



# enesis 20<sup>22</sup>

ESTRATÉGIA NACIONAL  
PARA O ECOSISTEMA DE  
INFORMAÇÃO DE SAÚDE



## SCOPE

The ENESIS 20<sup>22</sup> is a proposal from SPMS, E.P.E to the Ministry of Health, regarding the Information Systems of the Health System, with a particular emphasis on the NHS areas.



### Health Information Ecosystem (eSIS)

Set of technologies, people and processes that intervene in the information lifecycle related to all dimensions of citizen health and related health, regardless of where care is provided and / or organizational barriers.



## MISSION

**Enhance the previous National Strategy for the Health Information Ecosystem, throughout a public and participative process, in alignment with:**

- Legal Normatives, in particular with the strategic initiatives promoted by the Council for the Information and Communication Technology in Public Administration, SIMPLEX+ Program;
- Strategic plans to health areas, developed by World Health Organization (WHO) and Europe Union (EU);
- National Health Plan, revision and extension 2020;
- XXI Constitutional Government Program

## ENESIS GOAL

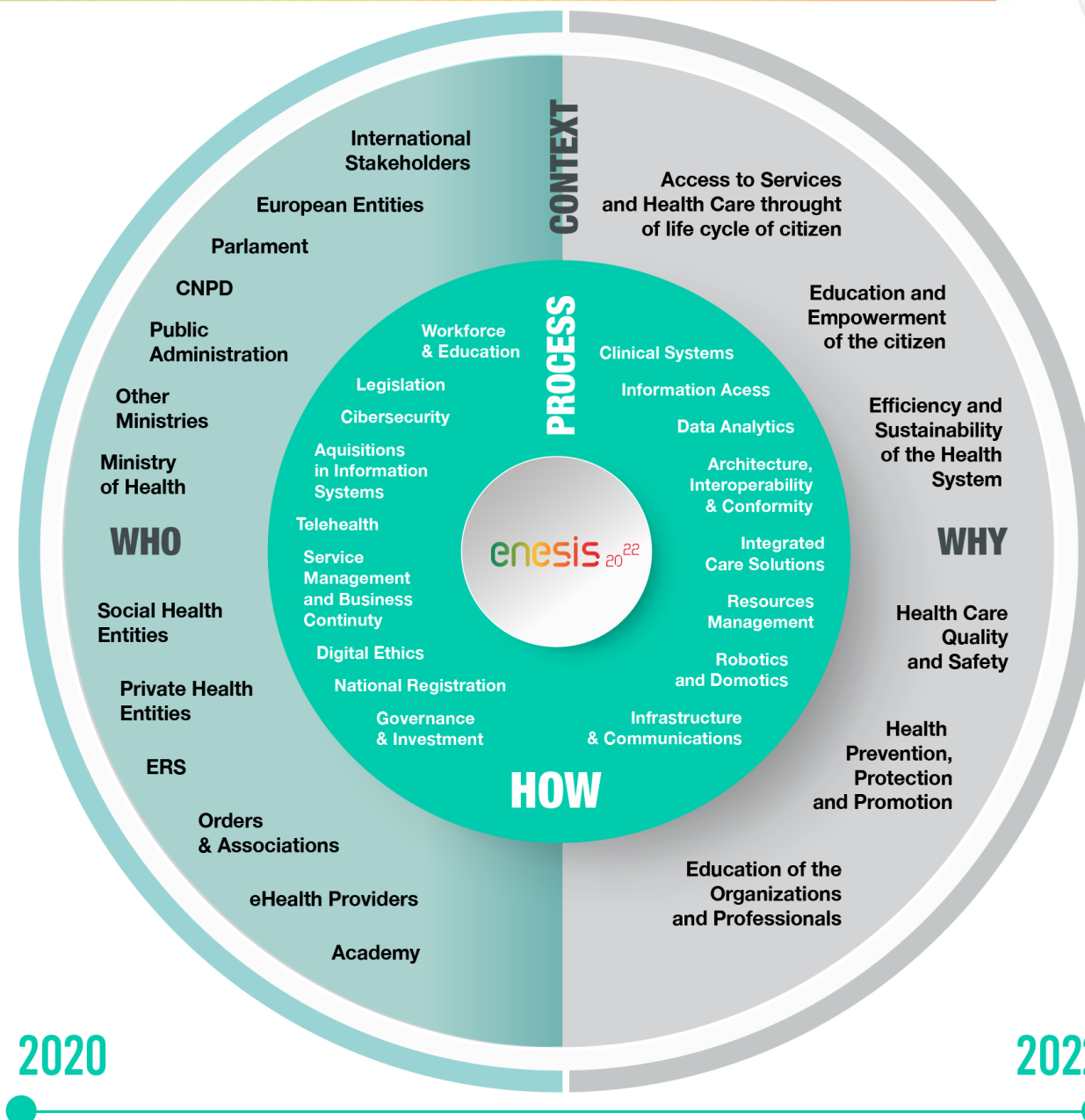
Define a eHealth strategy to promote the alignment of the Health System with good practises, contributing to the delivery of benefits and risks and resources optimization, continuing the alignment already assumed in the previous strategy – ENSIS 2020 – ending at 31<sup>st</sup> of december.

# OVERVIEW ENESIS 20<sup>22</sup>



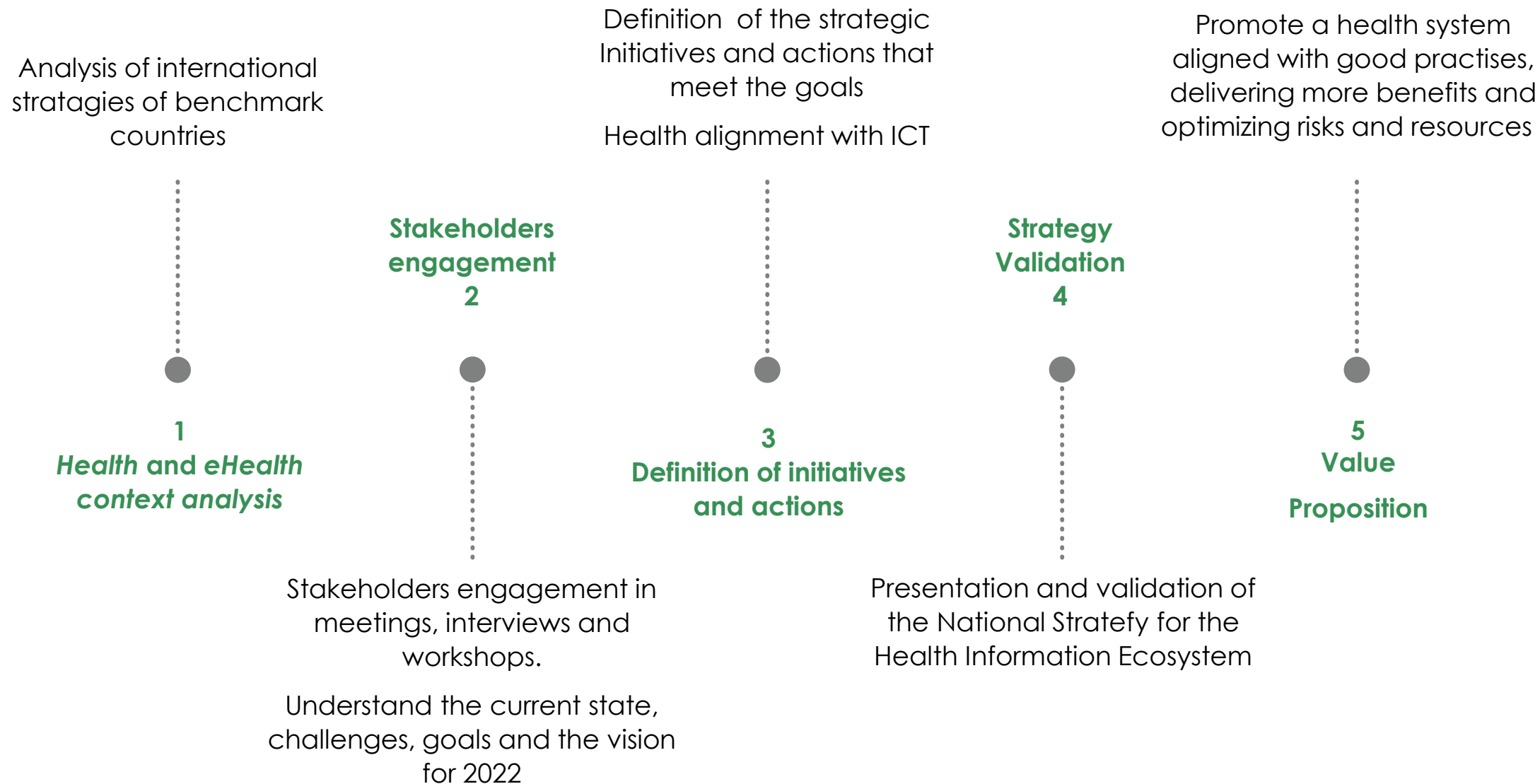
enesis 20<sup>22</sup>

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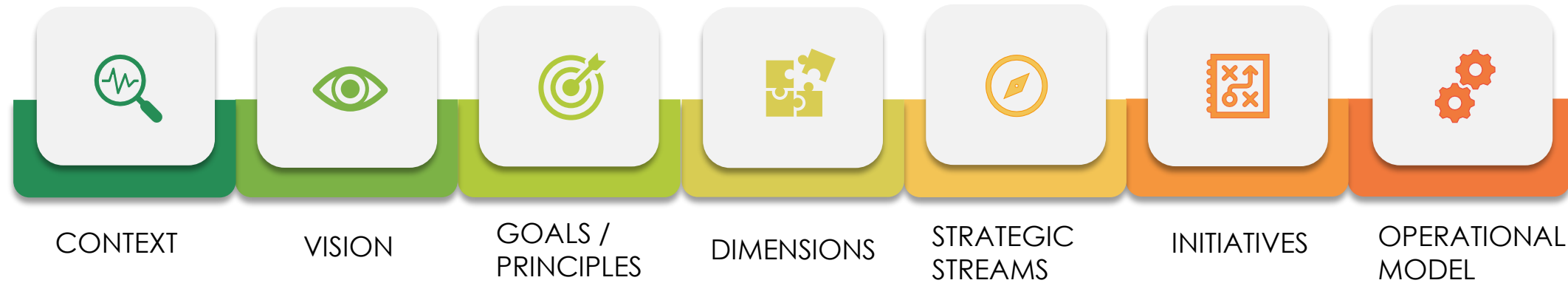


## ENESIS 20<sup>22</sup> METHODOLOGY

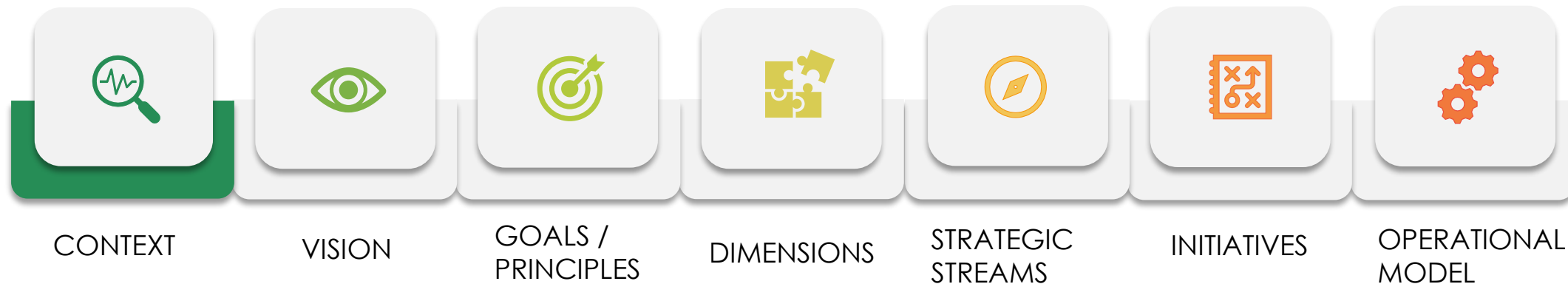




# ENESIS 20<sup>22</sup> STRATEGIC DOCUMENT







- ▶ Digital transformation has a huge impact in health care sector, acting as a solutions accelerator
- ▶ Digital solutions: robotic, augmented reality technology, simulation, vertical and horizontal systems integration, internet of things, cloud, cybersecurity, Big Data and Analytics
- ▶ This transformation, enhanced by the technology accelerators, lies in 3 pillars: **People, Technologies and Processes**



CONTEXT



VISION



GOALS /  
PRINCIPLES



DIMENSIONS



STRATEGIC  
STREAMS



INITIATIVES



OPERATIONAL  
MODEL

Ageing population justified by the low natality rate and the rising life expectancy

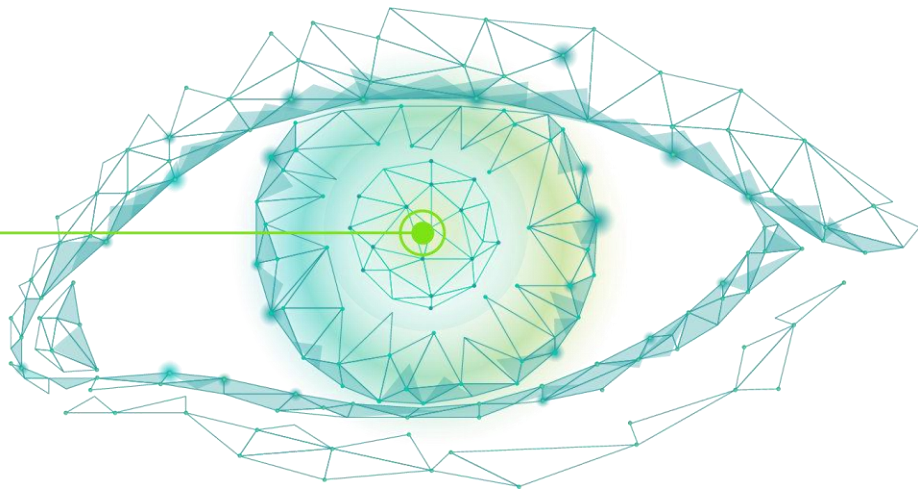
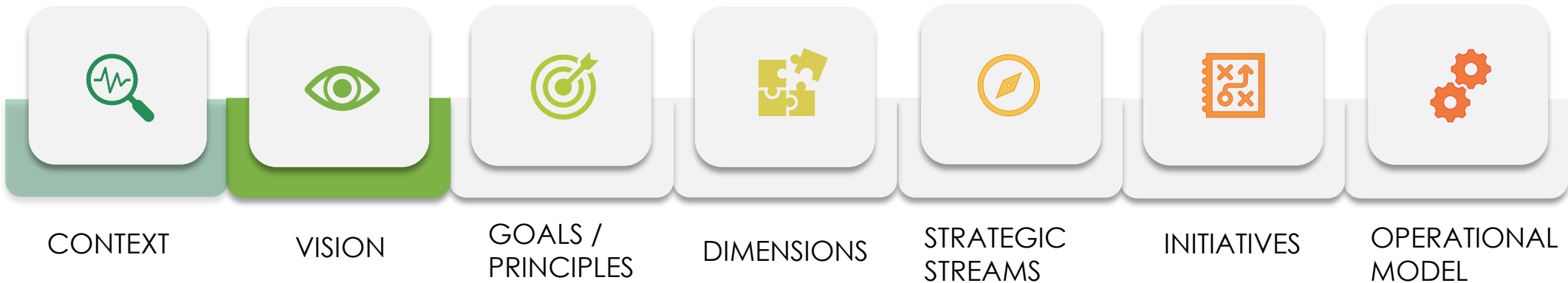
Increasing burden of multimorbidity

Challenges to improving the citizens' health care

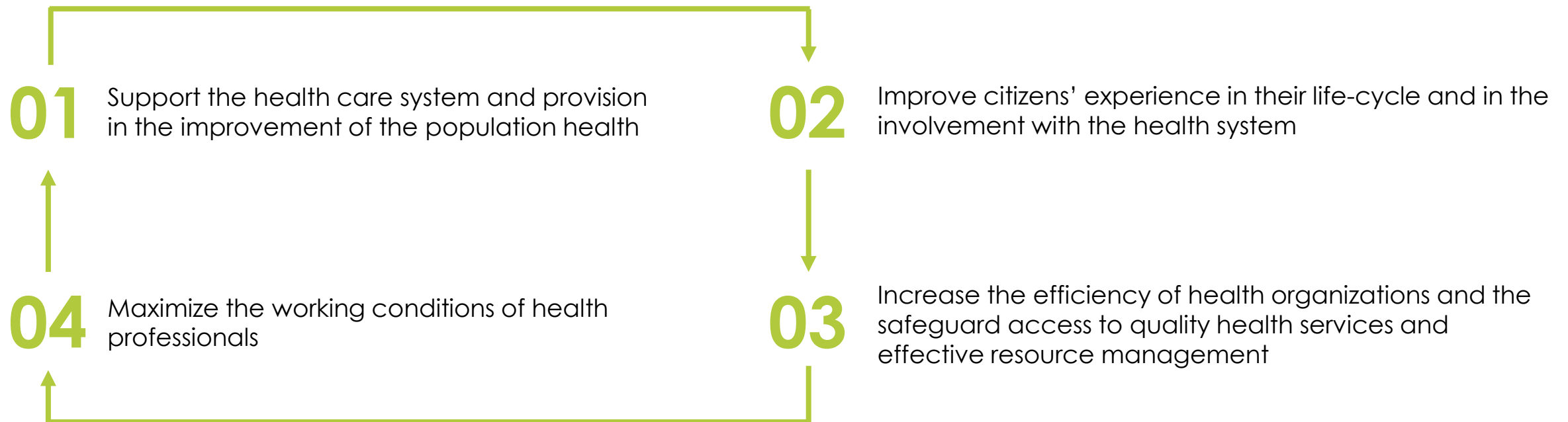
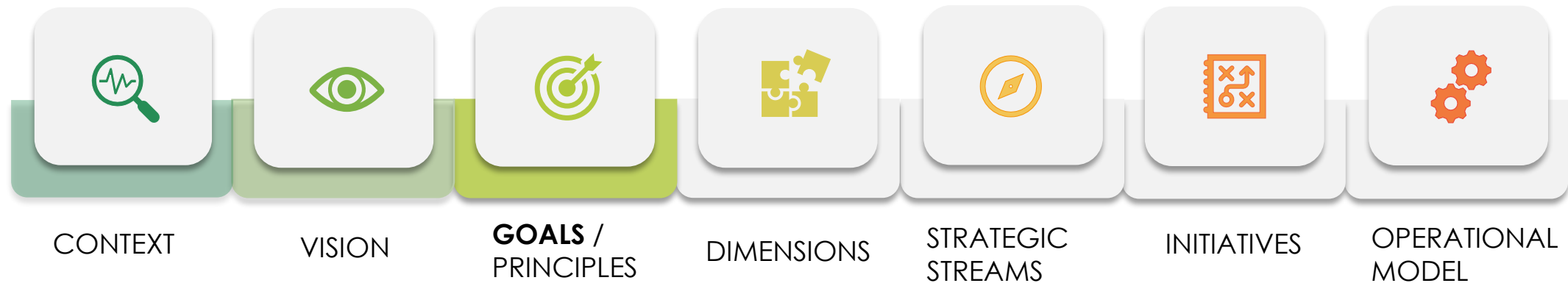
Challenges in creating a more sustainable and digital health care system

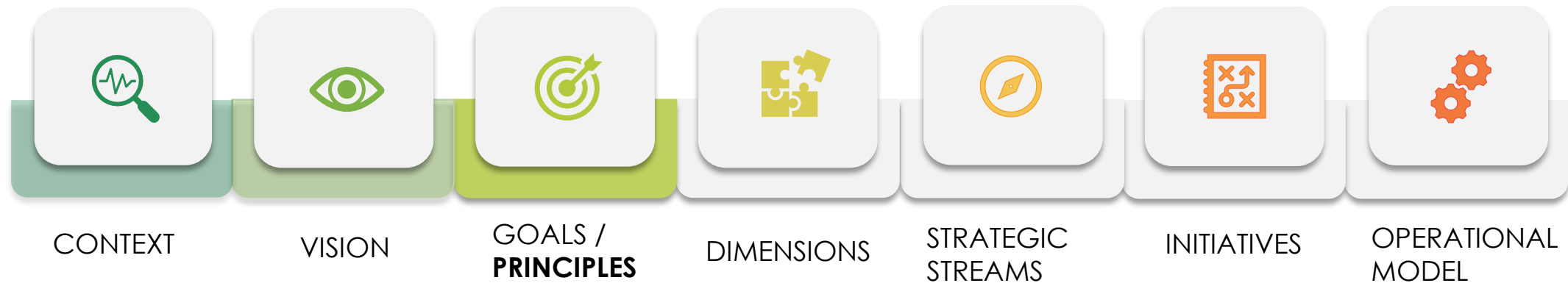
Challenges to involving the citizens with the health care system





***“A Health Information Ecosystem as a reference guide to the best practises for a more digital, integrated, sustainable and citizen-centered Health System, contributing to the delivery of benefits and optimization of risks and resources.”***

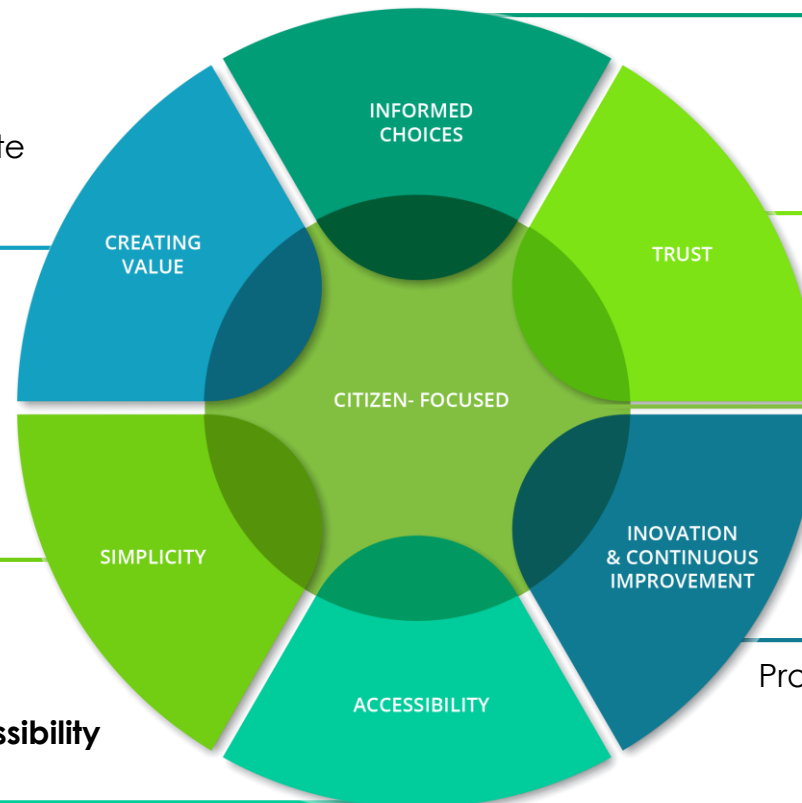




**Creation of benefits**, ensuring an appropriate balance between opportunities, costs and associated risks

**Simplicity** and **Usability** of the Health System for the Healthcare Professionals and citizens

**Availability, equity** and **accessibility** to the Health Services



**Training professionals** and **citizens** to access relevant information, empowering the process of decision making

**Reliability, transparency** and **safety** of the Health Information System

Promote the **experience** and **satisfaction** of the citizen, meeting their needs

Promote a **change management culture**, focused on process and technology optimization



## DIMENSIONS

It should be established principles for Digital Ethics, taking into account the ethical and social challenges of the new ICTs and the technology dissemination.

# INNOVATION

## DIGITAL ETHICS

## GOVERNANCE & INVESTMENT

## LEGISLATION

INFORMATION ACCESS

DATA ANALYTICS AND  
ARTIFICIAL INTELLIGENCE

CLINICAL SYSTEMS

INFRASTRUCTURE  
& COMMUNICATIONS

INTEGRATED  
CARE SOLUTIONS

RESOURCES MANAGEMENT

ROBOTICS AND DOMOTICS

ARCHITECTURE,  
INTEROPERABILITY  
& CONFORMITY

SERVICE MANAGEMENT  
AND BUSINESS CONTINUITY

NATIONAL REGISTRATION

## CIBERSECURITY

## TELEHEALTH

## WORKFORCE & EDUCATION

## ACQUISITIONS IN INFORMATION SYSTEMS

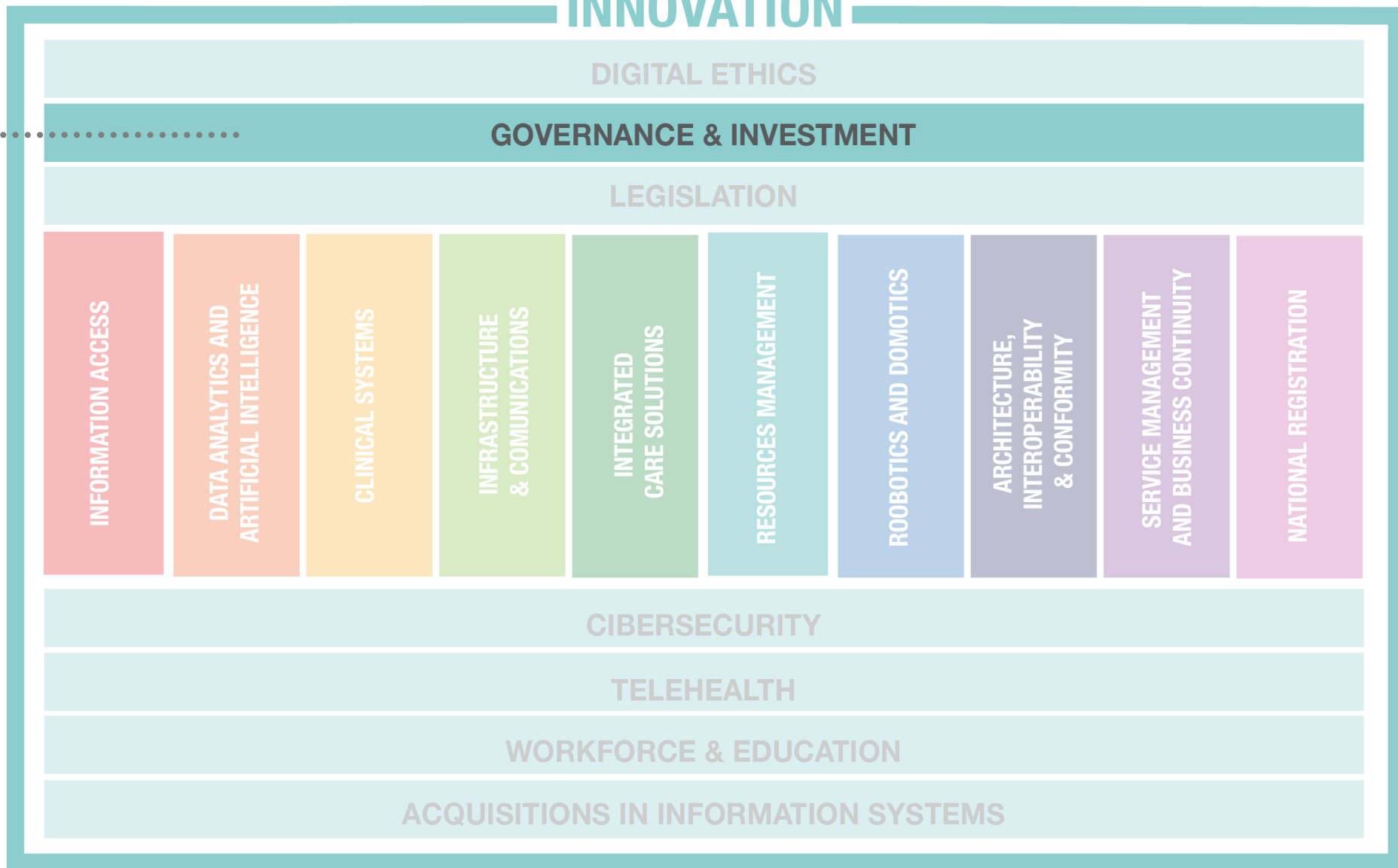




## DIMENSIONS

**Adoption of a sustainable governance and an investment plan centred in concrete organic structures, ensuring a wider participation of all intervenients in the Health Information Ecosystem.**

# INNOVATION

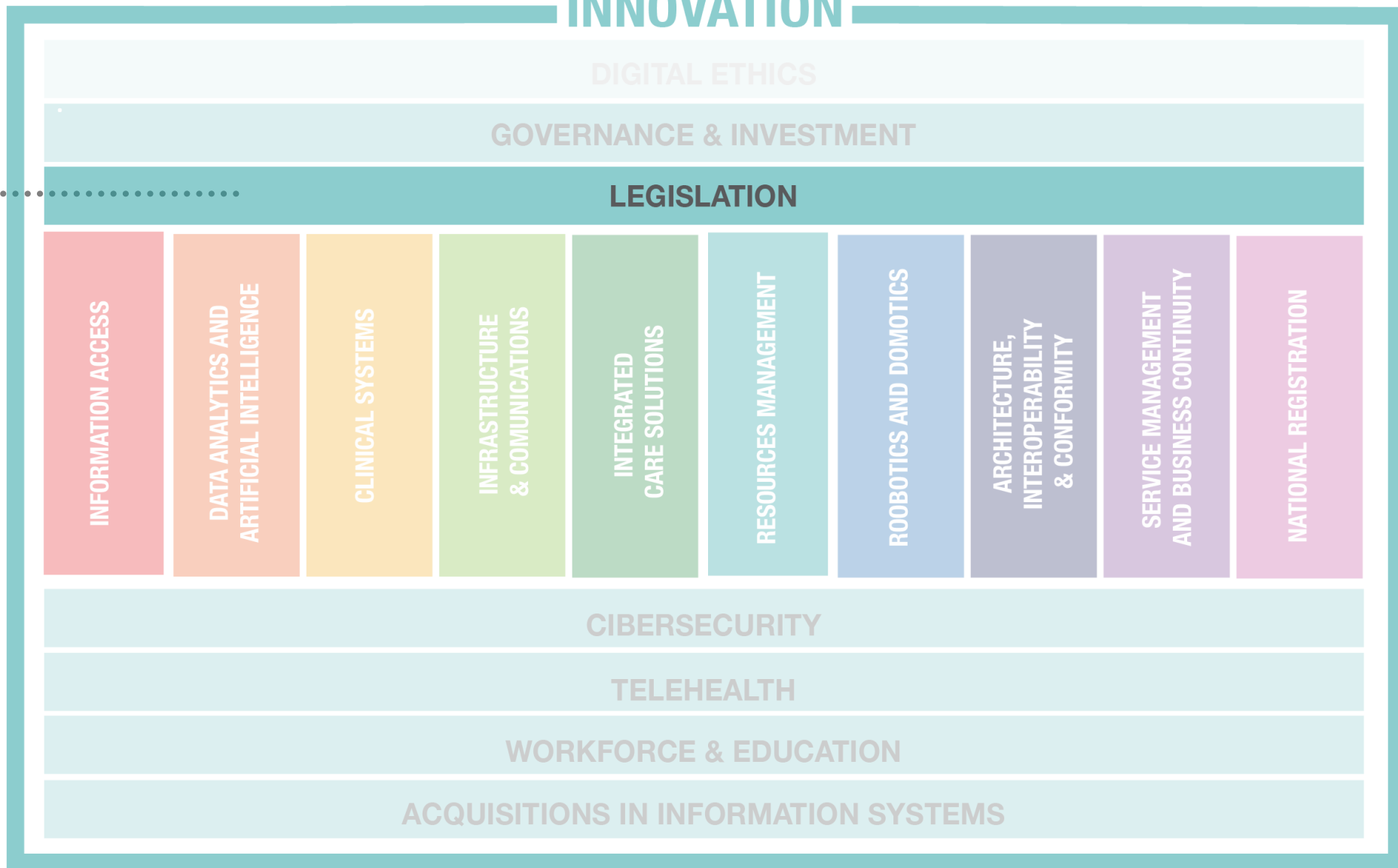




## DIMENSIONS

**Legislative needs that are essential for a proper health sector functioning, giving the new ICTs challenges.**

## INNOVATION







## DIMENSIONS



# INNOVATION

DIGITAL ETHICS

GOVERNANCE & INVESTMENT

LEGISLATION

INFORMATION ACCESS

Availability of data properly organized, worked and structured to citizens and health professionals, ensuring the data quality and its integration.

Accessibility | Availability | Mobility

CIBERSECURITY

TELEHEALTH

WORKFORCE & EDUCATION

ACQUISITIONS IN INFORMATION SYSTEMS



## DIMENSIONS



## INNOVATION

DIGITAL ETHICS

GOVERNANCE & INVESTMENT

LEGISLATION

INFORMATION ACCESS

DATA ANALYTICS AND  
ARTIFICIAL INTELLIGENCE

**Health information systems evolution, with resource to big data, advanced analytical techniques and artificial intelligence, increment value to the health planning process, population's health surveillance and diagnostic and therapeutic process.**

**Diagnostic | Prevention | Security**

CLINICAL

INTEGRATION  
& COMMUNITY

INTEROPERABLE  
CARE

SOURCES

ROBOTICS

ARCHITECTURE  
INTEROPERABLE  
& COMMUNITY

SERVICE-ORIENTED  
AND BUSINESS

NATIONAL REGISTER

CIBERSECURITY

TELEHEALTH

WORKFORCE & EDUCATION

ACQUISITIONS IN INFORMATION SYSTEMS



## DIMENSIONS



## INNOVATION

DIGITAL ETHICS

GOVERNANCE & INVESTMENT

LEGISLATION

INFORMATION ACCESS

DATA ANALYTICS AND  
ARTIFICIAL INTELLIGENCE

CLINICAL SYSTEMS

**Information systems that enhance the sharing of information and its knowledge, among the different intervenients, and support the work processes of health professionals, aiming the efficiency, quality and safety improvement in providing the best health care to citizens.**

Information Sharing | Complementarity | Usability

NATIONAL REGISTRATION

CIBERSECURITY

TELEHEALTH

WORKFORCE & EDUCATION

ACQUISITIONS IN INFORMATION SYSTEMS



## DIMENSIONS



## INNOVATION

DIGITAL ETHICS

GOVERNANCE & INVESTMENT

LEGISLATION

INFORMATION ACCESS

DATA ANALYTICS AND  
ARTIFICIAL INTELLIGENCE

CLINICAL SYSTEMS

INFRASTRUCTURE  
& COMMUNICATIONS

**Robust, resilient, highly available and secure communications and support infrastructure, that are able to meet the needs of both professionals and citizens, making it possible to have multiple digital solutions for the health information ecosystem.**

**Interconnectivity | Flexible and Agile  
Communications | Capability Evolution**

CIBERSECURITY

TELEHEALTH

WORKFORCE & EDUCATION

ACQUISITIONS IN INFORMATION SYSTEMS



## DIMENSIONS



## INNOVATION

DIGITAL ETHICS

GOVERNANCE & INVESTMENT

LEGISLATION

INFORMATION ACCESS

DATA ANALYTICS AND  
ARTIFICIAL INTELLIGENCE

CLINICAL SYSTEMS

INFRASTRUCTURE  
& COMMUNICATIONS

INTEGRATED  
CARE SOLUTIONS

**Solutions that allow access to quality health care from a continuity perspective, taking into account the health goals of each citizen, facilitating accessibility, mobility and transfers of citizens in the health care network, allowing citizen interaction with the health system.**

**Proximity | Omnichannel | Equity**

CIBERSECURITY

TELEHEALTH

WORKFORCE & EDUCATION

ACQUISITIONS IN INFORMATION SYSTEMS



## DIMENSIONS



# INNOVATION

## DIGITAL ETHICS

## GOVERNANCE & INVESTMENT

## LEGISLATION

Resource management encompasses several areas that are directly related to financial, human and clinical resources, with the mission of optimizing the various available resources, supporting the achievement of health system goals, and consequently ensuring a greater set of achieved benefits.

Rationalization | Education | Benefits

RESOURCES MANAGEMENT

ROBOTICS AND DOMOTICS

ARCHITECTURE,  
INTEROPERABILITY  
& CONFORMITY

SERVICE MANAGEMENT  
AND BUSINESS CONTINUITY

NATIONAL REGISTRATION

## CIBERSECURITY

## TELEHEALTH

## WORKFORCE & EDUCATION

## ACQUISITIONS IN INFORMATION SYSTEMS





## DIMENSIONS



## INNOVATION

### DIGITAL ETHICS

### GOVERNANCE & INVESTMENT

### LEGISLATION

Robotics and domotics aim to increase the autonomy, support and convenience of health professionals and citizens.

Support process automation for clinical and administrative practice, facilitating the communication, satisfaction and well-being of the patient.

Autonomy | Support | Convenience

ROBOTICS AND DOMOTICS

ARCHITECTURE,  
INTEROPERABILITY  
& CONFORMITY

SERVICE MANAGEMENT  
AND BUSINESS CONTINUITY

NATIONAL REGISTRATION

### CIBERSECURITY

### TELEHEALTH

### WORKFORCE & EDUCATION

### ACQUISITIONS IN INFORMATION SYSTEMS



## DIMENSIONS



## INNOVATION

DIGITAL ETHICS

GOVERNANCE & INVESTMENT

LEGISLATION

**Standards promotion for systems and its interaction.**

**Definition of the Health Information Ecosystem architecture.**

**Alignment between business strategy, information entities, business processes, application systems and technology infrastructure.**

**Integration | Communication**

**ARCHITECTURE,  
INTEROPERABILITY  
& CONFORMITY**

SERVICE MANAGEMENT  
AND BUSINESS CONTINUITY

NATIONAL REGISTRATION

CIBERSECURITY

TELEHEALTH

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ACQUISITIONS IN INFORMATION SYSTEMS



## DIMENSIONS

# INNOVATION

DIGITAL ETHICS

GOVERNANCE & INVESTMENT

LEGISLATION

**This dimension covers two areas:**

**Service Management → Definition and implementation of an ICT services operation methodology**

**Business Continuity → Prevention and recovery systems creation to respond in disaster situations among organizations.**

**Anticipation | Redundancy | Continuity**

SERVICE MANAGEMENT  
AND BUSINESS CONTINUITY

NATIONAL REGISTRATION

CIBERSECURITY

TELEHEALTH

WORKFORCE & EDUCATION

ACQUISITIONS IN INFORMATION SYSTEMS



## DIMENSIONS



## INNOVATION

DIGITAL ETHICS

GOVERNANCE & INVESTMENT

LEGISLATION

**Unify citizen digital presence throughout Health Information Ecosystem.  
Provide reference data related to different national health registers,  
standardizing and disseminating their use in Health Information Ecosystem.  
Standardization and generalization of critical data for quick and correct  
identification of structural entities of the information system.**

**Consolidation | Security | Identity**

**NATIONAL REGISTRATION**

CIBERSECURITY

TELEHEALTH

WORKFORCE & EDUCATION

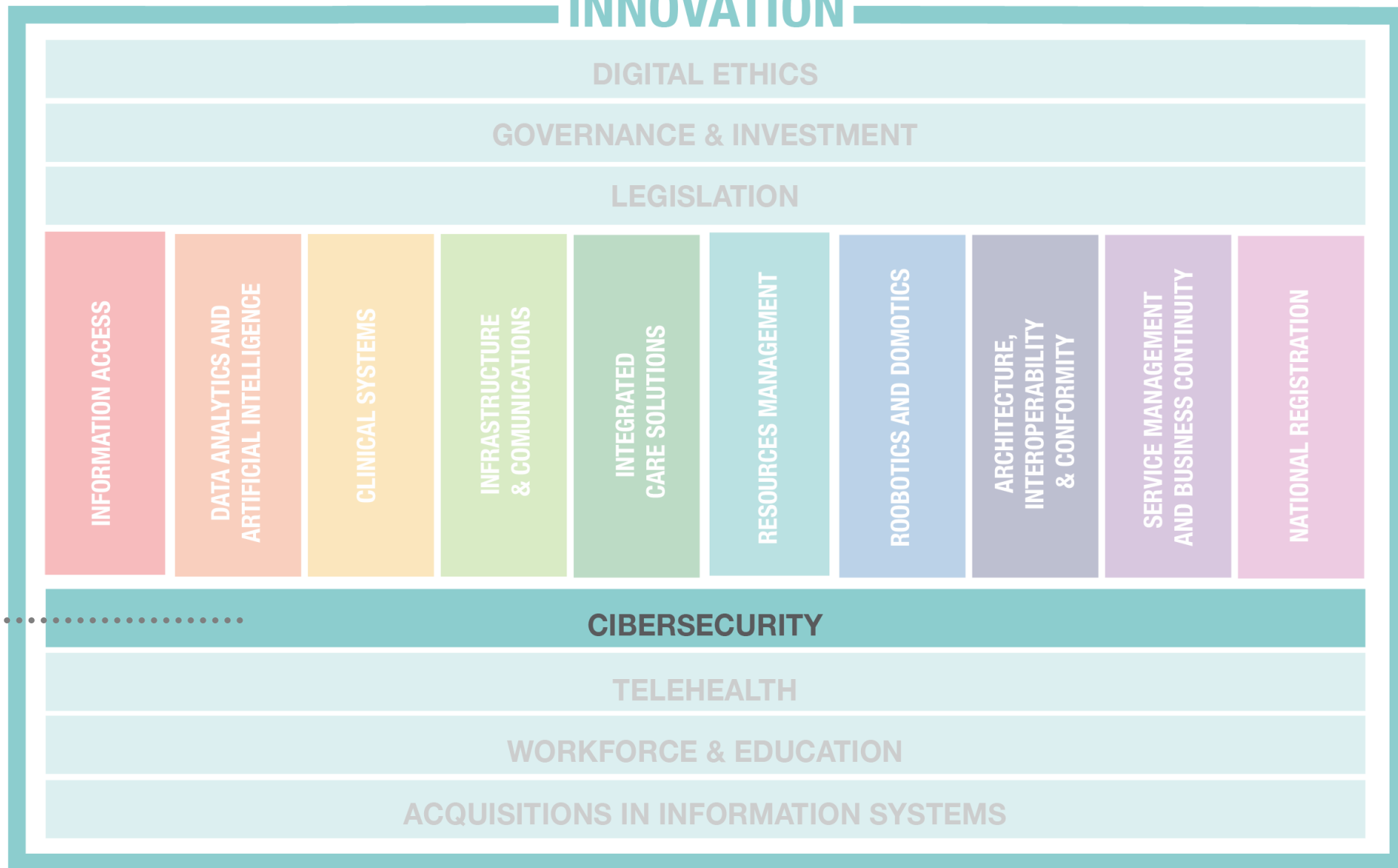
ACQUISITIONS IN INFORMATION SYSTEMS



## DIMENSIONS

Ensuring resilient and secure healthcare delivery, leading to a reduction in the risks of confidentiality, integrity and availability of information and services, and contributing to increased user confidence in digital technologies.

# INNOVATION

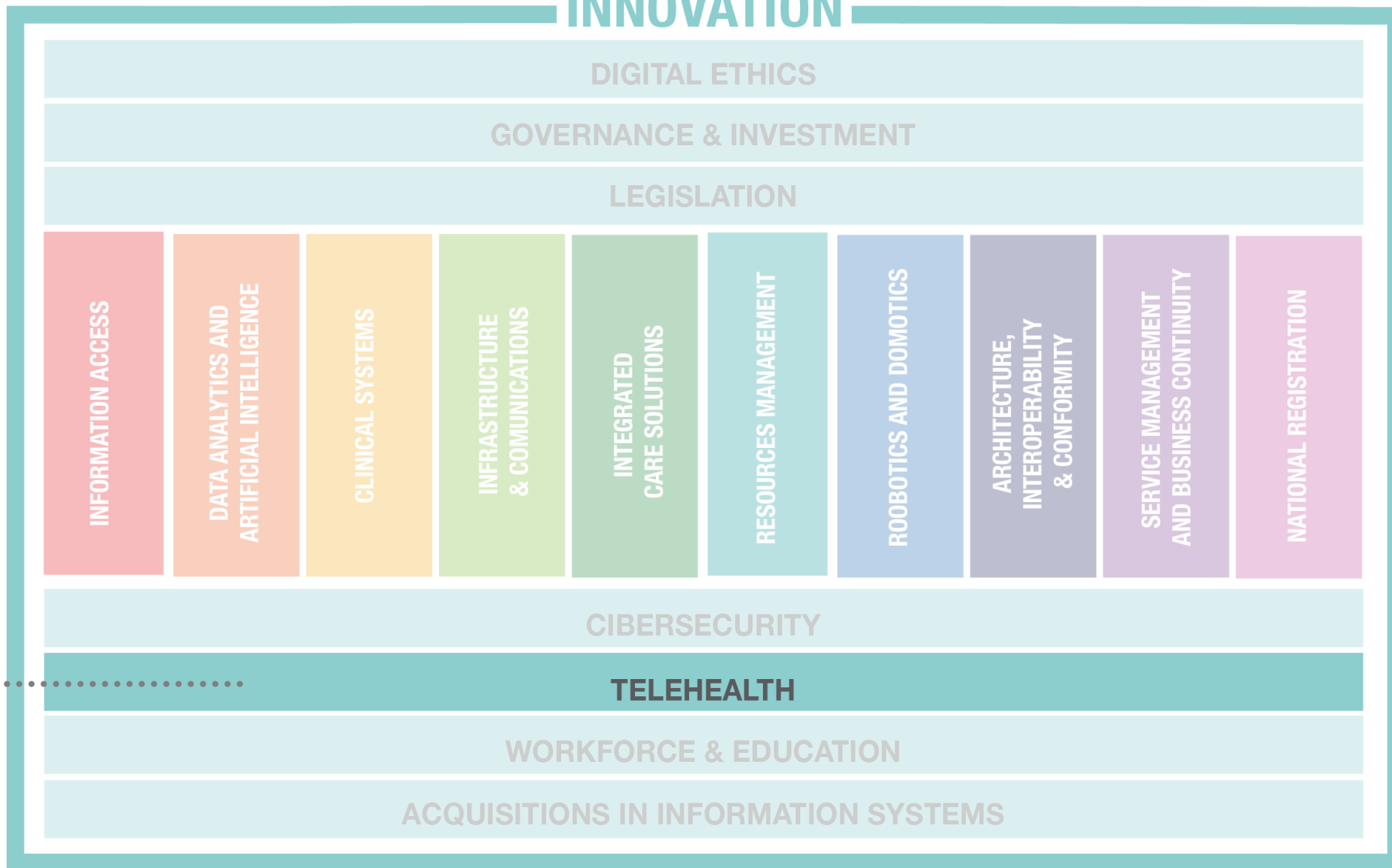




## DIMENSIONS

Support health at a distance through the use of ICTs in care delivery, service organization and training of health professionals and citizens. Overcoming geographical and temporal barriers to access to health.

# INNOVATION



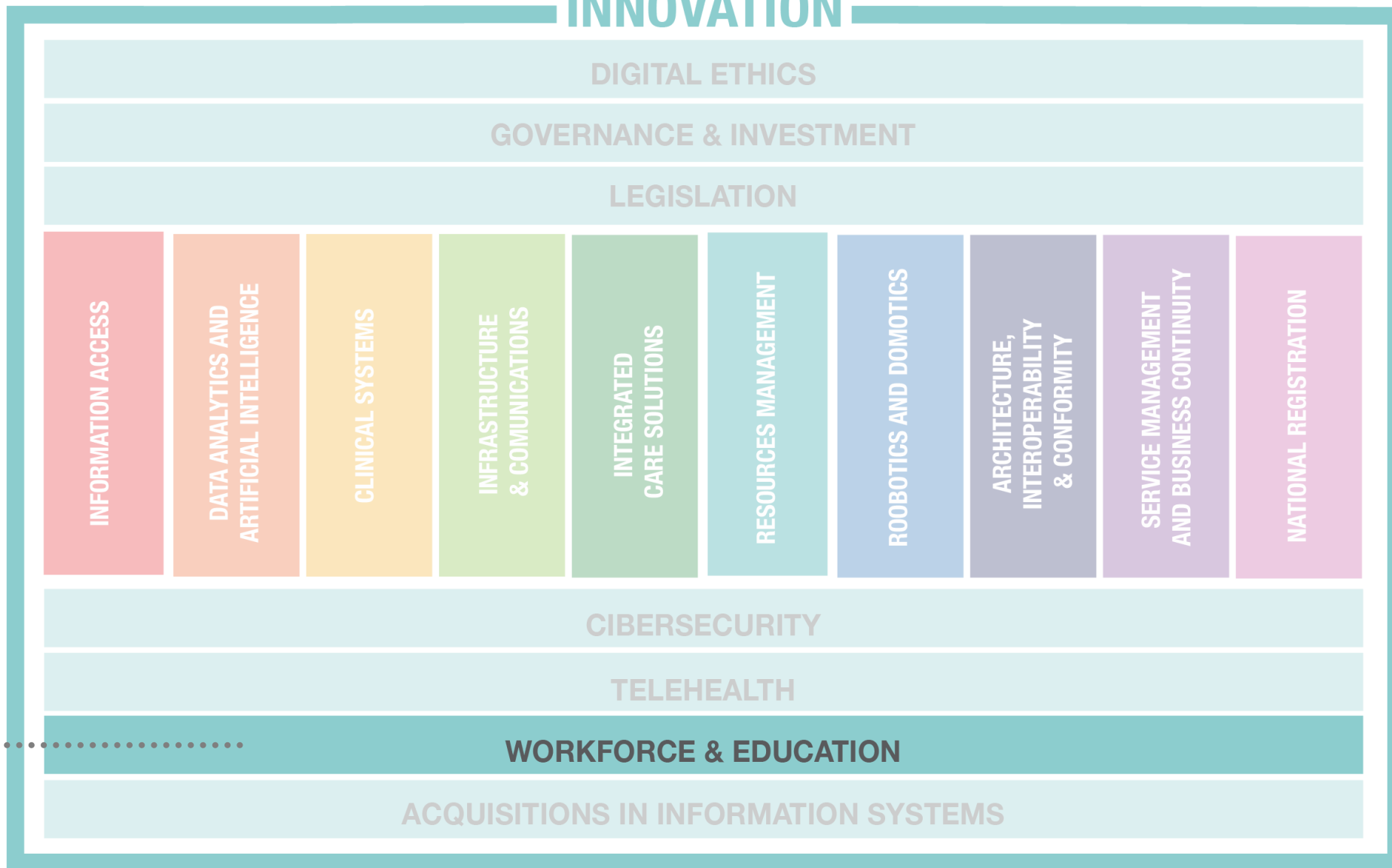




## DIMENSIONS

**Empower citizens and health professionals with the tools needed to improve their knowledge and skills, enabling them to achieve the goals defined in the national strategy.**

# INNOVATION

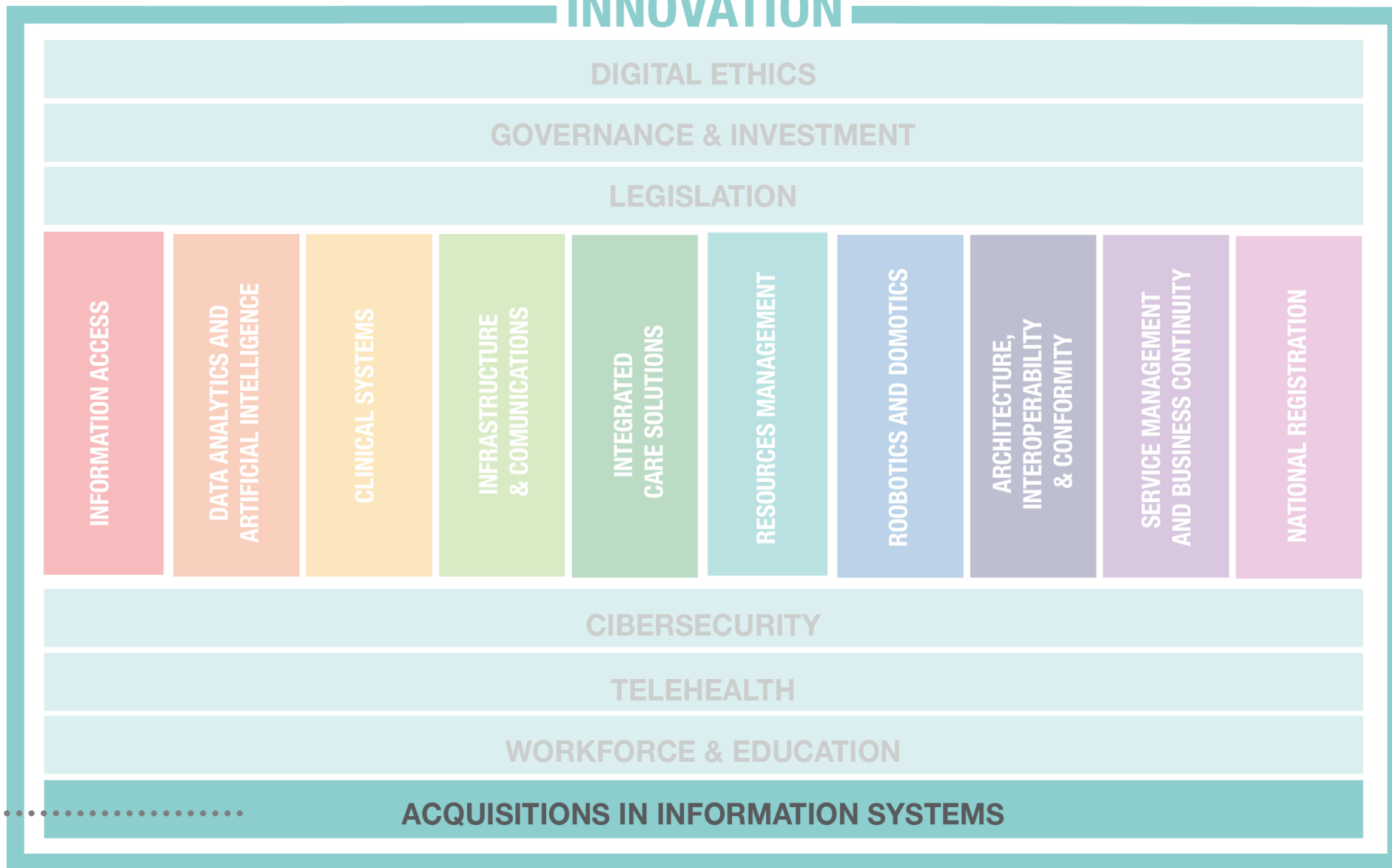


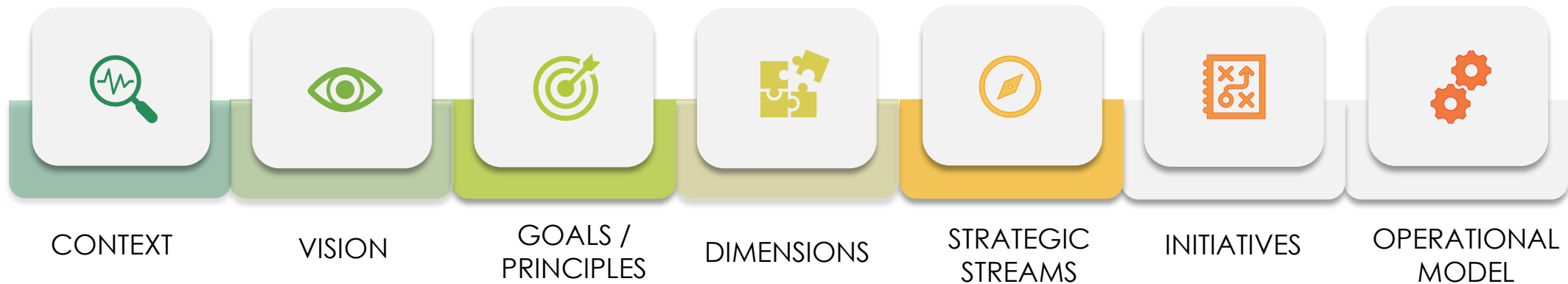


## DIMENSIONS

**Propose actions to rationalize and aggregate public procurement, allowing savings and acting sparingly in the use of public money.**

# INNOVATION





## STRATEGIC STREAMS

**INITIATIVES** → Goals to achieve in each strategic stream

**ACTIONS/GUIDE LINES** → Guide lines to achieve the goals





## STRATEGIC STREAMS



1

### Access to Health Services and Care throughout the Citizen's Lifecycle

Promote and facilitate greater mobility and equity in access to health care, where and when needed, throughout the citizen's life cycle in a simple and integrated manner.



4

### Quality and Safety of Health Care

Promote mechanisms and tools to increase the quality and safety of health care, as well as diagnostic and therapeutic aids.



2

### Citizen Empowerment

Promote citizen involvement and active participation in the health information system through digital training and the provision of mechanisms and tools that support conscious and informed decision making and promote self-management of health care.



5

### Health Prevention, Protection and Promotion

Preventing public health and disease phenomena, citizen awareness of behaviors that improve their well-being and increase their quality of life.



3

### Efficiency and Sustainability of Health Systems

Promote the rationalization of resources and the sustainability of the health system, through savings of time and money, thus enhancing productivity. Ensure more rational and savings-generating public procurement, ICT services and products for the NHS.



6

### Organizations and Professionals Empowerment

To adequately train organizations and their professionals to maximize the optimal use of information systems, as well as their correct development and implementation.

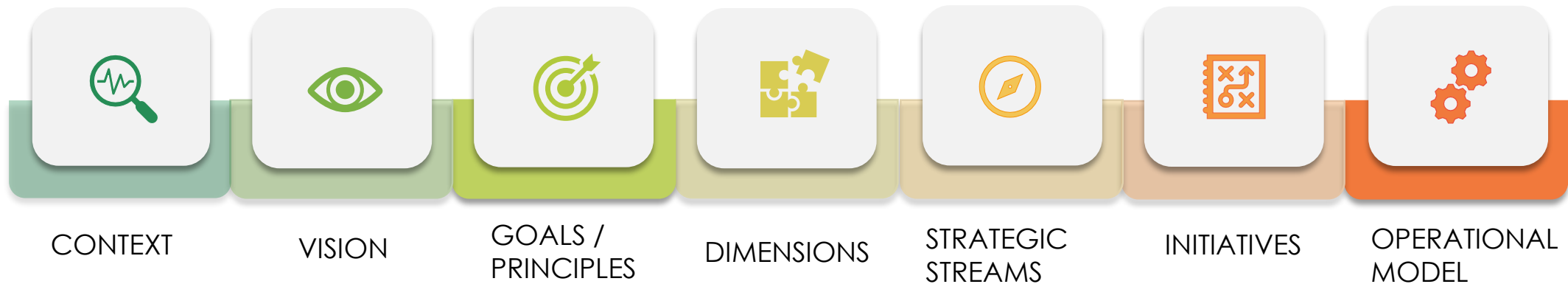


## INITIATIVES

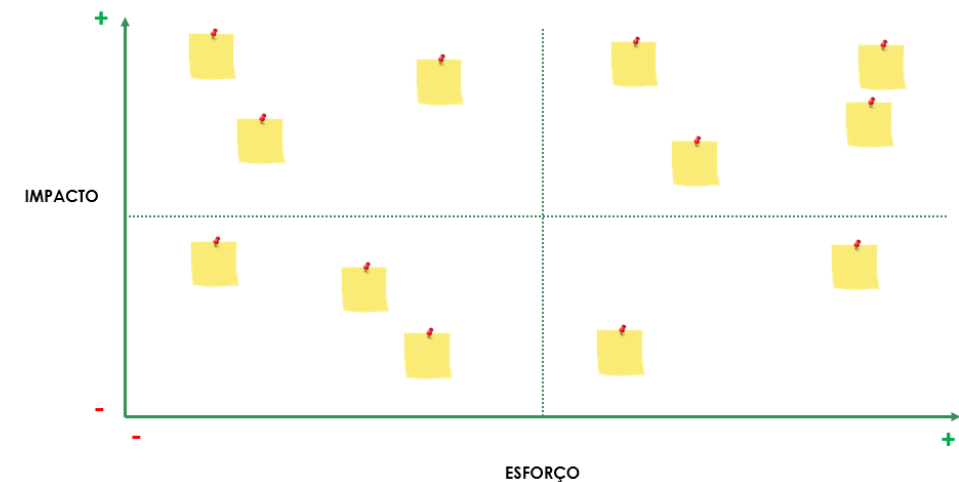


Access to Health Services and Care throughout the Citizen's Lifecycle	Citizen Empowerment	Efficiency and Sustainability of Health Systems	Quality and Safety of Health Care	Health Prevention, Protection and Promotion	Organizations and Professionals Empowerment
1.1 Information Systems Accessibility	2.1 Health literacy development through the creation of shared solutions	3.1 Evolution of Clinical and Administrative Information Systems	4.1 Protection of the confidentiality, integrity and availability of health information	5.1 Gamification concept application	6.1 Stakeholder involvement for continuous improvement of Information Systems
1.2 Access to Health in Mobility	2.2 Introduction of citizen experience as a means of improving health services	3.2 Optimization of clinical and administrative processes	4.2 Promotion of cybersecurity practices in Information Systems	5.2 Public Health Prevention through Data Analysis and Artificial Intelligence	6.2 Improvement of digital skills of non-technological health professionals
1.3 Communication between Information Systems, intra and inter Organizations	2.3 Promoting improved usability of Information Systems through citizen engagement mechanisms	3.3 Network and server infrastructure optimization	4.3 Business Continuity Guarantee		6.3 Improvement of digital skills of health technology professionals
1.4 Providing platforms that promote distance health care provision	2.4 Promotion of a 360° view of health condition	3.4 Optimization of the centralized purchasing process of Information Systems	4.4 Ensuring Information Systems Compliance		6.4 Improvement of information and communication technology skills for top management
		3.5 Business Intelligence optimization and dissemination to support management decision making	4.5 Implementation of clinical decision support mechanisms and patient safety		6.5 Boosting Innovation in Information Systems
		3.6 Data Governance Model Definition			6.6 Promoting a knowledge-driven culture
		3.7 Shared management of health services and resources			
		3.8 Use of technological tools to support health professional practice			
		3.9 Value management model			





- The measures were distributed over the next three years according to the impact and effort associated with the implementation of the measures.
- This distribution is presented in three different time horizons







## OPERATIONAL MODEL

### HORIZON 1

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**High visibility initiatives** with **low complexity in its execution**, which allows it to be implemented faster (*Quick Wins*).

### HORIZON 2

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**High visibility initiatives**, with **higher complexity in its execution**, which requires more time for its implementation and greater use of resources.

### HORIZON 3

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**Structural initiatives** for the ecosystem, with **high complexity** in its implementation, requiring a long period of time for its implementation



## OPERATIONAL MODEL

### HORIZON 1

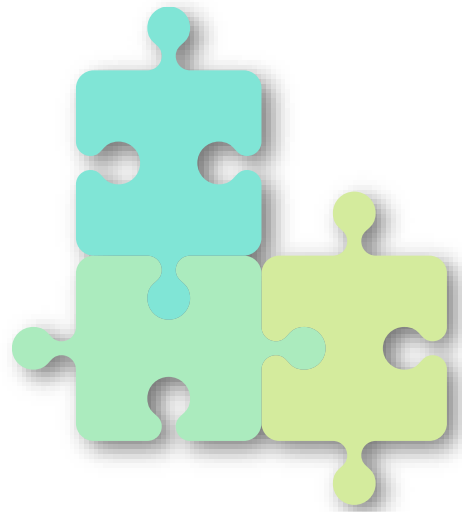
1 year

### HORIZON 2

2 years

### HORIZON 3

3 years



#### HORIZON 1

- 1.4 Provision of platforms that promote the provision of distance care
- 2.1 Health literacy development through the creation of shared solutions
- 2.3 Promoting improved usability of Information Systems through citizen engagement mechanisms
- 3.4 Process optimization of the centralized Information Systems purchasing
- 3.7 Shared management of health services and resources
- 4.1 Confidentiality, integrity and availability protection of the health information
- 6.1 Stakeholder involvement for continuous improvement of Information Systems
- 6.4 Information and Communication Technology skills improvement for top management
- 6.6 Promoting a knowledge-driven culture

#### HORIZON 2

- 1.1 Information Systems Accessibility
- 1.3 Communication between Information Systems, intra and inter Organizations
- 2.2 Introduction of citizen experience as a means of improving health services
- 2.4 A 360° view promotion of health condition
- 3.2 Clinical and administrative processes optimization
- 3.5 Optimization and dissemination of Business Intelligence tools to support management decision making
- 3.8 Use of technological tools to support health professional practice
- 3.9 Value management model
- 4.5 Implementation of clinical decision support mechanisms and patient safety
- 5.1 Gamification concept application
- 6.2 Digital skills improvement of non-technological health professionals
- 6.3 Digital skills improvement of health technology professionals
- 6.5 Boosting Innovation in Information Systems

#### HORIZON 3

- 1.2 Health Access in Mobility
- 3.1 Clinical and Administrative Information Systems evolution
- 3.2 Clinical and administrative processes optimization
- 3.3 Network and server infrastructure optimization
- 3.6 Data Governance Model Definition
- 4.2 Promotion of cybersecurity practices in Information Systems
- 4.3 Business Continuity Guarantee
- 4.4 Information Systems Compliance Assurance
- 5.2 Public Health prevention through Data Analysis and Artificial Intelligence



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