and contingent needs of public health in the new concept of One Health at a regional, national and international level.
- Reorganize the Headquarters spaces (Service Center), Management, Administrative Services, Information Technologies, Library, Communication and the New Pharmaceutical Facility, through upgrading the existing structures and spaces.

Both the Technical Center and the Service Center will be designed and organized in compliance with the new concept of "sharing", with areas specifically dedicated to socializing and staff meetings. Library, shared work areas, meeting areas, language laboratories, even outdoor spaces, will aim at a new concept of "global scientific community" allowing the development of the circularity of

GENERAL OBJECTIVE

Ensure that each resource has what is needed in order to express excellence in an adequate work environment, enhancing the use of renewable energy and green areas

SPECIFIC OBJECTIVES

■ Objective 1 | Start the works at the Technical Center in Colleatterrato Alto, Teramo, with the transfer of all laboratories and the creation of support buildings aimed at increasing the diffusion of the well-being of human resources (gym, residence for interns, bar, canteen, company kindergarten).

Measures

- Complete the Sealed Unit so that the biological safety of workers, materials and the environment is guaranteed
- ▶ Obtain approval of the executive design of the new Technical Pole and start its construction on the basis of already granted regional and ministerial funding, as well as intercepting additional resources for the completion of the work



■ Objective 2 | Improve safety, quality and arrangement of the work environments in Teramo Headquarters, upgrading the structures and appurtenances, in order to create the Services Hub dedicated to the organizational support areas: Management, Administrative Services, Information technologies, Library and Communication.

Measures

- Carry out works aimed at the functional and energy requalification of the Information Technologies building
- Complete the New Pharmaceutical Facility in the former slaughterhouse area

■ Objective 3 | Complete upgrading structures of the territorial diagnostic offices in Abruzzo and Molise

Measure

► Complete the functional upgrading, the reorganization and adaptation of spaces in the diagnostic sections of Avezzano, Campobasso and Pescara



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