Region of Sicily

Digital
Health

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FOREWORD: The Objectives of the Strategic Plan for Digital Health In Sicily

The reorganization of the welfare network (SSR) is today a priority not only for Regions that, like Sicily, are involved in a complex path of consolidation of the growth results obtained in the recent past, but - more in general - for all the Administrations that they have to meet the growing demand for healthcare with the increasingly stringent budget constraints.

In this context, **digital innovation** represents a critical success factor in the creation of new organizational models capable of responding to new welfare needs while respecting economic and financial requirements.

It should be clarified that while in the past innovation policies have traditionally focused on automating existing processes, today digitisation represents a leverage of economic and social transformation that, putting citizens and businesses at the center, makes digital innovation a public investment for a structural reform of the country.

In order to systematically promote digital innovation and not allow it to be implemented in a fragmented and / or sporadic manner, which can not be replicated and does not meet public health needs, it is necessary to define a regional strategic plan which, centrally placed in the national and community framework of initiatives in this area, constitutes an organic and coherent plan and at the same time represents a real opportunity for growth for the entire Sicilian healthcare sector.

The implementation of the Digital Agenda in the health sector requires, in fact, the coordination of multiple actions that can and must be initiated simultaneously on two levels, central (Department) and territorial (companies of the SSR). The integrated management of all the actions to be implemented is necessary in order to maximize the effectiveness of the planned initiatives, as well as to avoid duplication of expenditures for national and regional finances.

The scope of the present Plan, in a complex set of actions and plans at national and EU level, refers mainly to the **Italian Digital Agenda** and the **Digital Health Pact** that guides the regional Health System towards achieving the objectives efficiency, transparency and sustainability of the SSR through the systematic use of digital innovation in healthcare, according to the guidelines outlined by the thematic objectives of the European programmes and in particular by the "**P.O. FESR Sicilia 2014-2020, Asse 2 - Digital Agenda**".

These are, in a nutshell, the reasons that underlie the need to formalize this Regional Strategic Plan: to realize important synergies and coordination actions that involve all the companies of the SSR as part of an overall plan aimed at achieving objectives of technical governance, evolution of services for citizens and rationalization of expenditure, avoiding any overlap and / or duplication of health initiatives.

The Plan, in fact, intends to overcome the traditional "silos logic", enhancing the concept of ecosystem, in line with the three-year plan for the digitization of the Public Administration. The Department, in fact, intends to base the logic of activation of the digitization process with the use of a single **Interoperability Platform** that foresees the creation of a **layer at regional level** through the interoperability of the various "modules" (electronic health record, regional health registry, supraup, integrated clinical record, etc.) and related "vertical" systems (at the hospital-territory level, accredited private individuals, pharmacies, MMG-PLS, etc.) allows gathering and processing of related data and information, encouraging the provision of highly innovative services to citizens (health diary, access to medical records, personal medical encyclopedia, telemedicine functions, etc.), while allowing a complete reorganization of the administrative processes within the Health Department, which - for the first time - would find in the digitalization process an important ally in support of the in governance of the SSR.

The use of digital technologies in the health sector represents an enormous opportunity to achieve the full and concrete implementation of the right to healthcare of citizens from a sustainability perspective. Starting from the needs of citizens for the redefinition of an integrated health governance system, digital technologies allow, on the one hand, the provision of innovative services (and the improvement of existing ones) and, on the other, represent a fundamental way for a real rationalization of the management costs of the structures and to implement a more widespread control of the expenditures.

1. SUMMARY OF THE REGULATORY FRAMEWORK

1.1 The European and Italian Digital Agenda
The European Digital Agenda (2010) aims to exploit the potential of information and communication technologies to foster innovation, economic growth and social progress as a whole. It is one of the seven flagship initiatives of the Europe 2020 strategy, which sets the goals for the growth in the European Union to be achieved by 2020.

Starting from the main factors potentially impeding the implementation of an organic and structured digitization plan (fragmentation of digital markets, lack of interoperability, increase in cybercrime, poor investment in digital networks, low research and innovation), the European Digital Agenda, in defining the "Europe 2020" strategy (which sets the objectives for growth in the Union to be achieved by 2020), is divided into seven pillars:

- promote fast and super-fast Internet access accessible to all at low prices, investing in broadband networks and next-generation networks (NGA);
- achieve the single digital market: open access to legal online content by simplifying, on the one hand, licensing procedures, copyright management and issuing of cross-border licenses and reviewing, on the other hand, directives on use of public sector information;
- enhance interoperability of devices, applications, databases, services and networks by defining the standards to be used;
- strengthen online trust and security: fight cybercrime, measures for network and information security, fight against cyber attacks;
- invest more in research and development related to ICT, increasing the resources of individuals and doubling the use of public resources;
- promote digital literacy, skills and inclusion;
- enhance the use of technology for environmental protection, digital inclusion, the management of population aging through the introduction of e-health and telemedicine systems, improve transport systems (intelligent systems), etc.

The priority objectives of the European policy therefore concern all areas of the digital economy with particular attention to the use of ICT in everyday life.

In line with the objectives and actions set out at European level, Italy has developed its own national strategy, identifying priorities and methods of intervention, as well as actions to be carried out and to be measured on the basis of indicators, in line with the scoreboards identified by the European Digital Agenda.

The Italian Digital Agenda (2012), in fact, represents the set of actions and norms for the national development of digital and network technologies, social innovation and the digital economy. This document identifies the following **priority areas**:

• **Digital identity**: (i) single digital document, (ii) National Population Resident (ANPR), (iii) continuous population census and national archive of streets and house numbers, (iv) digital citizen's domicile and PEC obligation for businesses;

• **Digital administration and open data**: (i) transmission of documents by electronic means, contracts of the Public Administration and conservation of notarial deeds, (ii) electronic transmission of public health certificates, (iii) measures for innovation transport systems, (iv) open data and digital inclusion;

• **Digital education**: (i) national register of students and other measures in the education sector, (ii) digital books and educational centers;

• **Digital health care**: (i) Electronic Health Record (EHR) and surveillance systems in the health sector, (ii) medical prescription and digital medical record;

• **Zero-digital divide and electronic money**: (i) interventions for the diffusion of digital technologies, (ii) electronic payments;

• **Digital justice**: (i) stationery, communications and electronic notifications.

These measures are flanked by further actions to promote smart communities and innovative start-ups (reduction of costs for launching and supporting internationalization, simplification of liquidation processes, certification of incubators, etc.).

The objectives of the Italian Digital Agenda were further re-launched through the national strategic plans: "Strategy for digital growth 2014-2020" and "Three-year plan for information technology in the Public Administration 2017-2019".

1.2 National Plans: "Strategy for digital growth 2014-2020" and "Three-year plan for information technology in the Public Administration 2017-2019"

The "Strategy for digital growth 2014-2020" emphasizes as a fundamental principle the coordination of interventions in a single frame of reference, which uses and favors public-private *partnerships* for the realization of projects, putting at the center citizens and businesses.

The expected results are the *switch off* of the Public Administration, together with the redevelopment of public demand and the development of the offer.

This Plan is based on some *assets* such as: 1) architectural approach based on open logic, standard; 2) interoperability and flexible architectures; 3) transparency and sharing of public data; 4) gradual adoption of cloud models; 5) enhancing the levels of reliability and security; 6) development of digital skills of businesses and citizens.

The planned actions that are as follows:

• *Digital Identity Public Service* (SPID) through which every citizen with his or her digital identity can accesse, securely, to all his information and all digital services, with the possibility to receive notifications and deadlines and to make and receive payments;

• *digital security for the Public Administration* to protect the privacy, integrity and continuity of services;

• *centralization and planning of expenditure / investments*, reengineering and virtualization of cloud-based services with consequent progressive rationalization of public data centers;

• *Public Connectivity system*, which includes guidelines, technical rules and infrastructures to ensure Wi-Fi connectivity and interoperability in public offices and schools / hospitals.

• *national strategy for ultra-broadband*, maximizing coverage at 100 mbps and guaranteeing at least 30 mbps in the most marginal areas.

In addition to the infrastructures, the implementation of service enabling platforms is envisaged, in particular:

- *National Register of Resident Population (ANPR);*

- *electronic civil process;*
- *payments system for the Public Administration;*
- *open data and big data;*
- *digital health.*

Having created the context with infrastructures and cross-sectoral architectures and enabling platforms, the Strategy foresees the implementation of three acceleration programs, which represent a key factor for the achievement of socio-economic benefits and the diffusion of digital culture: 1) Italy Login , 2) Smart cities and communities, 3) Digital skills.

Having as a reference the "Strategy for Digital Growth 2014-2020" and with the aim of directing investments in ICT of the public sector according to the guidelines of the Government and in line with the European programs, at national level it has been published also the "Three-year Plan for Information Technology in the Public Administration 2017-2019".

The Plan proposes to Public Administrations to contribute to the development and growth of the country's economy by providing guidance on some tools that will allow the streamlining of bureaucratic procedures, greater transparency of administrative processes, greater efficiency in the provision of public services and, last but not least, the rationalization of IT spending.

This Plan identifies a series of actions that all the Administrations, including those in the health context, must put in place for the achievement of objectives related to the digital innovation process.

The document is based on a strategic model designed to overcome the traditional "silos" logic of the PA, to facilitate the creation of a real public information system that:

- considers the needs of citizens and businesses as a starting point for the identification of modern and innovative digital services;
- harmonises and rationalizes the IT infrastructures and services used by the PA;
- enhances the existing resources in the PA in order to safeguard the investments already made, also by encouraging and creating the conditions for the re-use of existing software and interfaces;
- improves security through a multi-level architecture that ensures the separation between backend and front end.

1.3 The "Pact for Digital Health"

In the field of digital innovation at european and national level, healthcare is always identified as one of the strategic areas of intervention.

For example, in the "Strategy for digital growth 2014-2020", it is emphasized that "**digital innovation in healthcare processes is a fundamental step** to improve the cost-quality of health services, limit waste and inefficiencies, reduce the differences between territories, as well as innovate front-end relationships to improve the quality perceived by the citizen. It is therefore necessary to **develope fully integrated solutions**, *characterized by a strong interaction between health, business and hospital information systems, and based on the widespread use of new technologies, on the application of criteria to harmonise and standardize health data to be gathered and processed*".

Moreover, since that the reorganization of the public health service network is today a priority not only for the Regions that are involved in a financial review plan, but more generally for all the administrations that have to meet the growing demand for health with the existing budgetary constraints, digital innovation can play a key role in the evolution of welfare models and organizational models.

Therefore, the massive (and coordinated) adoption of solutions based on information and communication technologies (ICT) becomes an instrumental process aimed at:

• overall efficiency of the NHS;

- greater transparency of the system;

- development of new awareness and accountability of the patient and his caregivers;

- creation of network services capable of promoting wellness lifestyles;

- full involvement of all stakeholders.

In this direction, the "Pact for Digital Health" aims at evolving innovative organizational models and technological solutions to:

- **measure** healthcare in terms of appropriateness, efficiency and effectiveness to ensure that the essential levels of assistance are provided in conditions of economic equilibrium; to do what is needed (clinical appropriateness), in the most correct context (organizational appropriateness), in the most efficient and effective way;

- **experiment** with solutions aimed at strengthening the "zero balance" system (generating savings through rationalization and reinvestment in the enhancement of the services provided);

- **develop** and pursue a highly attractive and competitive health service vision, refining the offer even in its apparently secondary components (reception, hotel services, management of patient caregivers, etc.).

The Pact for Digital Health is therefore a strictly precompetitive initiative, open to participation by all stakeholders interested in the development of an increasingly efficient and effective Italian health, through the activation of public-private partnership initiatives able to trigger a virtuous circuit of economic resources to finance the necessary investments.

2. THE REGIONAL CONTEXT

2.1 Introduction

For several years now the Sicilian Region has been engaged in an action of profound and radical renewal of the regional health system in order to achieve a structural reconversion aimed at providing essential assistance levels, combining quality, development and availability of resources.

In this complex work of reconstruction and rehabilitation, the instrument of the "Operational Programs", adequately supported by some important investments made in the direction of a **centralized model for monitoring and control**, represented a lever to accelerate the process of change, to ensure the ability to self-analyze and govern data and introduce rigorous programming, verification, comparison and evaluation methodologies to the system. These initiatives favoured the progressive improvement of the process and outcome results as well as the simultaneous reduction of the deficit.

To date, availing itself of the faculty provided for by art. 15, paragraph 20, of the D.L. n. 95 of 2012, the Region decided to continue the consolidation of the results achieved by continuing with the "**2016-2018 Consolidation and Development Operational Program**".

However, it should be noted that the actions described above were mainly focused on the economic and financial reorganization of the SSR, intervening in a less incisive manner on organization, clinical appropriateness, enhancement of professional resources and civic participation. Moreover, the theme of technological innovation and digital development for a new, accessible, quality healthcare has been given little consideration.

From a strictly health point of view, in fact, despite the progressive improvements in the provision of **Essential Levels of Assistance (LEA)**, the data show that Sicilian citizens still suffer significantly from the burden of some chronic

diseases: mortality for Cardiovascular disease is higher than the national average and also the trend of hospital admissions and the consumption of drugs reflect the extent of the use of care for this diagnostic category. There are still strong negative influences on health, especially on the incidence of cerebral and cardiovascular diseases, as a consequence of obesity, sedentary lifestyle, hyperglycemia and smoking. Furthermore, despite the efforts made, the use of early cancer diagnosis is still lacking (resulting from the delay in launching coherent programs on the territory) and access to public health care is often "discouraged" by long waiting lists.

Starting from these initial considerations on the regional context, in the following pages we will provide a brief overview of the situation of the SSR with particular reference to the new hospital network and time networks as well as the current situation regarding initiatives in the field of Information and Communications Technology (ICT).

2.2 The regional situation in the ICT area

The regional context, similarly to what happens in most Italian regions, highlights the presence of many and heterogeneous initiatives in the ICT field: such evidence must represent the starting point on which to plan the evolutionary process towards digitization.

The picture is therefore that of a fragmentation of the information systems used by the companies of the SSR, lack of communication towards the central level (with the exception of the mandatory obligations deriving from the NSIS) and consequently a lack of "aggregation" and coherent management of the data at regional level, lack of communication and data exchange between the various companies of the SSR. In this general framework, it is necessary to point out how the insufficient level of digitisation of the Health Department, forced to carry out a series of surveys on paper and / or manage the interaction with 18 companies spread over a territory of almost 26 thousand square kilometers, makes it difficult to obtain appropriate and timely information at the various decision-making levels and in the various management areas.

Likewise, it should be noted that there are for a limited number of thematic areas many positive examples of "experimentations" and / or "pilot projects" managed at company level which - however from an innovation point of view - do not yet represent relevant cases.

The heterogeneity of the current IT solutions is accompanied by the lack of tools that can allow the interoperability of the existing information systems and, in the recent past, also with no or inadequate connectivity services.

In this context, the Sicilian Region aware of the potential of digital innovation has recently launched some significant initiatives exploiting the opportunity of coherence with the thematic objectives contained in the new regional program and in particular in the **PO FESR 2014-2020 Axis 2 - Digital Agenda** (the initatives involved two important actions: the development of the Ultra Wide Band and the launch of the *Cloud Computing* project). These important and nodal infrastructural actions - which in themselves are "cross-sectoral" to all areas of Public Administration - represent for the health sector the necessary precondition (and expected for several years) to be seized as an indispensable opportunity to give further impetus to the digital evolution process of the Regional Health System.

With regard to the healthcare level, in fact, the objective of pursuing the process of evolution towards a digital healthcare vision consistent with the national and European regulatory framework is shared at different levels and can be considered as already started and have achieved at the moment a good level of definition - some of the projects defined as priorities in the document **"Strategy for Digital Growth 2014-2020"**, and others are in the start-up phase.

This refers, for example, to the dematerialization of prescriptions (activated both in the pharmaceutical field and for the specialist) and to the Health Card, but also to other initiatives in the course of design and / or start-up: Electronic Health Record (path started following the adherence to the principle of subsidiarity pursuant to Law No. 232 of 11 December 2016 - "Budget Law 2017") and the implementation of the regional system for the booking of health services (Sovra-CUP).

2.3 The role of the Regional Health Department

In this context, the Health Department of the Sicilian Region intends to fully carry out its institutional role in terms of "planning" and "development" that the national regulatory framework intended to attribute to it with reference to the SSR, acting in line with the system general implementation of the Digital Agenda that the Sicilian Region has launched in recent years in the field of *e-government*, creating the conditions to generate and enhance any synergies.

The main task, therefore, is to govern and direct the initiatives in progress, the projects already approved and / or to be started and the projects still to be defined, trying to foster the evolution of technologies and the contextual review of the welfare processes and organizational models at all the companies of the SSR through the definition of strategic objectives, principles and methods of implementation, priority of the interventions. In some cases, and depending on the scope of application, the initiatives will be carried out centrally through the synergy between the Health Department and the Office for the coordination of the *regional information systems and the IT activity of the Region and the public administrations;* In other circumstances, the Regional Health Authorities will implement the projects, always in collaboration with the central level, taking care to support the process of technological evolution with the related organizational and assistance redesign, but according to a univocally traced strategic line.

The Health Department, therefore, through the definition of a Regional Strategic Plan of Digital Health, aims to plan the main projects that in the digital field will have to be defined and that represent fundamental and priority steps to create an organic context. in the field of digital health in the Sicilian territory, making transparent the path of implementation of the digital strategy in the health sector. The priority objectives will be as follows:

• maxim**ize the effectiveness of the actions** and initiatives implemented through the coordination of all digital transformation actions and the centralization of the planning of public spending on the subject;

• **avoid duplication** of expenditure on regional finances and / or the repetition of interventions at local level in areas in which regional projects have been activated and / or identified;

• **define the operational processes to be digitized** and the technological needs that characterize the health ecosystem;

• **identify areas of connection and / or overlap with other areas of the Public Administration** to ensure the real interoperability of the databases as defined in the basic logic of the AGID Plan (eg management of disabilities in the social and health sectors, management of the system of vaccinations with the school sector, management of the registry data assisted with the municipalities, etc.).

Having said all this, it is essential that all the digital health planning initiatives undertaken on the regional territory in any way, are consistent with the evolutionary lines outlined here and with the guidelines defined at national level: the contribution that the digital innovation sector ICT in general can provide health, in fact, is very broad and is not limited to technological input, but can become a support to continue the path and actions of reorganization of the regional health service.

3. THE DIGITAL PLAN

3.1 The strategic plan

The main objective of the Regional Health Department is to provide the entire SSR with a strategic plan to realize the investments supporting the government of the SSR in which, through a systemic approach defined by the "central" level, each initiative fits in seamlessly and without any overlap into a broader digital innovation framework.

The underlying strategy of this Plan provides for the **full involvement of the different organizational levels that make up the SSR**, providing a schedule that defines the scope, the guidelines and coordinates the operational actions according to a shared vision of the development of the digital healthcare in the Region to be implemented immediately and to be pursued in the coming years. The objective for all the stakeholders involved will be to ensure maximum effectiveness, transparency and simplicity: both at the level of interlocutors / health operators (Health Department and Healthcare Companies) but also and above all with reference to citizens who use the services or other stakeholders. The strategic approach - which will be the common thread of what is described below - will be permeated by the need to establish a **single dedicated access point** in order to guarantee the activation of a dialogue with the different categories of actors involved and that allows to manage communication in an effective, streamlined and timely manner.

Starting from these assumptions, the Administration intends to realize:

- for healthcare operators a real **Regional Health Information System** (SISR) to support the governance that allows, in an evolutionary perspective, also the possible integration with other areas also not strictly related to healthcare. **The activation of this solution, represents the tool to meet multiple objectives**: governance of internal processes, availability of information always updated on the use of resources for the purpose of the planned actionc.
- For citizens a **single Citizen's Portal**, through which to guarantee online access to health services, information about organizational aspects, as well as allowing the management of a series of ancillary aspects (eg payment of tickets, choice and revocation, manifestation of consent, etc.).

3.1.1 The Regional Health Information System

The Department aims to realize - first of all - an **Interoperability Platform** that is the cornerstone of the SSR, the **only point of reference** and integration with the company information systems that, thanks to the availability offered by technological evolution and, based on the Model of interoperability at a national level, and on the logic of application cooperation, **allows the Health Department to have a whole series of data and information for the "conscious government" of the SSR**. This through a single organizational-technological investment at a central level that, as "modular" and "scalable", will allow a gradual but progressive evolution.

Overcoming the traditional "silos logic" (vertical organizational areas), the platform represents the **single point of access for all health operators**, receives data and information deriving from the many existing "peripheral systems", allows the management, processing through various application areas and guarantees the final objective of processing cross-areas information.

The Interoperability Platform consists of a **regional layer** that through the interoperability of "modules" in the healt care sector (eg CUP, Patient Summary, Health Record, etc.) and in the **governance** field (systems to be activated to support institutional activities of the Health Department) and possibly also in different areas (eg social, health, welfare, etc.), allows the realization of an information **hub of the "health ecosystem"**, as defined and foreseen in the Three Year Plan of AGID.

This approach, without causing any massive replacement and / or specific software-level interventions used by companies, is efficient as it allows to preserve and enhance the investments already made by the various companies of the SSR. At the same time, however, it guarantees all the contact persons operating at central level (and with reference to the many and different thematic areas) to have in real time any information concerning the health status of the SSR. In addition, it is defined – natively - the possibility and the guarantee of processing and reading all the

health and management information that is considered appropriate to convey towards the regional level. The directorates of the Department and all the managers of regional services, each for different levels of access, will have the ability to monitor and constantly govern the information generated by the multiple components of the health ecosystem and will have at their disposal:

a) all information deriving from the main projects envisaged at national level and which the Sicilian Region intends to implement (eg ESF, Sovra-CUP, NAR, CCE, etc.)
b) all management information that is complementary to them but necessary for the governance of the system. The platform will allow the Assessor to carry out specific surveys with companies and / or sector operators, on specific issues and according to criteria of homogeneity, specificity and timeliness.

With reference to point a) the platform, through mechanisms of interoperability with other systems such as FSE, Sovra-CUP, Health Record, will host a huge amount of **structured and timely data** concerning the health of patients; we will create a real "system of engagement", ie a platform that uses the data available in regional or company databases (eg FSE, CCE, CUP, etc.) and all the projects indicated in the following section and listed in the Synoptic Panel referred to in point 3.1) as a starting point for designing and providing "digital services" with added value for citizens and operators.

With reference to point b), for the first time the Directorates General of the DPS and the DASOE, will have available tools to support the daily management of the matters and / or institutional tasks assigned to them *health care planning, financial management of the health fund, assets and real estate, health care and hospital assistance, public and food hygiene, animal health, health care supervision, sectoral bodies supervision.*

At the time when this document has been prepared, based on the analysis carried out, some interventions could already be considered priorities in terms of internal governance and for issues pertaining to the individual departmental services. First of all, the following actions will be carried out:

- *Management System to support Regional Management Control powered by all national and regional information flows active and / or in the activation phase*
- *Monitoring system of the state of implementation of the hospital and territorial network*
- *Monitoring and support system for screening and vaccination programs managed by the ASPs,*
- *Monitoring system of integrative and prosthetic assistance provided by local companies,*
- *System for detecting the organic equipment of the companies of the SSR,*
- *Application platform to support the process of detecting disputes in the Company and monitoring insurance and clinical risk,*
- *System for measuring investments made by the Companies and for any reason made and / or financed,*
- *Application platform for the management and analysis of economic and asset data of the companies of the SSR,*
- *Support application platform in control processes to prevent fraud and corruption,*
- *etc.*

3.1.2 The Citizen's Portal

The SISR that the Health Department intends to provide, will be a single point of access for all operators in the sector, and will also be the reference interface of the aforementioned Citizen's Portal: citizens will also have a single access point that puts them in communication with all the assistance services, and / or organizational support that the SSR will make available to them.

The implementation of the initiatives described with reference to the SISR, in parallel with the main projects to be implemented in compliance with the national regulatory framework (see next section), represents the necessary condition to realize digital services with added value for citizens and operators. The SISR will be a system that receives a huge amount of detailed data on the health of the patients: these can be enriched by additional data provided directly by citizens as preferences; lifestyles; "clinical" parameters detected through "artificial intelligence", analysis of

the "historical" behavior of citizens (eg number of 'no show' compared to bookings made, etc.). In this sense, in the Portal, the following services will be activated for citizens:

- access to health services of the SSR in a simpler and more effective way avoiding unnecessary trips and waiting lists;
- be more informed about health services and issues related to your health;
- be actively involved in their own health care and protection, also sharing information with doctors and nurses (citizen empowerment);
- communicate in a simpler and more effective way with the healthcare company and its staff (eg through direct messaging via mobile).

This project involves the further development of apps that the citizens can download on their smartphone to access the same services offered by the portal (app for memos, dematerialized recipe, choice / revocation MMG / PLS etc.). The areas that can be covered over the next three years will mainly concern tools to:

- provide general health information: eg. to check waiting lists for emergency services in real time;
- management of health information and use of health services: es. system of choice and revocation of the doctor or booking of visits and exams;
- management of therapies: es. support the user in the daily organization of the activities aimed at the treatment
- management of diseases: specific PDTA;
- monitoring lifestyles: eg. personalized diets in the field of prevention or in conjunction with therapies for specific diseases.

3.1.3 Key projects to be launched

In continuity and in line with the provisions of the previous 3.1.1 and 3.1.2, the Health Department considers defining a framework of the main initiatives (in coherence with the national regulatory framework) that it intends to launch, which can be integrated and / or modified on the basis of any needs subsequently identified.

The Regional Administration, has planned for these investments, whose total value has been estimated at about € 50 / mln, referring to the possibility of using multiple financial sources: Funds of the FESR Sicily PO, but also Fondi da APQ and PSN Funds.

I. **I. Regional Health Informative System (SISR)** - Interoperability Platform Single Layer of application cooperation that defines the communication protocols between the different feeding systems that will be activated in the following areas:

1) health and / or clinical-assistance (for exaple FSE, Sovra-CUP, NAR, etc.);

2) governance in support of the different institutional activities of the Health Department, in response to the objectives of government and monitoring of the SSR (for example Monitoring of the Hospital Network, Monitoring of Investments, Monitoring Screening and Vaccinations, etc.).

3) dialogue with other "ecosystems" (for example activation of the social and health record);

The platform reflects the requirements of the interoperability model envisaged by the Three-Year Plan as a necessary basis for the operation of the entire information system, together with centralized data management. Cooperates with the Health and Welfare Ecosystem Cooperation.

II. **II. Sovra-CUP** - In order to facilitate access to health services, make the reservation of health services available regardless of the local area of relevance, monitor and optimize the overall demand and supply of health services, it is expected the realization of a Sovra-CUP which, preserving the autonomy of the individual healthcare companies (in terms of applications used, management of the databases, organizational models of the health supply) provides citizens with a single point of reference for access and health services. The system will be designed in a multichannel perspective, so as to allow citizens to be able to make reservations either at the company reservation points, or online directly, or through other channels that will be identified (eg pharmacies, MMG / PLS, etc).

III.   **III. Citizen's Empowerment** - Activation and publication on the Citizen's Portal of a series of services to guarantee citizens:
- access to health services of the SSR in a simpler and more effective way avoiding unnecessary movements and waits;
- to be more informed about health services and issues related to their health;
- to be actively involved in the care and protection of one's own health, also sharing information with doctors and nurses (citizen empowerment).
This project provides for the further development of apps that the citizen can download on their smartphone to access the same services offered by the portal (eg app to check in real time waiting lists to emergency rooms, app for dematerialized recipe reminder, choice / revocation of MMG / PLS etc.).

IV.   **IV. Evolution of the new Regional Registry Office (NAR)** - The Health Department has a Regional Register of assisted persons from which all companies can obtain the necessary information for the management of various organizational processes related to it (for example, choice / revocation of the doctor, etc .). The use of this system is in fact a fundamental node for all digital systems that will contribute to the governance of health care: Single Regional Reservation Center (Sovra-CUP), Electronic Health Record (ESF), the Electronic Health Record (EHR), the social-health record, etc. In this sense, it will be necessary to update and strengthen the NAR, including the missing personal data (eg prescribers and structures), and where necessary, introducing additional features.

V.   **V. Electronic Health Record (EHR)** - For the implementation of the EHR, the Sicilian Region has availed itself of the subsidiarity services offered by SOGEI (Article 12 - paragraph 15-ter - DL 179/2012 paragraph 382 of the 2017 Budget Law) of the services made available by the National Interoperability Infrastructure (INI) which are to be considered as a set of minimum requirements (access of the patient to the EHR, access and feeding of the EHR by the MMG / PLS and health structures, management of laboratory reports, management of the synthetic health profile). The Health Department intends to proceed with the implementation of the EHR, identifying the components necessary to create around the EHR that "system of services dedicated to the citizen": : The EHR can not and should not be considered a "container of clinical data", but an integrated system of patient data and in support of health professionals. The EHR will allow citizens to take advantage of more efficient, efficient and economically sustainable services by accessing their data from anywhere and at any time.

VI. Electronic Clinical Record (ECR) - The process of digitization of the "medical record" has currently allowed the overcoming of the concept that saw the "electronic medical record" as a simple process of dematerialization. In this context, the Sicilian Region intends to implement an ECR that becomes **a fully configurable system on the information needs of the clinician and his medical specialty (parametric system).** The concept of ECR according to the logic of a centralized single system for the integrated and centralized management of the entire hospitalization workflow, in fact, will allow operators and clinical staff to have a tool that supports them throughout the process. The ECR will become a point of collection and management of all the individual clinical parameters that make up the specific clinical document (report, clinical record, letter of resignation, PS, etc.)

VII. Computer security and respect for GDPR: In terms of digitization, and with particular attention to health data management, it becomes fundamental that the government's action and direction is supported through the implementation of all the minimum ICT security measures (for the PA these relaet to the implementation of the Directive 1 August 2015 of the President of the Council of Ministers Circular AgID 18 April 2017, No. 2/2017) together with the consolidation of personal data protection policies according to the provisions of national and European guidelines in subject - General Data Protection Regulation (EU Regulation 2016/679) -, both at central level and at local / company level.

VIII. Telemedicine and chronicity Development of a Regional portal for the collection of structured information from the Chronic Care Model projects distributed in the different ASPs, in order to aggregate clinical and process information and to use them for the monitoring of performance and health status (health

budget) of the population on the regional territory. Activation of channels for the collection of information from telemedicine projects for remote monitoring of chronic diseases.

IX. Networks of Pathology and Networks Employees time – Gradual development of registers and single integrated systems for the management of the treatment and support for the main Networks of Pathologies activated in the Region.

X. Clinical Information System and Insurance Risk System of workflow to support central governance and available to the companies of the SSR for the management and creation of a regional database of events / disputes related to assessments of insurance risk and integration with the management system of clinical risk.

XI. Prosthetic and Integrative Information System: Single regional system, which will be made available to Healthcare Companies, aimed at detecting and monitoring the various phases of the delivery process in the field of prosthetic assistance and supplementary assistance (eg management of requests, authorizations, disbursements and eventual restitution of controls).

XII. Prevention Portal - System of support for central governance and available to companies for the management of the typical processes of Preventive Medicine.

XIII. 118 Evolution: Functional completion of the 118 system (today NUE 112 integrated into the emergency network).

XIV. Social welfare records - Management system aimed at monitoring the complete social welfare records of the citizen.

XV. Predictive Medicine by EHR - Development of analysis models to support chronic diseases with a high social cost.

XVI. MMG Interoperability: MMG and PLS interoperability system with the Healthcare ecosystem and activation of the Doctor Portal.

In summary

The strategic approach that the Health Department intends manage the digitization in the health sector - therefore – is focused on promoting innovation and has the ambition to create a **solution capable of generating value for the entire Sicilian system and producing advantages** for all the actors involved**:**

• For the patient: accompany him along the entire care pathway, making access to services even easier through innovative and digital channels, improve the experience of using the services offered;

• For professionals and operators in the sector: enhance the network and the exchange of information, promote the sharing of experience and a multidisciplinary approach to the patient;

• For the policy maker: improve the quality of services offered and their perception by citizens, make the system more efficient through reorganization and dematerialisation of processes, bring institutions closer to the patient, anticipating health and care needs, to spread avant-garde methodologies for predictive epidemiological analyzes and for the promotion of prevention.

3.2 The organizational model and governance of the Plan

The current regulatory framework and in particular the *"Three-year Plan for Informatics in Public Administration 2017-2019"* entrust the Regions with the important role of planning and coordination of the actors present in the regional territory.

With reference to the SSR, the new regional role supports and integrates the institutional one of usual and specific coordination of the Departments of the Health Department. More than in the past, however, this role will have to be based on the design and delivery of interoperable services, to prevent overlapping and / or duplication of interventions and to ensure efficient levels of optimization of expenditure , identifiying requirements of the SRG and specific to the individual health agencies.

At the regional level, with the changes introduced by art. 29 of Regional Law No. 3 of 2016, the Office has been defined for the *coordination of the regional information systems and the IT activity of the Region and of the public*

administrations by the Department for Public Administration of the Department of Economy. To this Office, moreover, with the art. 7, paragraph 3, LR n. 15 of 2017, in order to guide the Region's transition to the digital operating mode and the consequent reorganization processes aimed at creating a digital and open administration, general management level has been assigned.

In this evolutionary context, the organization and *governance* of strategic interventions in the direction of the "digital health" of the Sicilian Region are based on a strong and deep inter-ministerial collaboration (Regional Departments of Health and Economy) with the technical coordination entrusted to the IT Office. These are, at least in the first instance, the fundamental actors of the organizational model for the realization of this Plan.

Starting from the constant and total collaboration between regional actors, in order to coordinate and organize all the project initiatives rationalizing investments and avoiding unnecessary duplications, at operational level it is expected that the initiatives proposed in this document will be activated in agreement between the Finance and Health Departments, keeping in charge of the former the skills inherent in the assessment of technical-IT compatibility and awarding procedures, and for the latter the skills related to the assessment of technical content and compliance with the needs and characteristics of the healt care system.

It will be the responsibility of the Department of Health, within the Coordination of Information Systems - Digital Health Section on the basis of the initiatives to be defined and evaluated, assess the involvement of healthcare organizations able to represent and convey at the central level the specific needs of the SSR, enhancing any experience already performed at the local level and thus extending any company *best practices* to the entire SSR.

Furthermore, while respecting the managerial / functional autonomy of the Health Authorities, the central level (Health Department) will coordinate the process of digitalization of the SSR with homogeneity of methodologies and coherence of information flows, focusing on interoperability and application cooperation, rationalizing actions and resources.

In a nutshell, this will allow the SSR to go through more quickly, but also with greater efficiency and effectiveness, the long path that will lead the Sicilian Region towards a "digital health" with innovative and high quality health services to its citizens.

3.3 Framework of the planned initiatives

The Strategic Plan provides for the realization of a series of project iinitiatives able to allow the Sicilian Region to initiate and pursue a path of "digital healthcare".

To this end, albeit in a non-exhaustive manner, the following is a summary table of the project initiatives to be implemented with a brief description of the project, timing, priority level and implementation methods. Priority level 1 refers to projects that should start in 2018, which are necessary to the realization of the following steps. The following are the main measures necessary to implement the aforementioned "health ecosystem":

Project	Summary/Description	Time to realise it	Priority level	Implementation
Regional Health Information System (SISR) *- Interoperability Platform -*	Single Layer for **cooperative application** which defines the communication protocols between different systems to be activited for the following areas: 1**) health and / or clinical-assistance** (and example FSE, Sovra-CUP, NAR, etc ..); 2) **governance in support of the different institutional activities of the Health Department**, in response to the objectives of government and monitoring of the SSR (for example Monitoring of the Hospital Network, Monitoring of Investments, Monitoring Screening and Vaccinations, etc.). 3) dialogue with other "ecosystems" (for example activation of the social-health record); The platform reflects the **requirements of the interoperability model envisaged by the Three-Year Plan** as a necessary basis for the operation of the entire information system, together with centralized data management and a level of security and protection in line with the provisions of the GDPR (in force 05.25.2018).	24 months	Priority 1	CONSIP Agreement
Sovra-CUP	Set of centralized services at regional level for the **unified reservation of health services**, aimed at facilitating access to assistance and reducing waiting times. Receives requests for reservations for visits and examinations by citizens and allows you to have evidence of the first availability at the provincial, interprovincial and / or regional level. Together with the CUP, the realization of the **Citizen's Portal** is envisaged as a single access point to the services provided by the SSR's bodies and to the services that are complementary to them.	18 months	Priority 1	CONSIP Agreement
Citizen Empowerment	Activation and publication on the Citizen's Portal of a series of services to guarantee citizens: - **access to health services** of the SSR in a simpler and more effective way avoiding unnecessary movements and waits; - to be **more informed about health services** and issues related to their health; - to be **actively involved** in their own health care and protection, also sharing information with doctors and nurses (citizen empowerment). This project provides for the further development of apps that the citizen can download on their smartphone to access the same services offered by the portal (eg app to check in real time waiting lists to emergency rooms, app for dematerialized recipe reminder, choice /	24 months	Priority 1	CONSIP Agreement

Project	Summary/Description	Time to realise it	Priority level	Implementation
	revocation of MMG / PLS etc.).			
NAR Evolution	Development and consolidation of the Assisted Register and extension to Health Records (structures, catalogs, organizations, ...). Connection with immediate CUP and subsequent connection to ANPR.	12 months	Priority 1	CONSIP Agreement
Electronic Health Record (EHR)	Technological infrastructure to support the regions that have opted for membership of the "Subsidiary regime"	6 months	Priority 1	Subsidiarity regime (SOGEI)
	EHR feeding with laboratory reports.	12 mesi	Priority 1	CONSIP Agreement
	Collection and upload of documentation to ensure continuity of care (beyond the minimum group of information collected through the reports).	30 mesi	Priority 2	CONSIP Agreement
Interoperability Patient Summary	Realization of a unique Electronic Patient Summary (Cartella Clinica Elettronica) system to be provided to all the Companies of the SSR that do not have it and / or that have their necessity, and interoperability towards the regional level. The single centralized system is designed for the integrated and centralized management of the entire hospital and hospitalization workflow process, while at the same time providing for dialogue with the other information components (including the operating theater system for complete management of the patient's records).	36 months	Priority 2	CONSIP Agreement
Information security and GDPR	Implementation of the minimum ICT security measures of the P.A. (Directive 1 August 2015 of the President of the Council of Ministers Circular AgID 18 April 2017, No. 2/2017) and of the policies for the protection of personal data (General Regulation on Data Protection (EU Regulation 2016/679).	6/12 months	Priority 1	CONSIP Agreement
Telemedicine and chronicity	Creation of a Regional portal for the collection of structured information from the Chronic Care Model projects distributed in the different ASPs, in order to aggregate clinical and process information and to use them for monitoring performance and health status (health balance) of the population on the regional territory. Activation of channels for the collection of information from telemedicine projects for remote monitoring of chronic diseases.	24 months	Priority 2	CONSIP Agreement

Project	Summary/Description	Time to realise it	Priority level	Implementation
Pathology Networks and Time-dependent Networks	Progressive implementation of registers and unique integrated systems for the management of the treatment and support for the main Networks of Pathologies activated in the Region.	12 months for Chronicity registries / 36 months for the Hub & Spoke management	Priority 2	CONSIP Agreement
Information System Clinical and Insurance Risk	Workflow system supporting central governance and available to the companies of the SSR for the management and creation of a regional database of events / disputes related to insurance risk assessments and integration with the clinical risk management system.	12 months	Priority 1	CONSIP Agreement
Prosthetic and Integrative Information System	Single regional system, which will be made available to healthcare companies, aimed at the detection and monitoring of the various stages of the delivery process in the field of prosthetic assistance and supplementary assistance (eg management of requests, authorizations, disbursements and any return of principals).	12 months	Priority 1	CONSIP Agreement
Prevention portal	Support system for central governance and available to companies for the management of the characteristic processes of Preventive Medicine.	12 months	Priority 1	CONSIP Agreement
118 Evolution	Functional completion of the 118 system (today NUE 112 integrated into the emergency network).	12 months	Priority 1	CONSIP Agreement
Social and Health record	Management system aimed at monitoring the entire social-welfare path of the citizen.	18 months	Priority 2	CONSIP Agreement
Predictive Medicine by EHR	Predisposition of analysis models to support chronic diseases with a high social cost.	12 months	Priority 3	CONSIP Agreement
MMG Interoperability	Interoperability system of the MMG and PLS with the Health system and activation of the Doctor's Portal.	24 months	Priority 3	CONSIP Agreement