

Tender Announcement for the Project

"Unified Information System for the Support of the Operational Functions of Health Units of the National Health System" Part A:
Project Scope and Specifications



European Union
European
Regional
Development Fund



ΗΔΙΚΑ
ΗΛΕΚΤΡΟΝΙΚΗ ΔΙΑΚΥΒΕΡΝΗΣΗ
ΚΟΙΝΩΝΙΚΗΣ ΑΣΦΑΛΙΣΗΣ Α.Ε.



Tender Announcement for the Project Unified Information System for the Support of the Operational Functions of Health Units of the National Health System

(Second Phase of Closed Competition)

Contracting Authority: SOCIAL SECURITY ELECTRONIC GOVERNANCE SA

Budget: €14,024,390.24 (excluding VAT)

Budget: €17,250,000.00 (including VAT)

Duration: up to 40 months

Award Procedure: Closed International Competition

based on the criterion of the most economically advantageous offer

Dates

Conducting a Competition:

10-09-2013

Sending to the Official Publications Office of the EU:

8-07-2013

Publication in the Official Gazette of Public

12-07-2013

Procurement: Sending and publishing in the Greek Press: 10-07-2013 & 12-07-2013

MIS Code:

352197

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

CONTENTS

PART A: PROJECT SCOPE AND SPECIFICATIONS	7
A1. PROJECT ENVIRONMENT	8
 A1.1 Involved in the implementation of the Project's objective	8
A1.1.1 Brief presentation of the Operating and Implementing Body.....	9
A1.1.2 Other Bodies Involved in the Successful Outcome of the Project	9
A1.1.3 Bodies and Committees (Project Governance)	14
 A1.2 Current situation	15
A1.2.1 Brief description of the services and operation of the Operating Entity	15
A1.2.2 Organizational Structure and Staffing of the Agency	15
A1.2.3 Description of the main business processes.....	16
A1.2.4 Analysis of Information and Communications Technology infrastructure that will be made available by IDIKA within the framework of this project.....	16
A2. PROJECT SCOPE, OBJECTIVES AND CRITICAL SUCCESS FACTORS	17
 A2.1 Project Scope.....	17
 A2.2 Feasibility and expected benefits	19
 A2.3 Objectives and Scope of the Project	20
 A2.4 Critical success factors of the Project	21
A3. OPERATIONAL AND TECHNICAL PROJECT SPECIFICATIONS	21
 A3.1 Electronic Services	21
 A3.2 System Architecture Requirements	22
A3.2.1 General	22
A3.2.2 Central Infrastructure.....	24
A3.2.3 Backup Infrastructure (Disaster Recovery Site – DRS).....	26
A3.2.4 Other Equipment.....	27
A3.2.5 System Functionality.....	27
A3.2.6 System Users.....	30
A3.2.7 Performance.....	31
A3.2.8 User Support.....	31
 A3.3 Technologies and Project Implementation Plan.....	32
A3.3.1 General	32
A3.3.2 Infrastructure Software	32
A3.3.3 Development / Customization Tools.....	33
A3.3.4 Printing Capabilities	33
A3.3.5 Report Generator.....	33
A3.3.6 Import / Export Data	33
A3.3.7 Multilingualism.....	33
A3.3.8 Data Security	34
 A3.4 Specifications of Functional Modules (Subsystems, Applications)	34
A3.4.1 General	34
A3.4.2 Functional Module "Management of Basic and Parametric Files"	36
A3.4.3 "Financial Services" Functional Unit	38
A.3.4.3.1 General Accounting	39
A.3.4.3.2 Analytical Accounting	41
A.3.4.3.3 Afternoon Clinics Schedules.....	42
A.3.4.3.4 Contracts – Supplies.....	43
A.3.4.3.5 Budget.....	44
A.3.4.3.6 Cash Management.....	46
A.3.4.3.7 Warehouse Management	47
A.3.4.3.8 Asset Management	50
A.3.4.3.9 Biomedical Technology	52
A.3.4.3.10 Meal Management	55
A.3.4.4 Functional Module "Patient Management".....	55
A.3.4.4.1 Traffic Office	56
A.3.4.4.2 Patient Accounting Office	57

Tender Announcement for the Project**"Unified Information System for the Support of the Operational Functions of Health Units of the National Health System" Part A:
Project Scope and Specifications**

A3.4.5 Functional Unit "Personnel Management –
A3.4.6

A3.4.8

A3.5.1
A3.5.2
A3.5.3

Payroll".....	
Middleware.....	101 A.3.10.1.3 Phase 3 –
Development and Installation of Specialized Software.....	101 A.3.10.1.4 Phase 4 – System Configuration – Data
Migration.....	102 A.3.10.1.5 Phase 5 – Training.....
A.3.10.1.6 Phase 6 – Pilot MS Operation Support.....	104 A3.10.2 Project Phases – Stage
2.....	105 A.3.10.2.1 Phase 7 – Preparation for the Rollout of the
System.....	105 A.3.10.2.2 Phase 8 – Procurement, Installation and Commissioning of MS Equipment
and Software	106 A.3.10.2.3 Phase 9 – Training and Placement in Production Operation
A.3.10.2.4 Phase 10 – Support for the Operation of the MS – Technical Support	107 A3.10.3
Timetable	108 A3.11 Deliverables
Table	110 A3.12 Important Project Implementation
Milestones	111 A4. MINIMUM SERVICE
SPECIFICATIONS.....	112 A4.1 Installation, Commissioning and Deployment Business
Plan.....	112 A4.2 Training Services.....
Administrator and Critical User Training.....	112 End User
Training.....	113 A4.3 Awareness
Services.....	113 A4.4 Pilot and Test Production
A4.2.1 Services.....	114 A4.5 Rollout
A4.2.2 Services.....	114 A4.6 "Good Operation"
Guarantee Services during the Project.....	114 A4.7 "Good Operation" Guarantee Services after the
Final Acceptance of the Project.....	115 A5. PROJECT MANAGEMENT AND IMPLEMENTATION
METHODOLOGY	115
A5.1 Implementation and Support Methods and Techniques.....	115

Tender Announcement for the Project

"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"

Part A: Project Scope and Specifications

A5.2 Project Management, Planning and Implementation Scheme.....	
A5.2.1 Basic Principles	115
A5.2.2 Communication and Coordination with the Contracting Authority.....	116
A5.3 Quality Assurance Plan and System	116
A5.4 Issue and Risk Management Plan and System	117
A5.5 Usage and Control Scenarios - System functionality acceptance procedure and Project.....	117
A5.5.1 Basic Principles	117
A5.5.2 Temporary Reception	117
A5.5.3 Final Acceptance	118

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****Project Summary**

This project aims to implement modern integrated methods and practices in health units, for which there was no OSSY in the previous programming period. The implementation of the new system will offer a comprehensive and integrated solution in the field of IT services of the National Health System. The completion of the new system will be carried out with the integration of Health Units, which:

- Not supported by any Information System
- They have an Information System, which will be assessed as operationally adequate and ready for interfacing with the unified Application Software Platform.

The operation includes the integration of Hospital Units with a total capacity of 7500 beds, 37 Health Centers and 350 Regional Clinics with the aim of:

- Improving the level of service and patient safety.
- Simplification and automation of processes.
- Uniformity in the operation of individual bodies.
- Increasing productivity and reducing workload for staff.
- The adoption of modern management and information tools.
- The adoption of the principle of economy.

The information system applications will utilize existing accumulated know-how in the field of health IT and will be based on separate subsystems, which integrate all the necessary applications for carrying out the productive operation of health units with their corresponding interfaces, and will utilize the accumulated know-how in the Health Information System.

The project focuses not so much on the development of new software, but mainly on the extent of its roll-out in the participating health units, a factor that will ultimately determine its success.

The scope of application of the project in the NHS and the utilization of its specialized capabilities, aim primarily at improving the health services provided to citizens and secondarily at monitoring and managing the financial data and results of the NHS for the benefit of the state budget.

Project Summary	
CONTRACTING AUTHORITY – ENTITY OPERATION	Social Security Electronic Governance (EDIKA) SA
PROJECT TITLE	"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
ENTITY FOR WHOM THE PROJECT IS INTENDED – MASTER OF THE PROJECT	Ministry of Health
DELIVERY PLACE – LOCATION SERVICE PROVISION	Headquarters of IDIKA SA and the local offices
TYPE OF CONTRACT	<p>Service Contract – Services Category 7 "Information Technology Services and Related Services" of Annex IIA of Presidential Decree 60/07</p> <p>CPV Classification: 72.00.00.00-0 Information and technology services, consulting, software development, Internet and support. 72.22.23.00-0 Information Technology Services (Main Vocabulary)</p>
TYPE OF PROCEDURE	Public Closed International Tender with award criterion the most economically advantageous tender. The Project budget
BUDGET	amounts to €

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

	17,250,000.00 Euros, including 23% VAT. (Budget excluding VAT: € 14,024,390.24 . VAT: € 3,225,609.76)
PROJECT FINANCING	The Project is funded by the Operational Program "Digital Convergence", within the framework of the NSRF, by the European Regional Development Fund and by National Resources. The project costs are borne by the public investment program, specifically SAE 0918 of the Ministry of Health.
IMPLEMENTATION TIME – PROJECT	Up to 40 months from the signing of the framework agreement.
DURATION ANNOUNCEMENT DATE	8/07/2013
DEADLINE FOR SUBMISSION CLARIFICATIONS ON THE TERMS OF THE DECLARATION	31/07/2013
DEADLINE AND OFFER TIME	SUBMISSION 10/09/2013 at 12:00
LOCUS OFFERS	DEPOSIT The headquarters of IDIKA SA
DATE AND TIME UNSEALING OF OFFERS	10/09/2013 at 12:00

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****PART A: PROJECT SCOPE AND SPECIFICATIONS****Abbreviations**

BI	Business Intelligence
HL7	Health Level 7 (protocol)
ICD-10	International Classification of Diseases, 10th Revision
ICPC2	International Classification of Primary Care, 2nd Edition
ISO	International Organization for Standardization
MIS	Management Information System
WS	Web Services
AMKA	Social Security Number
AA	Contracting Authority (EDIKA S.A.)
GSGA	General Secretariat of Social Security
EU	European Union
OP	Operational Program
NSRF	National Strategic Reference Framework
EPPE	Project Monitoring and Acceptance Committee
EOF	National Medicines Agency
IS	Electronic Prescription
KY	Health Centers
MY	Health Units
Legal entity	Public Law Legal Entities
ODE	Project Management Team
OPSY	Integrated Health Information Systems
PD	Presidential Decree
PI	Regional Clinic
PSE	Laboratory Information System
TEI	Regular Outpatient Clinics
ICT	Emergency Department
HR	Ministerial Decision
YY	Ministry of Health
FKA	Social Security Institution
PS	Digital Convergence

Tender Announcement for the Project

"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"

Part A: Project Scope and Specifications

A1. PROJECT ENVIRONMENT**A1.1 Involved in the implementation of the Project's objective**

The main stakeholder of the project is the Ministry of Health, whose main Directorates are described below.

ΓΕΝΙΚΗ ΔΙΕΥΘΥΝΣΗ ΥΠΗΡΕΣΙΩΝ ΥΓΕΙΑΣ (άρθρο 6 ΠΔ 95/2000) (άρθρο 51 Ν. 3918/2011 ΦΕΚ31Α')	ΓΕΝΙΚΗ ΔΙΕΥΘΥΝΣΗ ΔΗΜΟΣΙΑΣ ΥΓΕΙΑΣ ΚΑΙ ΠΟΙΟΤΗΤΑΣ ΖΩΗΣ (άρθρο 9, Ν.3172/2003, ΦΕΚ 197 Α') (άρθρο 13, Ν.3370/2005, ΦΕΚ 176 Α') (άρθρο 17,Ν.3868/2010,ΦΕΚ 129 Α') (άρθρο 50 Ν. 3918/2011 ΦΕΚ31Α')	ΓΕΝΙΚΗ ΔΙΕΥΘΥΝΣΗ ΥΓΕΙΑΣ (άρθρο 49, Ν.3370/2005, ΦΕΚ 176 Α') (άρθρο 51 Ν. 3918/2011 ΦΕΚ31Α')
<p>ΔΙΕΥΘΥΝΣΕΙΣ: (4)</p> <ul style="list-style-type: none"> • Πρωτοβάθμιας Φροντίδας Υγείας • Ανάπτυξης Μονάδων Υγείας • Ψυχικής Υγείας • Προσωπικού Νομικών Προσώπων 	<p>ΔΙΕΥΘΥΝΣΕΙΣ: (9)</p> <ul style="list-style-type: none"> • Δημόσιας Υγιεινής • Υγειονομικής Μηχανικής και Υγιεινής Περιβάλλοντος • Συντονισμού και Συνεργασίας με τους Οργανισμούς Τοπικής Αυτοδιοίκησης α' και β' βαθμού. • Στοματικής Υγείας • Διατροφής • Εξαρτήσεων • Ανάπτυξης Αθλητισμού Ατόμων με Αναπηρία • «Αθλητισμός για όλους» • Υποστήριξης Αθλητισμού και Διατροφής 	<p>ΔΙΕΥΘΥΝΣΕΙΣ: (4)</p> <ul style="list-style-type: none"> • Επαγγελμάτων Υγείας και Πρόνοιας • Αγωγής Υγείας και Πληροφόρησης • Υγειονομικής Περιθαλψης Ασφαλισμένων του Δημοσίου • Φαρμάκων και Φαρμακείων

The **Ministry of Health** is the main central administration body for the organization and operation of the public health and social welfare system. At the same time, however, significant interventions by other Ministries in the field of health and social solidarity are also identified: these are the Ministry of National Education and Religious Affairs (it exercises specific responsibilities in the field of social services that focus on the development of the institution of Special Education for people with disabilities and participates in monitoring the operation of University Health Units), the Ministry of Employment and Social Protection (its actions concern the provision of specialized social integration services to specific groups regardless of their employment status, the provision of social care services to directly or indirectly insured persons and the supervision of the insurance funds, from which the claims of the Health Units are settled) and the Ministry of Interior, Decentralization and Public Administration (social integration actions for immigrants).

The **Ministry of Health** is the competent central administration body in Greece for the formulation and promotion of government policy in the fields of health and welfare. Until 1995, this Ministry also exercised the responsibilities of the social security sector under the title "Ministry of Health, Welfare and Social Insurance". In 1995, the responsibility for social security was transferred to the Ministry of Labour, which was renamed "Ministry of Labour and Social Insurance". This transfer did not have any particular consequences in relation to the exercise of policy in the field of welfare, as in any case the Ministry of Employment and Social Protection²⁸ does not have executive responsibilities for this field under the current legislation.

The **Ministry of Health** has - through the Minister of Health - the primary responsibility for establishing and supervising health service providers and welfare institutions, which operate in the form of legal entities or legal entities. The legal nature of the institutions is determined by the legislative framework of their establishment, while their operation is specified by the preparation of Organizations and Regulations (approved by the issuance of a Presidential Decree). The supervised institutions of the Ministry of Health are considered state institutions of the public sector, which are distinguished into different categories depending on their legal nature, their location, the content of the services provided and the target groups they serve.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****A1.1.1 Brief presentation of the Operating and Implementing Body****EDICA SA**

The Social Security Electronic Governance (SGI), formerly the Social Services Computer Center (SSCCC), is an IT Service Provider. It is of a non-profit nature, supervised by the Ministry of Labor & Social Security and more specifically by the General Secretariat of Social Insurance (GSSI). It is compensated for the services provided by the entities served. The purpose of SGI, according to the founding law (Law 3607/2007), is to provide IT services to social security, health and social policy entities, as well as to provide services to other public entities.

The types of IT services offered by IDIKA SA are:

- Provision of services, such as:
 - o Central application software development, maintenance and operation of systems on the computers of IDIKA SA,
 - o Centralized development of system application software and technical support operation of these on computers installed in the various institutions.
 - o Education and training services for the staff of the Institutions in key issues IT, but also users in matters of application operation.
- Consulting services, such as:
 - o providing information and suggestions on IT issues, o defining standardization on issues such as procedures, product procurement IT, etc.

A1.1.2 Other Bodies involved in the successful outcome of the Project

The supervised entities of the Ministry of Health participate in the project as users of the project services. The list of entities below concerns the current status of entities which may be modified following the abolition and mergers of entities.

Public Law Legal Entities

- Central HR Services
- 7 Health Regions, 131 Hospitals, 225 Health Centers

1st Regional Directorate of Attica	
ÿ Athens General Hospital "ALEXANDRA"	ÿ Athens Hospital "SPILOPOULEIO - AG. ELENI"
ÿ Athens Children's General Hospital "AGLAIA KYRIAKOU"	ÿ Athens Children's Primary School "AGIA SOFIA"
ÿ Athens General Cancer Hospital "AGIOS SAVVAS"	ÿ Athens Hospital of Aesthetics & Dermatology "ANDREAS SYGROS"
ÿ General Athens Maternity Hospital "HELENA" VENIZELOU»	ÿ Athens General Hospital "ELPIS"
ÿ Athens General Hospital "KORGIALENIO - BENAEOFIO" ÿ Athens General Hospital "EVANGELISMOS"	ÿ Athens General Hospital "EVANGELISMOS"
ÿ Athens General Hospital "HIPPOKRATEIO" ÿ Athens Eye Hospital ÿ Athens General Hospital "PAMMAKARISTOS"	ÿ Athens General Library "LAIKO"
ÿ PATISIA GENERAL CENTER	ÿ Athens General Hospital POLYCLINIC
ÿ Athens General Hospital "GENNIMATEAS" "KAT"	ÿ General Hospital of Melission "AM. FLEMING"
ÿ Athens General Hospital "SISMANOGLIO"	ÿ Nea Ionia General Hospital Konstantopoulio
ÿ Athens General Hospital for Thoracic Diseases "I SOTIRIA"	ÿ Kifissia General Oncology Hospital "THE HOLY ANARGYROS"
ÿ Penteli Children's Hospital	ÿ Institute for Chest Diseases Research, Occupational Health and Safety
ÿ Child Psychiatric Hospital of Athens	

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

ÿ Onassis Cardiac Surgery Center ÿ MARKOPOULOU	ÿ KY KOROPIOU
HOSPITAL ÿ NEA MAKRIS	ÿ KY LAVRIOU
HOSPITAL ÿ KAPANDRITIO	ÿ KY SPATON
HOSPITAL ÿ CHALANDRIO	ÿ KY KALIVION
MENTAL HEALTH CENTER	ÿ ATHENS MENTAL HEALTH CENTER
ÿ KY BYRON	ÿ AIA AIRPORT HEALTH CENTER

2nd Regional Directorate of Piraeus and Aegean Region	
ÿ General Hospital - Lemnos	ÿ Vostaneio General Hospital of Mytilene
ÿ General Hospital - Ikaria ÿ	ÿ Samos General Hospital Saint Panteleimon
General Hospital of Chios Skylitseio	ÿ General Hospital - Kalymnos Vouvalio
ÿ GN - KY Kos	ÿ State Hospital - Leros Hospital
ÿ Rhodes A. Papandreou General Hospital	ÿ General Hospital of Syros Vardakio and Proio
ÿ Naxos General Hospital	ÿ General Hospital of West Attica Agia Varvara
- University Hospital ÿ Attikon General Hospital	ÿ Elefsina General Hospital Thriasio
- University Hospital of Kythira Triphylleio ÿ	ÿ General Hospital of Nicaea St. Panteleimon
Piraeus General Hospital Tzaneio	ÿ Piraeus Metaxas Special Cancer Hospital
ÿ Voula Asklepieion General Hospital	ÿ Athens Psychiatric Hospital
ÿ "Dromokaiteio" Psychiatric Hospital	Athens ÿ National Rehabilitation Center for the Disabled
ÿ Antissa Mental Health	ÿ Kalloni University
Center ÿ Plomari Mental	ÿ KY Polychnitou
Health Center ÿ Evdilos Mental	ÿ Karlovasi, Samos
Health Center, Ikaria ÿ Samos Mental Health	ÿ Pyrgiou, Chios
Center ÿ Archangelos Mental Health	ÿ KY Embonas Rhodes
Center, Rhodes ÿ Antimachia	ÿ KY Mantamados
Mental Health Center ÿ	ÿ Patmos Municipality
Karpathos Mental	ÿ Andros Municipality
Health Center ÿ	ÿ KY Ios
Amorgos Mental	ÿ Mykonos Town Hall
Health Center ÿ	ÿ Tinos Municipality
Thira Mental Health	ÿ Megaron Palace
Center ÿ Milos Mental	ÿ Salamis Municipality
Health Center ÿ	ÿ Peristeri University
Paros Mental Health Center	ÿ Peristeri Mental Health Center
ÿ Elefsina Mental Health Center ÿ Vari Mental Health Center ÿ	ÿ Athens Mental Health Center
Keratsini Mental Health Center ÿ Ag. Anargyroi Mental Health Center ÿ Korydallos Mental Health Center	ÿ KY Galata

3rd Regional Directorate of Macedonia	
ÿ General Hospital of Agios	ÿ General Hospital of Edessa
Dimitrios ÿ General Hospital of G.	ÿ Giannitsa General Hospital
Gennimatas ÿ Hospital for Special	ÿ Katerini General Hospital
Diseases ÿ General	ÿ General Hospital G. Papanicolaou
Hospital of Naoussa ÿ Psychiatric Hospital of	ÿ Petra Olympus Psychiatric Hospital
Thessaloniki ÿ General	ÿ General G. Papageorgiou
Hospital of Veria ÿ General	ÿ Kastoria General Hospital
Hospital of Grevena ÿ	ÿ Ptolemais General Hospital
General Hospital of Kozani	ÿ KY LAGKADA
ÿ General Hospital of Florina ÿ General Hospital of KOUFALIA	ÿ KING OF CHALASTRA TOWER

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

ÿ PASSENGER PASSENGER	ÿ KR ARIDAEAS
ÿ SKYDRAS	ÿ MR. ARNISSA
ÿ KRYAS VRYSIS ÿ	ÿ KING OF ALEXANDRIA
LITOCHORIO ÿ AMYNTAI ÿ	ÿ KING OF AEGINI
	ÿ KING ARGOS ORESTIKOS
ÿ KY DESKATIS	ÿ KINGDOM OF SERBIA
ÿ KS SIATISTAS	ÿ KY TSOTYLIOU

4th Regional Directorate of Macedonia and Thrace	
ÿ Hippocrates National University ÿ	ÿ Saint Paul National University
AHEPA National University	ÿ Theagenio Botanical Garden
ÿ Skin and Venereal Diseases Clinic ÿ General Hospital - General Hospital	ÿ Kilkis General Hospital
of Goumenissa ÿ General Hospital of	ÿ General Hospital of Halkidiki
Serres ÿ General Hospital	ÿ Kavala General Hospital
of Drama ÿ General	ÿ Xanthi General Hospital
Hospital of Komotini ÿ General	ÿ Alexandroupolis National University
Hospital of Didymoteicho ÿ General	ÿ Abdera Regional Hospital
Hospital of Prinos ÿ	ÿ KY Dikaion
General Hospital of Orestiada ÿ	ÿ Soufli University
General Hospital of Samothrace	ÿ KY Sappon
ÿ General Hospital of	ÿ Stavroupoli University Hospital
Iasmos ÿ General	ÿ Eleftheroupoli University Hospital
Hospital of Echinos ÿ General	ÿ Paranesti University
Hospital of Chrysoupoli ÿ General	ÿ Prosotsani Primary School
ÿ Hospital of Nevrokopi Mental	ÿ Strymonikos University
Health Clinic ÿ General Hospital of	ÿ Rodopolis University
Sidirokastron ÿ General Hospital	ÿ Nigritas University
of Rodolivos ÿ General	ÿ Black Sea Region
Hospital of Zichni ÿ General	ÿ Drosatos University
Hospital of Heraklia ÿ General	ÿ Karyos - Mount Athos University
Hospital of Polykastro ÿ General	ÿ Kassandra Region
Hospital of Moudania ÿ General	ÿ Palaiochori Municipality
Hospital of Agios	ÿ Madytos National Park
Nikolaos ÿ General	ÿ Zangliveri Municipality
Hospital of Sochos ÿ General Hospital of Thermi ÿ General Hospital of Michaniona	ÿ

5th Regional Directorate of Thessaly and Central Greece	
ÿ University Hospital of Larissa ÿ General Hospital of Volos ÿ General	ÿ Larissa General Hospital
Hospital of Trikala ÿ	ÿ Karditsa General Hospital
General Hospital of Livadia	ÿ Lamia General Hospital
ÿ General Hospital of	ÿ Chalkida General Hospital
Amfissa ÿ General Hospital	ÿ Karpenisi General Hospital
of Thebes ÿ General	ÿ Karystos General Hospital
Hospital of Kymi ÿ	ÿ DAY OFF
General Hospital of	ÿ MR. ARGALASTIS
ALMIROU ÿ General Hospital	ÿ PARENT'S KING
of VELESTINOU ÿ General Hospital of ELASSONA	ÿ KING OF ZAGORA
ÿ KY KALAMPAKAS	ÿ KY MOUSAKIOU
ÿ KY PALAMA	ÿ KING OF PYLIS
ÿ KING OF SKIATHOS	ÿ SKOPELOS COUNTRY

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

ÿ KING SOFADO ÿ KING	ÿ TYRNAFOU
FARCADON	ÿ KY PHARSALLON

6th Regional Directorate of the Peloponnese, Ionian Islands, Epirus and Western Greece	
ÿ ZAKYNTHOS GENERAL CENTER	ÿ General Manager AMALIADA
ÿ Agrinio General Hospital	ÿ AEGIOU GENERAL CENTER
ÿ ARGUS GENERAL CENTER	ÿ ARTA GENERAL CENTER
ÿ GENERAL OFFICE OF IOANNIN G. HADZIKOSTAS	ÿ KALAMATA GENERAL CENTER
ÿ CORFU GENERAL OFFICE	ÿ KEFALONIA GENERAL CENTER
ÿ GENERAL UNIVERSITY OF CORINTH	ÿ LEFKADA GENERAL CENTER
ÿ LIXOURIOU GENERAL CENTER	ÿ GN MESSOLONGIOU HADZIKOSTAS
ÿ NAFPLIO GENERAL CENTER 2008	ÿ CHILDREN'S NURSERY OF PATRA KARAMANDANIO
ÿ PATRAS AG. ANDREAS GENERAL CENTER	ÿ PREVEZA GENERAL CENTER
ÿ GN PYRGOS A. PAPANDREOU	ÿ SPARTA GENERAL CENTER
ÿ GENERAL - GENERAL CENTER OF KALAVRYTON	ÿ GN - KV KRESTENON
ÿ GN - KV KYPARISSIA	ÿ GN - KV MOLAON
ÿ GN - KG FILIATONS ÿ A	ÿ TRIPOLI GPN THE EVANGELISTRIA
CHEST OF WESTERN GREECE	ÿ IOANNINA NATIONAL PARK
ÿ PATRAS UNIVERSITY	ÿ CORFU CITY CENTRE
ÿ TRIPOLI CITY CENTRE	ÿ KING OF AETOLIKOU
ÿ KING OF AMPHILOHIA	ÿ KING OF VONITSA
ÿ KING OF ANO CHORAS	ÿ KING LASTAKOU
ÿ THERMOS CITY	ÿ KING CHALKIOPULON
ÿ KY - KATOUNA DISTRICT HOSPITAL	ÿ KING OF NAFFAKTOS
ÿ KING AKRATAS	ÿ KING OF LOWER ACHAIAS
ÿ KY K. KLITORIAS	ÿ KING ERYMANTHEIA
ÿ KING OF CHALANDRITSA	ÿ MR ANDRITSAINAS
ÿ KING OF ANCIENT OLYMPIA	ÿ KY VARDAS
ÿ KING OF GASTOUNIS ÿ	ÿ Mr. SIMOPOULOS
KING OF AGNANTON ÿ	ÿ KING DROSSOPIGIS (VULGARELI)
KING OF ANO CALENTINI	ÿ KING IGOUmenitsa
ÿ KY MARGARITIOU	ÿ KING OF FAIRY TALE
ÿ KING DELVINAKIOU ÿ	ÿ KING OF DERVIZIANS
KING KONITSAS ÿ	ÿ METSOVOS CITY
KING VOUTSARAS	ÿ KEY FACTS
ÿ KING OF THESPROTIK	ÿ PARGAS COUNTY
ÿ KY KANALAKIOU	ÿ KING PHILIPPIADAS
ÿ KY CATASTATIOU	ÿ CHRISTIANITY OF AGIOS ATHANASIOS - AGROS
ÿ KING OF ANO LEFKIMMIS	ÿ PAXON COUNTY
ÿ ST. MARK'S CHURCH	ÿ KING OF ITHACA
ÿ KR SAMIS	ÿ HM THE KING
ÿ KING LIGOURIOU	ÿ KY KRANIDIOU
ÿ SKY STARS	ÿ MR. DIMITSANAS
ÿ Mr. LEONIDIOU	ÿ KING OF MEGALOPOLIS
ÿ KING OF TROPAI ÿ	ÿ LOUTRAKI CITY
KING OF NEMEA ÿ	ÿ XYLOKASTROS CITY CENTER
KING OF KIATO ÿ	ÿ KY GOURAS
KING OF NEAPOLIS	ÿ GYTHEIOU
ÿ Mr. VLACHIOTI	ÿ KING AREOPOLIS
ÿ KY- REGIONAL HOSPITAL OF KASTORIO	ÿ KY - HATZI DISTRICT HOSPITAL

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

ÿ KING OF GARGALIANOS	ÿ KY - DORIO DISTRICT HOSPITAL
ÿ KING OF AG. NIKOLAOS	ÿ KING MELIGALA
ÿ KING OF MESSINA	ÿ KY - PETALIDI DISTRICT HOSPITAL
KING OF PYLOS	ÿ KY PHILIATRAN

7th Regional Directorate of Crete	
ÿ HERAKLION GENERAL HOSPITAL	ÿ UNIVERSITY GENERAL HOSPITAL HERAKLION
ÿ GENERAL HOSPITAL OF AGIOS NIKOLAOS	ÿ GENERAL HOSPITAL - KING IERAPETRA
GENERAL HOSPITAL - KINGDOM OF NEAPOLIS DISSOLVING	ÿ GENERAL HOSPITAL - CURRENT SITIA
ÿ RETHYMNO GENERAL HOSPITAL	ÿ CHANIA GENERAL HOSPITAL
ÿ NAVAL HOSPITAL OF CRETE	ÿ MENTAL DISEASE CENTER CHANION
ÿ CHRISTIAN SAINT BARBARA	ÿ KY ARKALOCHORIOU
ÿ KY HARAKAS	ÿ KING ANO VIANNOU
ÿ KASTELIOU PEDIADOS	ÿ KING OF DEFENSES
ÿ MR. JERMIADOU	ÿ KING OF ANOGEION
ÿ KY PERAMATOS	ÿ KING SPILIO
ÿ CHRISTIANITY OF AUGUSTUS	ÿ VAMOS CITY
ÿ KY KANDANOU	ÿ KISSAMOU COUNTY

- Hospitals with Special Legal Status:

- o General University Hospital of Thessaloniki "AHEPA"
- o Athens Cancer Hospital "Agios Savvas"
- o General Hospital "Asclepius of Voula"
- o "P. and A. Kyriakou" Children's Primary School
- o Patras Children's Primary School "Karamandaneio"
- o Spiliopouleio Hospital of Athens "St. Helen"
- Athens General Hospital "Hope"
- The Athens General Hospital "Pammakaristos"
- o Attica Psychiatric Hospital "Dromokaiteio"
- o Institute for Thoracic Diseases Research, Occupational Health and Safety (I.E.N.T.H.Y.A.E.)
- The National Institute of Venereal and Skin Diseases "A. Syggros"
- Athens General Hospital "Korgialenio Benakeio"
- National Emergency Center EKAB
- National Medicines Organization EOF
- National School of Public Health - ESDY

Private Law Legal Entities

- General Regional Hospital "Papageorgiou"
- Anti-Drug Organization OKANA.
- Institute of Child Health, Children's Hospital "Agia Sophia"
- Hellenic Center for Mental Health and Research
- National Research Center for the Prevention and Treatment of Diabetes Mellitus and its Complications (EKEDI)
- Center for Disease Control and Prevention (CDC)
- National Transplant Organization (NTO)
- Hellenic Pasteur Institute
- Biomedical Research Foundation of the Academy of Athens (BRFAA)
- Addiction Treatment Center (KETHEA)
- Social Cooperatives with Limited Liability (S.L.C.)

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

Companies Anonymes

- Public Company for the Construction of Hospital Units (D.E.P.A.N.O.M.) S.A.
- Health Units Company Limited (AEM.Y. SA)

A1.1.3 Bodies and Committees (Project Governance)

The Organization and Management of the overall project involves (due to its extent and complexity), a large number of executives and bodies. Taking into account the need to implement side actions, the intention of the Project Owner is to integrate it into an overall program.

In the Management structure of a program, the bodies and roles are distinguished as follows:

- Executives, who guide the program and make critical decisions
- Operational, who manage the program on a daily basis under the guidance of the executive bodies.

Executive Bodies**Program Agreement Supervisory Committee (PASC)**

The EEPS recommends to the competent bodies of the contracting parties any necessary measures and actions for the implementation of the Program Agreement. It meets whenever deemed necessary by the progress of the implementation of the Projects and when requested by any of its members. In any case, the Committee meets at least once (1) every three (3) months and receives monthly reports on the progress of the implementation of the Projects.

Operational Bodies**Tender Evaluation Committee**

The tender evaluation committee is provided for by the procurement regulations of IDIKA SA

Complaints Committee

The objections committee is provided for by the procurement regulations of IDIKA SA, and during the tender process, it will examine and judge the possible objections of the candidate contractors.

Important note

For all Units of the project, the legal body for the final decisions is the Board of Directors of IDIKA SA following a recommendation from the competent committee.

Working Groups

Their role is to act in accordance with their subject matter and expertise, contributing to the implementation of the goals set by their leaders. These groups will be composed of members of the agencies and their purpose is a) to assist the EPPE and the contractor for the proper execution of the project and b) to help disseminate the results to the agencies (and ultimately the use of the system by the users of the agencies to which they belong). The role of each working group is to cover all the requirements of the project at the level of:

- Technical
- Operational
- Administrative implementation procedures
- Dissemination of results and use of the system

Project Monitoring and Acceptance Committee (PMC)

The EPPE monitors the implementation of the Project in accordance with the contract, and makes recommendations on various relevant issues (receipt of deliverables, changes, sanctions, etc.) to the contracting authority and the EPPS.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****Technical Project Manager**

An executive of IDIKA SA will be appointed as technical manager, who will be responsible for communicating the project with the contracting authority during implementation, as well as its continuation after completion (business continuity).

A1.2 Current situation

As an IT services company, IDIKA SA has the appropriate infrastructure (rooms, data center, broadband connections) to meet the needs of the Project. Candidate Contractors should clarify in their offer the specific needs for the installation of the equipment (spaces, power supply, communication lines, etc.), so that IDIKA SA can proceed in a timely manner with the necessary configuration actions.

A1.2.1 Brief description of the services and operation of the Operating Entity

Today, IDIKA SA offers its services:

- to the Ministry by which it is supervised, • to Social Security bodies with information systems that include significant number of programs, • in Nursing Institutions and Social Welfare Institutions.

Through the mentioned Bodies, in total, the following are served:

- approximately 4,000,000 insured persons (excluding farmers) • insured farmers
- 2,500,000 pensioners • 350,000 beneficiaries • 150,000 salaried employees of Ministries, Insurance Funds, Hospitals, etc.

The largest percentage (approximately 55%) of the activities of IDIKA SA are absorbed by the two (2) Insurance Organizations IKA and OGA, while a significant percentage is absorbed by the medium-sized Insurance Funds and Hospitals (through the Hospital Management Information System). IDIKA SA also serves other bodies of the broader Public Sector. **A1.2.2 Organizational Structure and Staffing of the Body**

IDIKA SA is managed by a seven-member (7) Board of Directors appointed for a three-year term by the competent Minister, is headquartered in Athens and has no subsidiaries outside Athens. Given that it serves entities with a pan-Hellenic structure, IDIKA SA indirectly also serves the region (insured persons, farmers, pensioners). To meet the needs of its projects, IDIKA SA has experienced and specialized staff, which is distributed as follows:

- PE – Informatics: 58
- TE – Informatics: 8
- Computer operators: 10
- Data entry operators: 191
- Other IT staff: 23 IT programmers

The structure of the Organization is:

- Administration
- Administrative - Financial Department and •

Five (5) Technical Departments with responsibilities:

- o the development of application software for new information systems o the maintenance and optimization of applications for installed systems o the operation of applications (or their support when provided by entities) and preparation of the necessary elements
- o technical support for available equipment and applications.
- o Work planning and project management (e.g. NSRF)
- Independent offices

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****A1.2.3 Description of the main operational processes**

The implementation of the proposed project aims to develop a Unified Information System to support the operational functions of ESY health units, with a centralized architecture, whose applications will be hosted in the DATACENTER of IDIKA and will be offered as web services to health units, for which there was no Unified Information System in the previous programming period.

The project will include at least:

- Management applications to support administrative operations
- Medical and nursing applications to support service provision

This unified information system will provide the possibility of expansion to any Health Unit requesting similar services in the future (the costs for the integration of additional health units e.g. additional equipment, software licenses, implementation services, SLA, etc. are not included in the scope of this project). The project includes the integration of Hospital Units with a total capacity of 7500 beds, 37 Health Centers and 350 Regional Clinics.

The implementation of the project will create the conditions for:

- Unified administrative information framework for individual Health Units and the Ministry with the systematic collection of operational data from Health Units
- Standardized framework for replicating the solution across a large number of Health Units ensuring a uniform level of quality (e.g. through an automated process)
- Standardized staff training program
- Standardized technical support framework or outsourcing of some infrastructures
- Unified planning of the next steps of development – expansion of the system over time
- Economies resulting from large scale, data standardization and IT compatibility.
- Economies of scale from the electronic exchange of data and forms through the use of electronic signature (a capability that the system will provide and will be put into operation when it is institutionalized)
- The implementation specifications of the unified platform will provide criteria for selecting solutions related to the information architecture. In addition, they will provide for the development of data quality assurance mechanisms in the system. The design of this specific project will take into account the need for high availability of the provided IT services to the Users of the information system. Therefore, the system architecture should achieve a balance between cost and high availability - disaster recovery mechanisms.

It is clarified that this project does not aim to support the internal operations of IDIKA SA.

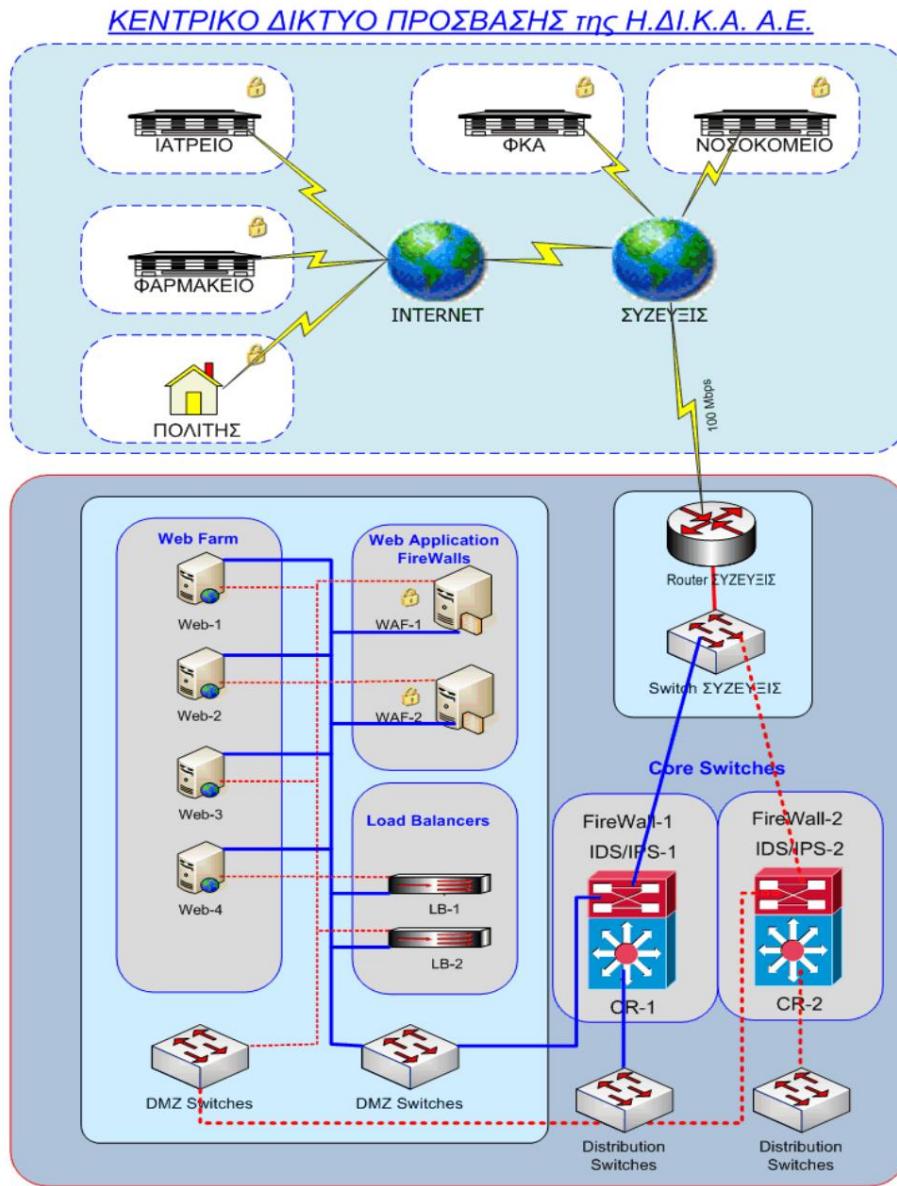
A1.2.4 Analysis of Information and Communications Technology infrastructure that will be made available by IDIKA within the framework of this project
Computing Infrastructures

IDIKA S.A., within the framework of the project, will provide all the necessary equipment to meet the system architecture requirements, as described in Section A3.2 of this announcement.

Network Infrastructure

The diagram below presents the network infrastructure (LAN, WAN) of IDIKA SA.

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications



NOTE: The above infrastructure will be made available by IDIKA SA to the Contractor for the entire project (Phases A and B).

A2. PROJECT SCOPE, OBJECTIVES AND CRITICAL SUCCESS FACTORS

A2.1 Project Scope

In summary, the scope of the project is the provision of procurement/development and commissioning services of digital tools and applications, as well as support and deployment services in selected health units of the Ministry of Health.

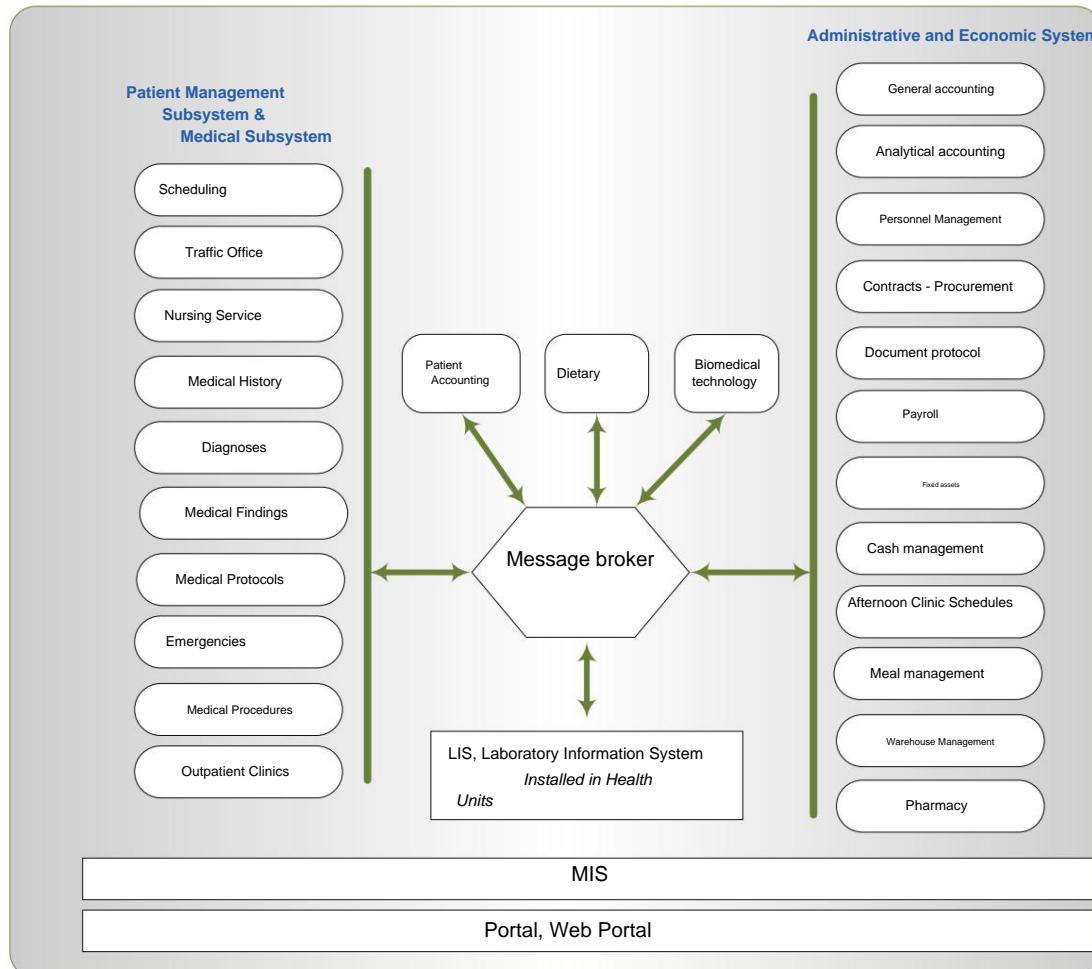
The contractor will be obliged to:

- to deliver an implementation study with a complete and detailed description of the needs and design of the required solution,
- to proceed with the installation of the software that he will construct himself or procure ready-made, as well as all the necessary supporting programs for its operation, which he must provide accompanied by their respective legal licenses for use,
- to customize the information system to the specific needs and requirements of each health unit,

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- to demonstrate the software and provide technical support for the operation of the information system for a specific period of time through HelpDesk and the presence of its executives in the health units,
- to train a team of system administrators and users and to deliver complete and detailed documentation of the system and learning subsystem in order to support asynchronous training,
- to implement the preparation for the System Rollout, Data Migration and to put all Health Units into Production Operation • to deliver:
 - o User manuals which will describe in detail the functionalities of the application, user navigation, the graphical environment, usage scenarios, etc.
 - o Technical description of the database schema (logical and physical design) in order to enable the interconnection of the application with third-party systems.
 - o System security (user roles, password management, access rights, recording of database movements (auditing, log files, data integrity, etc.)
 - o Application interconnection documentation (interconnectivity guide – implementation message profiles) with third-party applications. This interface will follow the international HL7 protocol where it is implemented.
 - o A detailed exit strategy that will allow the project owner to safely and quickly transfer all of the information system data to another supplier's information system. The integrated information system that will be developed will implement the subsystems

that concern at least the areas shown in the diagram below:



Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

Each health unit will have access to the subsystems that concern it and to its data, which are logically separated from the data of the other health units. The central services (Ministry of Health and Ministry of Health) will have access to both the data of each health unit and the ability to consolidate the information, always with an encrypted process, so that the entire system is fully compatible with the applicable legislation, as it is specialized in the issues of the project (e.g. on the protection of personal data, medical confidentiality, etc.) and is observed by the Independent Authority for the Protection of Personal Data.

The main objective of the proposed architecture for the project is to provide all the advantages of the integrated medical record and the centralized management of applications and data, while maintaining the logically independent operation of health units of all levels, and offering a safe working environment for both the citizen-patient and the health professional. The role of an integrated medical system should be to ensure quality in the provision of services regardless of the level (A' level, B' level or C' level) of the health unit that provides services to the citizen. This, in practice, means that the patient should receive the same quality of services at the level of information infrastructure, whether the patient visits the health center closest to him or visits a hospital for the treatment of a disease.

A2.2 Feasibility and expected benefits

The current economic conditions and the new strategy of the Health Ministry highlight the requirement to introduce and implement new automated mechanisms for the information organization of health units.

Health information systems in almost all developed countries are called upon to respond to a series of key factors that create a dynamic environment that requires continuous adaptation. At the same time, the current economic conditions, as well as the requirements of the Memorandum signed by the Greek government, make it more urgent to implement an effective and sustainable integrated information system that will address the health units mentioned below as a whole and will allow for better resource management, definitive and effective computerization and will adequately cover the needs of citizens, ensuring quality and integrated services. The Information & Communication Technologies (ICT) projects that have been implemented in the country's health units, currently form different categories

that delimit the degree of implementation of the mapping of the health unit processes with the information subsystems and the degree of interoperability of the individual units in a fully productive and operationally capable entity.

The management and processing of health unit procedures by electronic means adds a new necessary dimension to the relationship of the National Health System (NHS) with its staff and the citizens it is called upon to serve. This project aims to

implement modern integrated methods and practices in health units, for which there was no OPSY in the previous program. The implementation of the new system will offer a comprehensive and integrated solution in the field of IT services of the National Health System. The completion of the new system will be carried out with the integration of Health Units, which:

- They are not supported by any Information System • They have an Information System, which will be assessed as operationally adequate and ready for interfacing with the unified Application Software Platform.

The project includes the integration of Hospital Units with a total capacity of 7500 beds, 37 Health Centers and 350 Regional Clinics with the aim of:

- Improving the level of service and patient safety.
- Simplification and automation of processes.
- Uniformity in the operation of individual bodies.
- Increasing productivity and reducing workload for staff.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- The adoption of modern management and information tools.
- The adoption of the principle of economy.

Improving the operational efficiency of the Health Sector requires its functional modernization, at an operational (substantial administrative management, effective procedures/organization/staffing) and technological level (fully utilized medical-technological equipment, ICT as a catalyst for change).

Information technology is a one-way option in this effort. It transforms business processes/operations, frees up human resources from time-consuming tasks to be utilized in business activities, encourages/enforces organized work processes, provides timely & valid management control & monitoring, offers continuous & multidimensional administrative information, a necessary prerequisite for the practical implementation of any strategy in Health.

The Integrated Health Information Systems – OPSY are designed from the outset to cover in a single & unified manner all the activities of a Greek Public Hospital, allowing the possibility of interconnection / expansion with other systems through industry-standard techniques & technologies. This technological capability, of unique importance for the country,

is operationally essential for the long-term and sustainable implementation of the Memorandum with the EU/IMF. In order to cover the needs in information infrastructure of any Health Units

that were not included in any of the OPSY projects of the OP "Information Society" of the 3rd CSF, the implementation of a single information system is proposed in a subset of health units of the National Health System, with prioritization proportional to their capacity. **A2.3 Objectives and Scope of the Project**

The aim is to operationally upgrade the Health system through the collection and better management-utilization of operational information and the utilization of new IT technologies that provide new opportunities for modernization of operations, as well as upgrading the quality of services and service to the health professional and the citizen-patient.

The proposed project aims to:

- The implementation of an integrated and homogeneous solution, which will be compatible with the directions and priorities of the Ministry of Health and will ensure system interoperability and cost containment
- In the computer support of a large part of the main operational processes of the State-of-the-art technology
- In the application of standardization in basic processes (accounting-financial management, supplies and materials management, referrals, medical record keeping)
- Strengthening Human Resources with new tools and improving the work environment satisfaction
- Utilizing existing accumulated know-how in the field of health IT • Improving the performance of the system in critical dimensions: immediate availability of organizational position data (fixed assets, liabilities, receivables), cost monitoring, availability of medical records, ways of "capturing" operational data (data capture) • The ability to collect consolidated data and (in synergy with the unified project)

B) in policy making

- The creation and/or exploitation of structures, infrastructures and standards that will allow for the integrated, reliable central management and treatment of ICT issues in the field of health in Greece, in combination with the implemented OPSY projects
- The creation of a secure framework for management and access to information that will contribute to improving the efficiency and quality of medical and nursing care while ensuring the confidentiality of information

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

The Hospitals that are the subject of this project and are listed below in tabular form per Ministry of Health.

CHILDREN'S AGH. SOFIA	2nd Ministry of Regional Development, ATTICA	6th Ministry of Education
SUNDAY CHILDREN	MYTILINEUS GARDEN	TOWER
CHILDREN'S PENTELIS	CHIOS DOG KENNEL	AMALIADA
POPULAR	ST. PANTELEIMON OF SAMOS	KRESTENA
AMALIA FLEMING	LEMNOS	AGRINO
AG. ANARGYROI	IKARIA	MESSOLONGI
RED		CORFU PSYCHIATRIC HOSPITAL
SAINT SAVVAS		IOANNINI NATIONAL PARK
3rd YPE	4th Ministry of Education	
GREVENA	KILKIS	
KASTORIA	CHALIKIDIKI	
MAMATSO KOZANIS BAG	GOUMENISA	
PTOL		
FLORINA		

A2.4 Critical success factors of the Project

The first estimates for the critical success factors of the project are listed in the table below.

Critical Success Factor	Type	Related Response Actions
expertise of the Contractor in matters of the health sector in Greece <i>Very good expertise of the Contractor</i>	Technological	Competition terms
in matters of utilization of medical information <i>Very good expertise of the Contractor in matters of security and</i>	Technological	Competition terms
integration of information systems	Technological	Competition terms
Strong and flexible Project Management structure	Organizational	The Contracting Authority will take appropriate measures and utilize the available resources.

It is noted that the above critical success factors for the project are indicative. Candidate contractors are required to develop their own approach to the success factors and risks of the project in their bid.

A3. OPERATIONAL AND TECHNICAL PROJECT SPECIFICATIONS**A3.1 Electronic Services** The following

table presents indicative electronic services that are planned to be developed within the framework of the project.

Service Description	Required information (input data)	Result elements (output data)	Observations (e.g. level of "electronicization", level of Service, etc.)
Appointment booking for medical procedures by citizens	Social Security Number, Insurance, Appointment Requested	Cashier Demographics, Appointment Booking	Electronicization level 4
Issuance of certificates and		Application forms	Level

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

information to citizens		for issuing certificates, General statistics on medical work performance	computerization 1
Healthcare Provider Information		Procurement details	Electronicization level 1
Informing and assisting the Administration of the Ministry of Health and the Health and Social Development of Departments by processing and utilizing information wealth from the country's hospitals and health centers by providing valid information.	Financial data, Medical and nursing data	Statistics and combined information	Electronicization level 1
Management and processing of hospital procedures by electronic means, providing speed and efficiency			Electronicization level 4

It is noted that the above input-output data are indicative. The data may be updated and/or finalized in the context of the Project implementation planning.

A3.2 System Architecture Requirements

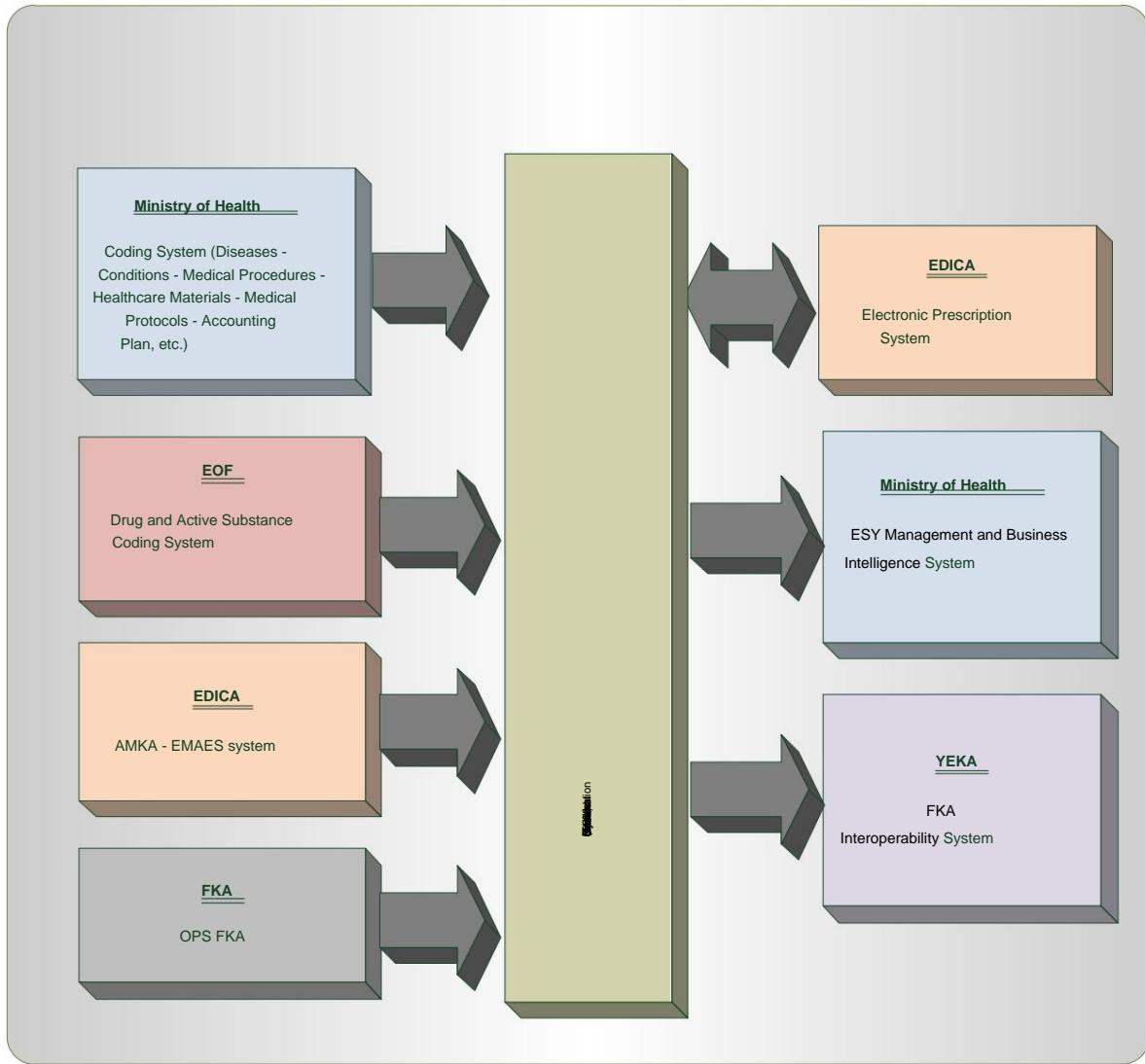
A3.2.1 General

The system:

- It will be of modern centralized three-tier architecture (web based three tier) and open technology.
For subsystems that will require local installation, alternative architectures will also be allowed.
- It will consist of Main and Mirrored (active synchronized at the Database level)
Disaster Recovery Site (DRS)¹.
- It will have a web portal for user access and support for their collaboration. Based on
Depending on the role assigned to them, each connected person will have the following capabilities:
 - o Use of portal applications (information, collaboration)
 - o Access to the applications of the Unified Health Unit Information System of the National Health System (registration, execution of operations, etc.)
- It will have advanced administrative information capabilities to support the reception decisions.
- It will incorporate modern standards (e.g. HL7 v3 / CDA, ICD-10, ICPC2) and interoperability techniques.
- It will be interconnected with systems of other entities for data exchange, indicatively as in the figure below:

¹ By mirrored DRS, it is meant that the DRS will be updated with changes to the database (and possibly to flat files included in the solution) on-line, in parallel with that of the main site (not necessarily in real time, such as with two-phase commit techniques). The integrity of the database must be preserved in any case.

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications



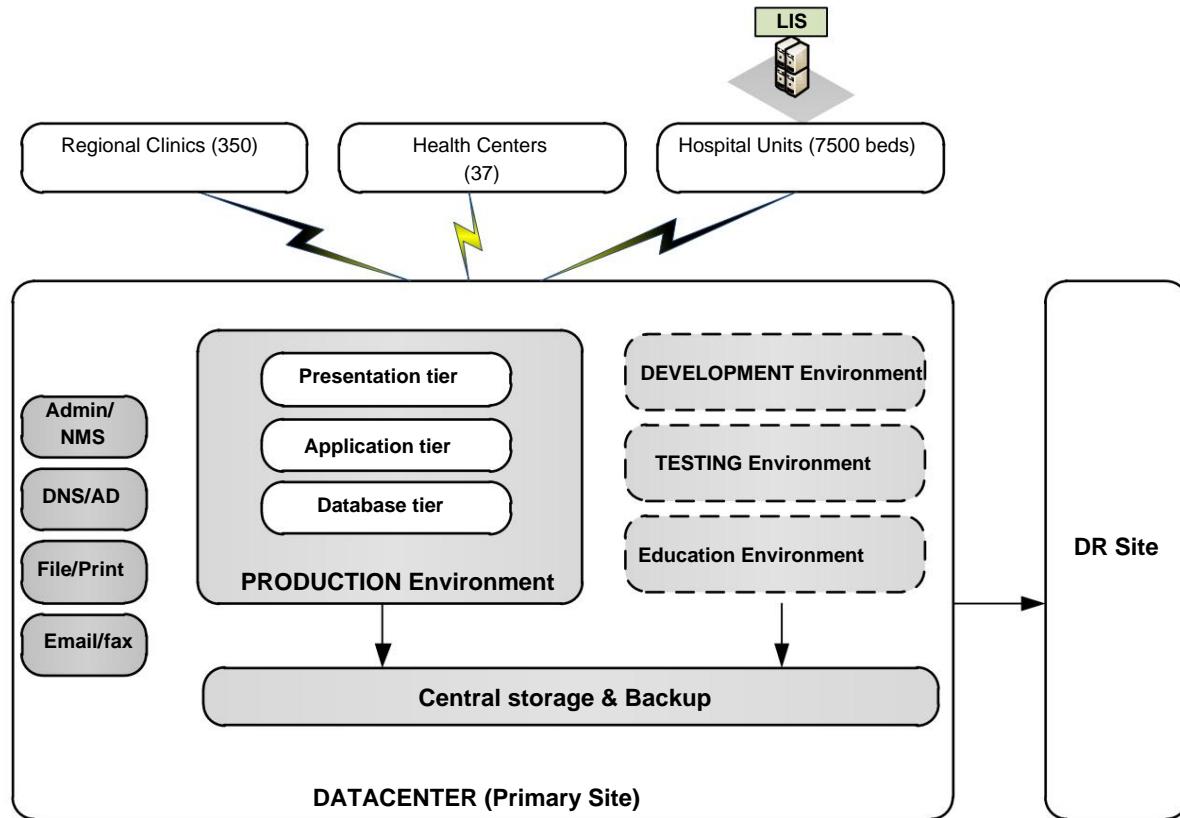
It is clarified that:

- All equipment at the central level is not part of the project Contractor and will be provided by the Contracting Authority
- Telecommunications interfaces will be provided by the Contracting Authority. The candidate Contractors should, based on the requirements of their solution, determine the appropriate network topology, assess the bandwidth needs both at a central level (at the Main and Disaster Recovery Sites) and per user and make the appropriate comments to the Contracting Authority in their offer.
- The configuration of the computer room is an obligation of the Contracting Authority.
- The Contractor will be responsible for installing the applications on the infrastructure provided by the Contracting Authority, configuring the infrastructure to ensure optimal efficient operation and putting the system into operation.
- It is clarified that the RDBMS, Application server and web architecture requirements do NOT apply to the applications (LIS/RIS or others) that will be installed on the 40 servers intended for local installation in the hospitals. The candidate Contractor is responsible for providing within the project any system software required for these applications and to ensure the exchange of the necessary data between the central and regional infrastructures.

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

- Finally, it is noted that it is the Contractor's obligation to offer the virtualization software as well as the required licenses for the server operating systems depending on the requirements of the solution.

The indicative physical architecture of the central facility (Main Site) is presented diagrammatically in the figure below:



The indicative physical architecture of the Disaster Recovery Site will be similar.

The infrastructure that will be provided by the Contracting Authority's DATACENTER (Primary site) is divided into two main groups:

- The infrastructures that will support the core applications of the NHS (PRODUCTION environment).
- The other supporting infrastructures of the Production environment, which include among others of other equipment for:
 - o Support for auxiliary environments (Test, Training, Pre-production, Development, etc.), if these are required.
 - o Support for central management functions (server & storage administration, Virtualization management, NMS etc.).
 - o The central data storage (SAN storage) and backup infrastructures.
 - o Support for security mechanisms (e.g. Antivirus Management) and network services (DNS services, active-directory services, etc.).
 - o Support for possible other needs/applications such as mail & fax services, file/print services etc.

The following sections analyze the characteristics of the above.

A3.2.2 Central Infrastructure

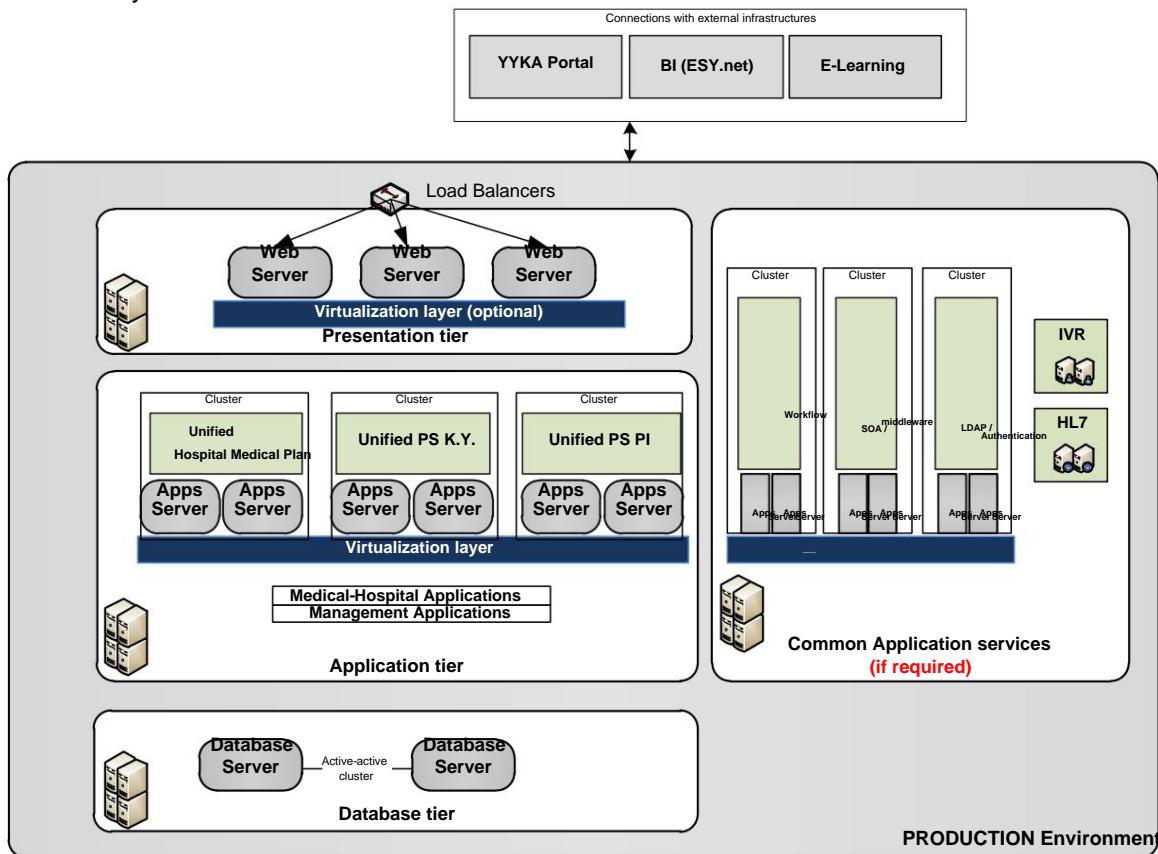
Core Application Production Environment Infrastructure

They are grouped into three functional zones/layers: Presentation (Web), Applications (Application) and Data (Database). It will provide the use of virtualization techniques especially at the middle tier

Tender Announcement for the Project

"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"**Part A: Project Scope and Specifications**

applications and optionally at the Presentation layer, while the use of such architectures is not foreseen for the Database layer.



More specifically, the minimum composition per level presented in the figure above includes the following:

- **Database tier:** two physical servers, 4-way (4 socket) x86/64bit technology, in a cluster configuration, with two Quad / six core CPUs each and at least 64GB RAM and operating in an active - active configuration.
- **Application tier:** the basic core of medical and nursing & management applications will be supported by at least one group of virtual application servers (cluster of at least two members from VMs in an active-active - load-balancing configuration) **for each category of M.Y.** (Hospital, Health Center, Regional Clinic), which adds up to at least six (6) virtual servers. The farm will have a total of 192GB – 288GB of main memory (32-48GB for each virtual server) so that it can cope with the expected load without any problems. The total number of cores for the entire farm will be at least 36 - 48, which will be distributed among the three groups of VMs depending on the demand of the applications they will host. In the event that a subsystem requires a different technology / operating system for its installation, it is acceptable to further divide the farm into smaller VMs.
in order to house this subsystem or application in an isolated environment.
- **Common Application services :** depending on the need for additional common support services, there will be a complementary layer installed to the application tier, which will provide additional common middleware level support services, such as:
 - o Document Management / Workflow
 - o SOA/BPEL middleware platform
 - o Authentication infrastructure (LDAP/SSO)

If the above services and/or any others are required by the offered solution, then the candidate Contractor must offer the relevant software within the framework of this project and the implementation of any of these services required by the solution.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

Contractor, will be based on a virtualization solution, with dual VM servers in a cluster configuration to increase the availability of each service. Each VM server will have 2-4 cores & 16-24GB RAM, depending on the expected load of the application it will host.

Finally, additional infrastructure will be provided to support **HL7** applications or corresponding middleware and/or other required applications (within or outside the virtualization platform), which will be covered by standalone servers (possibly in pair configurations for availability).

- **Presentation / Web tier:** the use of at least 3 servers will be provided, in an active-active / load-balancing configuration, with a total of 12-18 CPU cores & 48GB RAM (4-6 cores/16GB per server). These servers will be physical or virtual, and the routing of http requests will be done via external load-balancer appliances.

Infrastructures of auxiliary application environments

If, in cooperation between the Contractor and the CA, it is assessed as necessary to install auxiliary environments parallel to the Production environment, a suitable virtual environment can be created for them (Development, testing, training, etc.), using virtualization software similar to that of mid-level applications.

The sizing of this environment does not have special requirements, and therefore 1-2 servers will be provided, 2-way, with 2 CPUs 4-6 cores, and 128GB each, and an internal capacity of 2-3TB (SATA).

SAN storage & backup infrastructures

For the central storage of the N.D., a comprehensive SAN storage infrastructure will be provided, with a useful capacity of at least 75 / 100 TB depending on the required duration of Online historical data retention, and a corresponding backup infrastructure (2 x LTO-5 / FC) for the maintenance of backup copies.

Due to the operation of some applications on a 24-hour basis, the possibility of using online backup techniques of the Databases, and supporting local data mirroring techniques (snapshots / clones) from the disk subsystem, will be exploited.

Network equipment

The network equipment will consist of at least the following elements:

- two (2) routers in load balancing/fail over mode to distribute the data traffic load and ensure continuous operation in the event of hardware failure
- two (2) devices that assume the role of firewall and intrusion detection system (Firewall / Intrusion Detection System – IDS and Intrusion Prevention - IPS) in a fail-over configuration to ensure continuous operation in the event of hardware failure
- two (2) central switches with network level support (Layer 3 Central Switches) that will support all network connections of the system's local network

Other Primary Site support infrastructure

Installed infrastructure will be provided to support services such as:

- System / server / virtualization administration (1-2 servers)
- NMS (1 server)
- Network services (DNS, Active-Directory, etc.) (1-3 servers)
- Mail / fax services (1-2 servers)
- Antivirus services (1 server)

A3.2.3 Backup Infrastructure (Disaster Recovery Site – DRS)

The implementation of the Disaster Recovery Site is not part of the Contractor's work and will be carried out by the Contracting Authority, once the relevant decision is made. The architecture of the Disaster Recovery Site, once implemented, will be similar to that of the main site, with the following basic differences:

- No development/testing/training infrastructure equipment will be provided
- No redundancy will be provided in the basic structural elements of the system.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- The processing and storage capacity of the systems will be clearly smaller than those of the Main Site.

The design and sizing of the DR site in order to be realistic and economical will take into account parameters such as RTO & RPO, as well as BIA studies that will determine the recovery priorities of applications and services and the time and quality goals of the recovery. Furthermore, in the event that a disaster site infrastructure is implemented immediately, the procurement of a corresponding storage array for it, and a storage-based data replication mechanism between the disk subsystems will be considered.

In any case, the architecture described herein for both the Main and the Disaster Recovery Site is indicative and provides candidates with a minimum required capacity and availability. Each candidate Contractor should analyze in detail in its offer the architecture required by the system it offers and the detailed technical and operational characteristics thereof, since the proposed above architecture does not meet the requirements of the system proposed by it. In the event of a variation from the architecture described in this announcement, the Contractor will undertake the obligation to offer any additional required infrastructure.

A3.2.4 Other Equipment

In order for the Diagnostic and Imaging Laboratory System to be installed and operated, the candidate Contractor must include in its offer the required servers which will be installed locally in the hospitals to support their operation. Detailed technical specifications of the required equipment are listed in Part C –

Compliance Tables.

Additionally, the Contracting Authority will be responsible for covering the needs/requirements in equipment for all the MSs that will participate in the new system. In order to cover these needs, the Contractor will have to include in the System Deployment Study that will be prepared within the framework of the project the required equipment that will have to be installed in each MS, taking into account the existing infrastructure of each MS. After determining the infrastructure requirements by the Contractor, the Contracting Authority will proceed with the required supplies, upgrades or additions that will be required in order to support the smooth operation and connection with the central applications.

A3.2.5 System Functionality

The Unified Information System of the Ministry of Health will manage financial and medical data under a high security regime, dictated by their sensitive nature. The procedures / functions of the system are dictated by the institutional and regulatory framework. Furthermore, it will provide all the Administrative Information required to achieve its objectives.

The following are indicative services that the unified information system will be able to offer:

1. Development of Management and Information Services for Patient Movement in Hospitals

This function concerns the development of a central "Patient Management" application for all the hospitals that will be included in the project.

The basic functions - services and indicative capabilities that the system will support are:

Patient Movement

- Monitoring and management of the Movement of Internal and External Patients based on a unique patient identification code (AMKA) in all the project's hospitals
- Monitoring of hospital infrastructure usage indicators and the related costs of services provided
- Appointment management at the project's health units per Ministry of Health (afternoons and outside clinics)
- Informing the Citizen about the availability of health units of each Ministry of Health.
- Information of the Central Service of each Ministry of Education, the Ministry of Education and by extension ELSTAT

Tender Announcement for the Project

"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"

Part A: Project Scope and Specifications

- A unified system for ordering medical procedures and prescribing (electronic referral – order entry) which is expected to contribute to increasing hospital revenues from the detailed monitoring and billing of medicines, laboratory tests and other materials located outside the closed hospital

Employee register management with the following features:

- Parametric definition of organizational structure, specialties and jobs
- Integration of employees into more than one organizational unit and job position
- Identification of roles and responsibilities per organizational unit and job position

Inpatient and outpatient management with the following features:

- Patient registration with a unique identification code (AMKA) and the ability to maintain multiple codes, identity data, demographics, insurance funds. This will be preceded by the clearing of the Patient Registry of the Health Units and their integration into the new system. For patients who do not have AMKA, an alternative identification mechanism will be provided (use of Tax ID, Identity No., Passport No., Social Security Number) and periodic updating of AMKA.
- Personal & Family history (diseases based on ICD10)
- Incident management (individual and group)
- Referrals, medication and test orders as well as results
- Medical findings, Diagnoses based on ICD10
- Therapeutic treatment, medical procedures
- Monitoring indicators of use of hospital infrastructure and cost of services provided services
- Citizen information
- Issuance of statements for YY and ELSTAT

Especially for inpatients:

- Management of hospital units with parametric definition of departments, wards, positions and beds and integration of wards and/or beds into departments
- Patient billing management with parametric definition of hospital type, medical procedures, of health supplies, medicines, etc. and automatic charging based on rules
- Ticket issuance
- Patient charges to clinic or clinics (internal travel), treating physician or physicians doctors, ward and bed
- Patient charges (hospital and additional charges for tests and medications, surgeries and services in special units, etc.), invoicing and clearing of patient accounts
- Issuance of Discharge Certificate
- Waiting list management by department/clinic, doctor and reason for admission
- Management of patient requests (certificates, admission and hospitalization certificates, etc.)
- Issuance of birth and death certificates
- Issuance of fund statements
- Issuance of standardized reports for Management

Especially for outpatients:

- Parametric definition of operating program by specialty and type of practice and doctor and examination time period
- Appointment management by doctor's office and healthcare professional

The expected results are:

- Reorganization of patient management operational procedures gradually in all the project's hospitals based on a unified framework of procedures defined by the MH
- Gradual introduction of transparency in patient service operations – waiting lists, appointments for outpatient and evening clinics and biomedical equipment

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- Increase in hospital revenue from the detailed monitoring and billing of medications per patient and clinic, laboratory tests and other materials located outside the closed hospital
- Informing citizens about access options, appointments at outpatient clinics or import and service by category - type of services
- Collaboration between the services involved in the monitoring and management of the Movement of Internal and External Patients (Movement Office, Pharmacy, Laboratories, Nursing Service, Medical Service, Outpatient Clinics, Personnel Department) and the creation of an Electronic Health Record (EHR)
- Implementation of basic infrastructure to support continuity of care between primary, secondary and rehabilitation as well as for the organization and provision of citizen/patient-centered services (unified patient identification code, case management – unified management of repeat visits – admissions, examinations (referrals & results), treatments, medical findings, diagnoses, relating to a reason for the patient's visit or admission to the hospital)

2. Development of Central Administration and Primary Administration Administration and Information Services**Health Care of the project's MS**

It concerns the implementation of information systems and services for:

1. The administrative-financial support of the Central Service of the Ministry of Education.
2. Monitoring efficiency indicators of the region's health units and supporting policy-making with an emphasis on effective resource management and the prevention and promotion of population health.
3. Support for primary care service delivery processes (appointment booking, case management, referrals) and the management of the patient's "first generation" electronic health record
4. Management of primary health care resources (human resources, finances, fixed assets)

The development of infrastructure and services in Primary Health Care (PHC) concerns the comprehensive monitoring of PHC cases (individual or group) with a focus on the patient for the provision of care, prevention and social support services. It includes information support and interconnection of Health Centers. Information management will be in a unified format and information support capabilities will be provided to health professionals, administrative executives and service recipients - citizens. The capabilities that will be provided to health professionals relate to the assessment of an incident (individual or group), the planning of service provision by incident and the monitoring and evaluation of the effectiveness of the services provided. Administrative executives will be provided with capabilities to collect, process and analyze patient - service recipient data in relation to the use of resources (human and material) that will result from the overall process of providing health and social care services. Patients/clients will be provided with access to information that concerns them and facilitates their relationship with the primary care system.

Specifically, the indicative functionality includes:

- The administrative-financial management and information of the central service and PHC units, such as: Accounting - Financial Management, Warehouse Management, Personnel Management, Payroll
- Planning the procurement of decentralized units, automatic information on the procurement of decentralized units, informing interested parties about the conduct of a tender, monitoring contracts (deliveries, payments, etc.) for the central service of each Ministry of Education and for the decentralized units it supervises

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- The development of infrastructure and services to support the processes of providing primary health care services (appointment booking, case management and referrals) and the management of the patient's health file, such as:
 1. First contact / communication of the incident with the healthcare provider – registration in the PHC system and creating an incident, taking a history, etc.
 2. Assessment of the incident
 3. Incident care plan
 4. Provision of health care or support - rehabilitation services
 5. Evaluation of the course of the incident and redefinition of the program care
 6. Incident closure

3. Development of Information Services in Hospitals It

concerns the development, installation and operation of integrated ICT applications and services in all the project's MS. For the information support of the hospital units, a number of applications are required, which can be grouped into the following four categories:

- Administrative-financial and clinical applications (to support the operation of the Accounting Department, Traffic Office, Outpatient Clinics - Appointments, Emergency Department, Units, Material Management-Warehouse, Pharmacy, Procurement Office, Personnel Office, Payroll, Diet-Nutrition, Management - Maintenance - Surveillance of Biomedical Equipment, Management of Clinics, Surgery Rooms, etc.)
- Patient medical record (medical findings, diagnoses, etc.)
- Installation of laboratory information systems (non-imaging) (LIS) and imaging laboratories (RIS) in the project's medical centers

The above applications should communicate with each other and between hospitals via international standards such as HL7 or equivalent.

This action will focus on the development and operation of information management and provision services in the following administrative clinical and laboratory procedures of hospitals:

- Forms - Protocol Management
- General Accounting, Analytical Accounting - Double-entry Accounting
- Emergency Department Management (EDM), • Hospital Management - accounts
- Material-warehouse management, • Pharmacy management
- Personnel management - Payroll
- Diet management • Management - maintenance - surveillance of biomedical equipment,
- Management - maintenance of other fixed assets
- Waiting lists (clinics - surgeries)
- Bed management - waiting lists • Management of orders and laboratory results

The unified management of the above applications concerning Patient Movement and the use of resources for the provision of health services (medical procedures) will result in the implementation of **Electronic Health Records (EHRs)** for patients (using the AMKA as a mechanism for identifying and searching for the patient as well as the treating physician).

A3.2.6 System Users

For system sizing, candidates should take into account the following characteristics:

- The Unified Information System will be installed in Hospitals with a capacity of approximately 7,500 beds, in 37 Health Centers and in approximately 350 Regional Clinics

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- For each Hospital that will be included in the new system, it is estimated that the medical and nursing staff that will constitute the end users will be approximately 120 people per 500 beds. Correspondingly, the administrative staff will be approximately 90 people per 500 beds.
- For each Health Center, the medical and nursing staff that will constitute the end users is estimated at approximately 10 people and correspondingly the administrative staff will be approximately 2 people.
- For each Regional Clinic, the medical and nursing staff that will constitute the end users is estimated at approximately 2 people and correspondingly the administrative staff will be approximately 1 person.

At a central level, the system will be supported by approximately 10 systems and application administrators of the Contracting Authority.

Finally, it is estimated that approximately 50 people from the HH staff will have access to the system either directly to monitor its operation or indirectly to extract data from the HH's administrative information system.

A3.2.7 Performance

System performance is defined as the total time required by the system to process a specific user request. The monitoring of the operation and performance of the

system will be carried out through the System Management Software which will be provided by the Contractor. The performance measurement data should be included in the reports which will be submitted on a monthly basis by the Contractor to the Contracting Authority. The System Administrators should also have access to the Management Software in order to be able to control its operation themselves.

For measuring performance/response the following definitions apply:

- o Simple Query: A query that is executed on one or two (joined) tables in the database.
- o Complex Query: A query that is executed on three or more (joined) tables in the database.
- o Reports: A report ready to print.
- o Forms: Loading a form.
- o Active user: A user of the system who consistently uses common functions.
- o Response Time: The time interval between the moment the user initiates an operation (e.g. by clicking a system option (Button, link)) until the moment the page (web-form) appears updated with all the information requested by the user or in the event of an update, the relevant confirmation message appears. Since the response time is greatly affected by delays that may exist in the network, its control will be carried out exclusively on local networks (Local Area Networks – LAN).

Response Time (in a local network environment) should not exceed:

- o 6 seconds to execute 95% of simple queries.
- o 10 seconds to execute 90% of complex queries.
- o 30 seconds to execute 95% of reports.
- o 5 seconds to execute (load) 95% of forms.

The Contractor must take into account any peak times in the operation of the system.

A3.2.8 User Support

System users will report any problems/queries to the first level Help Desk via telephone, e-mail or fax. Problems that cannot be resolved by the Help Desk will be escalated to the appropriate second level Operations Support Team.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

The estimated distribution of help desk calls per 24 hours is calculated as:

- 50% between 8 a.m. and 3 p.m.
- 15% between 3 pm to 5 pm, •
- 30% between 5 pm to 11 pm, •
- approximately 5% between 11 pm to 8 am

During non-working days, the percentage of calls is expected to be approximately 30% of working days.

It is noted that this distribution is indicative and not guaranteed.

The Help Desk will be supported in its work by an appropriate information infrastructure (equipment and software, communication lines) that will be made available by the Contractor, at no additional cost. In particular, the software should be able to record all the data related to calls / problem reports such as: call time, problem recovery time, type and importance, description of the problem, resolution actions, person responsible for each action, etc. It should also be possible to obtain statistical data regarding the problems reported and the method and time of their resolution. It is noted that this information infrastructure will be used by all levels of the Help Desk, while the Contracting Authority will be able to obtain statistical data.

It is clarified that the said Hotline is a service that the Contractor must provide within the framework of this project and it is not required to deliver the relevant equipment and support software to the Contracting Authority.

A3.3 Technologies and Project implementation plan

A3.3.1 General

The implementation of the system should follow open standards and widely accepted technologies to ensure interoperability, ease of use and upgradeability. The following applies:

- The system should be web based, using a 3-tier architecture and modular.
- The system's web capabilities should be developed with technologies, standards and protocols such as Service Oriented Architecture (SOA), XML based communication protocols, SSL, etc., and in accordance with the standards of the Greek interoperability framework (e-gif).
- The offered system should support all popular browsers, such as:

Internet Explorer V7 and newer

Firefox V3.5 and newer

o Chrome V3.0 and newer

Safari

A3.3.2 Infrastructure Software

The requirement is to use the most modern Information & Communications Technologies to provide the best result to the organization at the lowest possible cost. The Contractor in its offer is required to describe the technological platform of its integrated solution and the way in which this technology is utilized in the case of the specific organization. This paragraph lists technologies that are considered as important directions and are listed indicatively:

- n-tier client server technology (web), where the front-end will necessarily provide a Graphical User Interface (GUI). Essentially, it is proposed to utilize the modern structural elements offered today (database servers, application servers, web servers) and the capabilities that these elements can offer (transaction processing, fail over and clustering) in the architecture of the Unified Information System.
- Use of a commercially available relational database management system (RDBMS) for ease of management of the expected large volume of data, the ability to

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

creation of user-friendly applications, increased system availability and the ability to control access to data using directory services compatible with the LDAP V3 protocol. The following should be ensured:

- o open application development environment,
- o open documented and published interface systems with third-party programs,
- o open communication protocols,
- o open environment in terms of data transfer and exchange with other systems.
- Use of commercially available application server software, web server software and portal software fully integrated with the offered relational database management system (RDBMS).

A3.3.3 Development / Customization Tools

The system should be developed / customized using modern tools and be customizable in basic variables that will be recorded in the Contractor's implementation study. The development, maintenance, customization and management tools of the applications that will be used must be fully compatible with the entire infrastructure software that will be offered by the Contractor (Web, application and database servers).

A complete set of tools will be made available to the Contracting Authority in order to be able to manage, maintain or modify the functionality of the applications at any time, as long as this does not conflict with the Contractor's contractual obligations.

A3.3.4 Printing Capabilities

The system's printing should offer the following capabilities:

To the administrator:

- Print preview
- Insert or remove fields (variables) that appear or not in the printout
- Use filters before printing • Ability to define the printer

To the user:

- Print preview
- Use filters before printing in the case of reports
- Ability to define the printer

A3.3.5 Report Generator

The system should have a report generator to allow authorized users to design their own ad hoc reports. The report generator should be user-friendly and not require SQL knowledge. Minimum specific features include:

- Graphical user interface
- Flexibility
- WYSIWIG print preview
- Ability to prioritize criteria up to at least 5 levels
- Creating partial and grand totals
- Ability to sort alphabetically, numerically, ascending, descending
- Formatting capability (bold, italics, etc.)
- Ability to export to various formats (ASCII, Excel, Word or rtf, etc.)
- Ability to produce graphics

A3.3.6 Data Import / Export

The system must have the ability to import/export data from others.

A3.3.7 Multilingualism

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

Data can be entered in either Greek or Latin characters, and must support at least the following:

- On the screens, Greek with the possibility of other languages (e.g. English)
- In messages (warning and error): Greek with the possibility of other languages (e.g. English)
- On line help: Greek
- References: Greek
- Portal: Multilingual in languages to be determined during Phase 1 of the project

A3.3.8 Data Security

Due to the highly sensitive personal data that will be processed by the system, it is required:

- Encryption of sensitive personal data during its transfer, but also locally (during off-line operation), and at the database level (on selected data, so that the system response is not affected).
- Possibility of future integration of Public Key Infrastructure (PKI) and electronic signature (e-signature) in applications without requiring changes or modifications to them
- Extensive auditing of administrator and user actions.

A3.4 Specifications of Functional Modules (Subsystems, Applications)**A3.4.1 General**

The information system to be developed will adopt the logic of Multi-tiered Architectures and Service-Oriented Architectures. It will also be open architecture, scalable and will allow for the smooth and economical upgrade or future replacement of its subsystems. Finally, the system to be implemented must be interoperable, maintainable and secure.

The project will be implemented with a centralized architecture, with the aim of the operation of the applications of the integrated health information system of the Health Units that will be included in the project being hosted in the Data Center (DATACENTER), with the aim of interconnecting all the Health Units (HU) both with their supervising Ministries of Health and with the central service of the Health Service. The DTC will act as a hub - coordinator for the secure access, exchange and integration of information between the different health care units. For the technical integration of all these services, the DTC will house the central servers with all the data of the HU, including the non-medical data of the health units.

This networking and integrated services model was chosen due to the reduced requirements it requires both in human resources and in total implementation time. Also, this model does not require high investments in equipment for end users, while the applications will be able to operate even on thin clients via web-based interfaces, java enabled, or other equivalents. This architecture will be completed with the use of local servers in each hospital for the management and storage of local medical data (LIS & RIS/PACS application). In this way, the operational needs of the central service of the Ministry of Health and the project's MS are fully covered, while the system will also constitute the homogenized information infrastructure platform to which additional MS can be integrated in the future.

The information system services will be based on separate subsystems, which are at least the following and integrate all the necessary applications to carry out the productive operation of the health units:

UNIFIED HOSPITAL INFORMATION SYSTEM FUNCTIONS (modules)	
Financial Services Information System	
1. ACCOUNTING	General Accounting, Analytical Accounting, Budgeting, Cash Management
2. MATERIALS MANAGEMENT – WAREHOUSES	Medicines, Materials, Healthcare Materials, Food,

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

Medicines, Materials, Healthcare Materials, Food, Reagents, Fixed Assets, Biomedical Equipment	Reagents, Fixed Assets, Biomedical Equipment, Meal Management
3. PROCUREMENT – CONTRACTS	ACCOUNTING, MANAGEMENT, PHARMACY
Patient Management Information System (PMIS)	
1. TRAFFIC OFFICE	Patient Registry, Waiting Lists, Admissions, Transfers, Discharges (ADT)
2. PATIENT ACCOUNTING	Fund - Collections, Insurance Fund Invoicing
Personnel Information System (PIS)	
1. PERSONNEL OFFICE	Organizational Structure Management, personnel data, recruitment, Personnel Evaluation, Attendance / Leave, etc.
2. PAYMENT	Calculation of regular payroll, overtime bonuses, etc.
Diagnostic and Imaging Laboratory Information System (LIS, RIS) (ERG)	
1.DIAGNOSTIC AND IMAGING LABORATORIES	Daily traffic management, quality control – management information – statistics, etc.
Surgery/Clinic Information System (SSIS)	
1.SURGERIES / CLINICS	Surgeries planning, reporting, ordering examinations, ordering supplies, individual general prescriptions, administering medications, administering consumables or not, recording diagnosis, operating protocol
Outpatient Information System (OIS)	
1. TEI-Department of Outpatient Clinics 2. TEI-Department of Emergency Cases) Electronic Prescription Information System for Doctors (SIS)	Appointment scheduling, patient triage, nursing assessment, waiting lists Individual and group prescriptions
Patient Medical Record Management Information System (PMI) Appointment Management	Movement data, orders for tests, medications, etc., nursing record
	Appointment booking – confirmation – cancellation, statistics
Management Information System (MIS)	Reports and statistics for all of the above
Information System Connection to the YY web portal (POR)	
Information System Connection with ESY.net (ESN)	

UNIFIED HEALTH CENTER INFORMATION SYSTEM
Reception Information System / Patient Accounting (PAS)
TEI Information System (Department of Outpatient Clinics) – Emergency Department (ED) (ED)
Diagnostic and Imaging Laboratory Information System (LIS, RIS) (ERG)
Physician Electronic Prescription Information System (PES)

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****UNIFIED INFORMATION SYSTEM OF DISTRICT CLINICS**

Reception Information System (RIS)

Physician Electronic Prescription Information System (PES)

The project will ensure the following essential quality characteristics:

- The subsystems will be fully integrated to the maximum extent that will allow for the automation of information and workflow and the unique recording of each piece of information in the system.
- The software will have a patient-centric logic: All information related to each patient will be manageable and editable in a single framework (as opposed to cases where there are scattered islands of information in various systems for the same Patient within the Health Unit, with negative consequences for the ability to utilize the information), and will be structured per incident.
- The system will have special citizen service applications (appointment booking, availability of Health Units, electronic issuance of certificates and information, laboratory test results, health and welfare information, information from health providers, etc.) through free access from the electronic portal (registration of a request and sending a response electronically and in accordance with the legislation).

Any additional application/function offered must have the features of the applications of this project and be able to interface with them.

It is noted that the candidate Contractor's solution may concern either software development or the offer of ready-made software.

A3.4.2 Functional Module "Management of Basic and Parametric Files"

This section presents the main basic and parametric files that the system will manage. It is noted that some of the data described are already or may be available in the future through electronic services from third-party systems. However, since the implementation of the system will not depend on the progress of other projects, the Contractor must, within the framework of the project:

- Implement both access techniques (import/on-site management of files for immediate operation, and electronic services for medium-term activation)
- Configure the system appropriately to enable the combined entry of data, as the case may be

Patient information

The patient data will be based on the available data of the AMKA-EMAES. This file is constantly updated regarding the awarding of AMKA to new insured persons, however the other data is not always accurate, especially those concerning the insured person's Insurance Institution.

Accordingly, the relevant files of several FKAs are not updated with the AMKA of the insured and/or do not have the indirectly insured (protected members) recorded.

The Contractor will develop electronic services with the FKA for the control of insurance capacity. In addition, the Contractor will be obliged to implement interoperability with the planned national insurance registry system from which it will be possible to obtain fully updated data on the citizen, the Insurance Institution that covers him and his Insurance Capacity.

Finally, it is obvious that it is the Contractor's responsibility to plan the migration of existing MS data relating to patient information for the initial provision of the system.

Disease data – diagnoses and symptoms

Coding will be followed according to ICPC-2 and ICD-10. The relevant files will be provided to the Contractor.

Tender Announcement for the Project

"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"

Part A: Project Scope and Specifications

The Contractor must also implement the process of automatically updating these data from the YY's coding system.

Medical procedure data

The Contractor must implement the process of automatically updating these data from the YY's coding system.

In any case, the Contractor should be able to propose a complete alternative or supplementary coding plan.

Sanitary material details

There should be a uniform coding of all types of sanitary materials. The relevant records will be given to the Contractor.

The Contractor must also implement the process of automatically updating these data from the YY's coding system.

In any case, the Contractor should be able to propose a complete alternative or supplementary coding plan.

Drug Information

The EOF has the data on licensed medicines (according to EOF coding). The relevant data will be provided to the Contractor and will be updated regularly. It is considered advisable to cooperate with the EOF and the pharmaceutical companies so that there is information on the medicines in circulation (a subset of the licensed ones) and other data related to them.

Pharmaceutical companies also inform the EOF about the correspondence between the drug and the packaging (serial bar code).

The Contractor will develop the appropriate electronic interface services with the EOF systems to update the system with the medicines and the serial barcode.

Laboratory test data

For laboratory tests, a relevant coding file will be made available to the Contractor, which he must check for completeness, undertaking either to complete it appropriately or to propose another comprehensive coding suitable for the purposes of the project. It is clarified that the codings should cover both the analytical tests (e.g. white blood cells) and their groups (e.g. complete blood count).

Doctors

These are the Doctors with any type of working relationship with the Medical Centers that will be included in the project. The data that will be kept for the Doctors will mainly concern their identification data (e.g. Social Security Number, Social Security Number, Name, Telephone), specialty data, data and placement history (Medical Center, Clinic, Sector served, secondments, etc.).

Laboratories

The Laboratories are responsible for the execution of referrals for diagnostic tests. The system will maintain data for the Laboratories, as well as for the employees who will have the right to access the system to update the execution of referrals and the results of the tests.

Additionally, the system will maintain a complete record of medical equipment in laboratories with all associated data.

Health Units

It concerns the hospitals that will have access to the system. For each hospital, there will be complete and uniform coding for the basic elements such as clinics, departments, laboratories, beds, outpatient and afternoon clinics, etc.

Accounting Plan

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

There will be a unified coding of the Accounting Plan at the level of General Accounting, Analytical Accounting and Class Accounts that will be used by the MS that will be included in the project. The relevant files will be given to the Contractor.

User Management

For User Management, the system should provide:

- a single graphical management environment and support a central management policy using the following structural elements: Users, User Roles, Permissions, Applications, Services, Exceptions, Risks.
- support for the ability to temporarily assign approval rights to another user (with an expiration date), the ability to accept or deny access requests to applications, automated change of access rights, access policies per user role and connected system, etc.
- will have the ability to record all system events and produce reports for at least the following:
 - Access Policies per user role and connected system.
 - Status of approval requests and approval workflows.
 - User Status by system and user role.
 - Access Rights per user, role, organization, and connected system.
 - Expiration and reset of passwords.

It is noted that the system should support the future integration of public key infrastructure (PKI) and digital signature without significant modifications to its architecture.

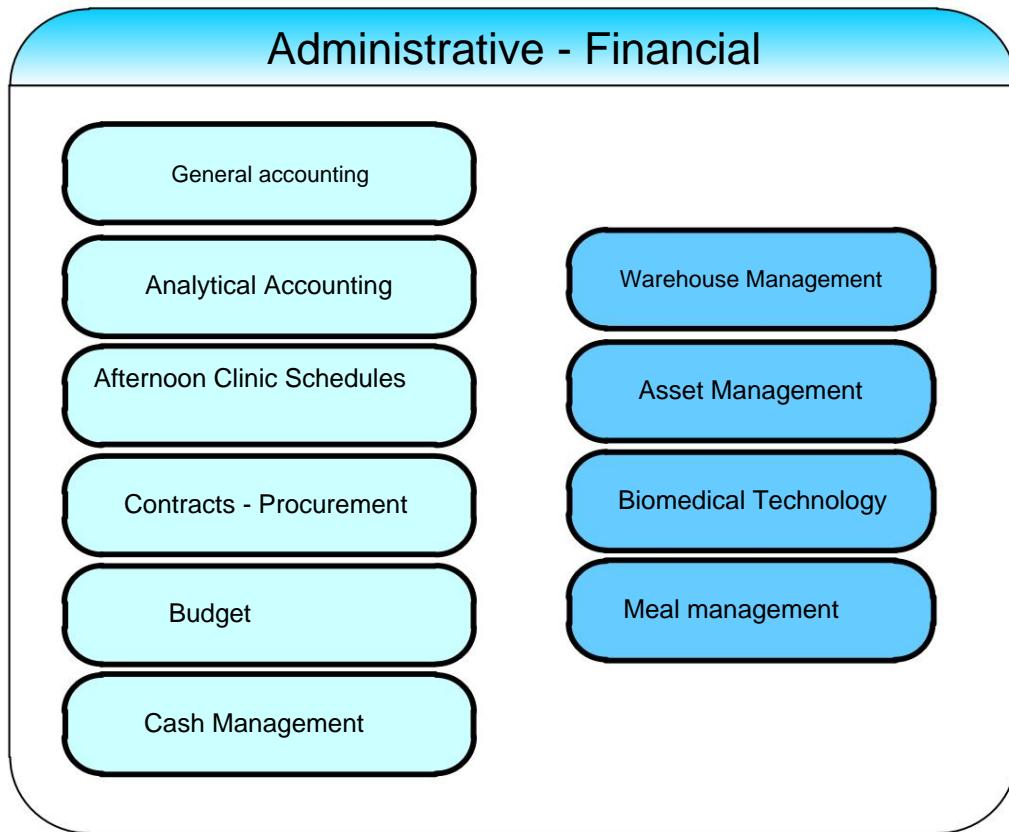
A3.4.3 Functional Unit "Financial Services"

The "Financial Services" Functional Unit (Finance Subsystem) concerns the union of many functional entities that will cover the following fields:

- General Accounting
- Analytical Accounting
- Afternoon clinic schedules
- Procurement Contracts
- Budget
- Cash Management
- Warehouse management
- Asset Management
- Biomedical Technology
- Meal management

Schematically, the Economic Subsystem is presented in the following figure:

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications



Below is a more detailed presentation of the scope of functionality of each functional entity.

A.3.4.3.1 General accounting

General Accounting is the basis of the entire subsystem and must communicate and be informed by all applications in the system for the timely collection of financial information and results from all health units.

Main Features of the Application

Main features of General Accounting are the following:

- Communication with all other applications and updating with each entry
- All applications communicate and update accounting in real time. Thus, the information is valid and timely and concerns all functions of the health unit.
- Compliance with Tax Legislation, given that Presidential Decree 146/2003 was harmonized with it
- Coverage of Public Accounting requirements.

The application will be fully compliant with the current CBA and will produce all the necessary statements, books and documents.

Functions

More specifically, the General Accounting Functions cover:

Supplier Document Management

Each supplier invoice is registered and linked to the corresponding accounting item. It is also possible to calculate deductions in favor of the State, Third Parties, etc.

Money Order Management

Integrated Management of Money Orders and their monitoring at all stages (issuance, sending to counterpart, approval) with corresponding updates to accounting items as well as the budget.

Tender Announcement for the Project

"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"

Part A: Project Scope and Specifications

Cheque Issuance.

Integrated system for issuing cheques to Suppliers based on approved money orders with automatic updating of the corresponding accounting items, the cash register and the budget – debriefing phase.

Year-End Closing Procedures

The following will be supported:

- Display and print balance sheet and income statement accounts,
- Transfer of General Ledger account balances to the new financial use

Accounting Records

The possibility of offsetting entries, reversals, etc. will be provided. The entries are kept for as long as necessary. Report generation A flexible information

system will be provided,

which enables analysis at a consolidated and analytical level and facilitates audits. In particular, all printouts will be available in consolidated and/or analytical format, with the ability to drill down from consolidated accounts to analytical accounts up to the initial entry level, with multiple selection criteria. Comparative budget data will be provided against the report as well as current year data against the previous year.

Controls

All the functionality of checks and verifications will be provided during registration to avoid entering incorrect data. For example, checks will be provided such as checking the correctness of codes (account, customer, supplier, etc.), checking the VAT number as well as a number of other checks.

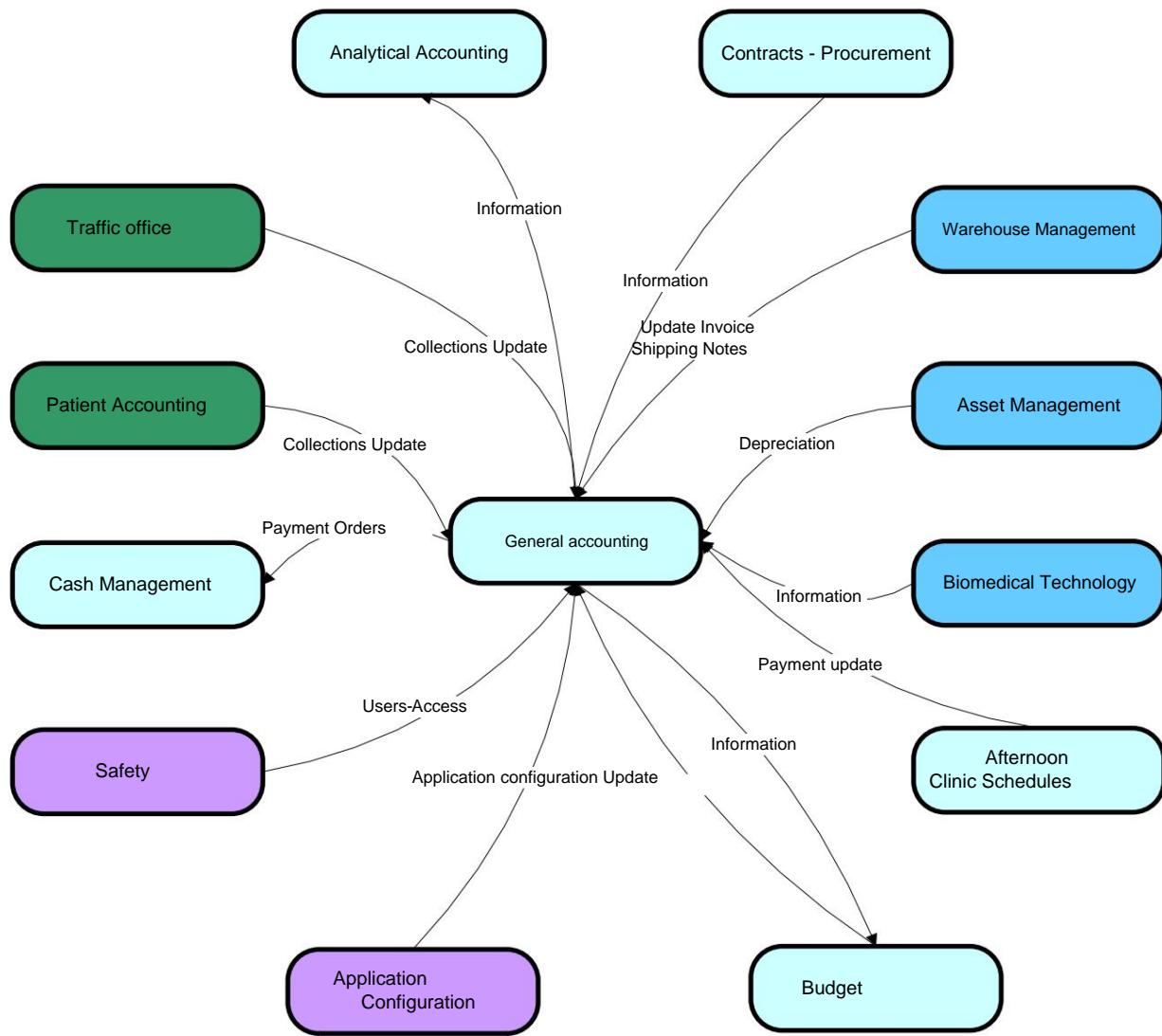
Bank Account Management

It concerns the bank account management function and the ability to receive immediate information regarding bank balances and banking-financial expenses.

Interconnection – communication

The General Accounting application as shown in the figure communicates with the following applications:

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications



A.3.4.3.2 Analytical Accounting

The Analytical Accounting application will have full integration with the rest of the applications. Subsystem (such as General Accounting, Cash Management, Fixed Assets, Warehouses, etc.).

Main Features of the Application

All provisions provided for by the CBA regarding the accounting circuit of group 9 of the CBA will be covered. In addition:

- Connectivity and traceability from General to Analytical will be ensured Accounting.
- Administrative Information will be provided regarding the cost of the services offered, the cost structure and the overall efficiency of the health units. • The updating of the Analytical Accounting accounts will result from the primary entries, the results of the valuation of the materials or the allocations of the Cost Centers and other Cost Objects (interoperability with the General Accounting, Warehouse Management applications).

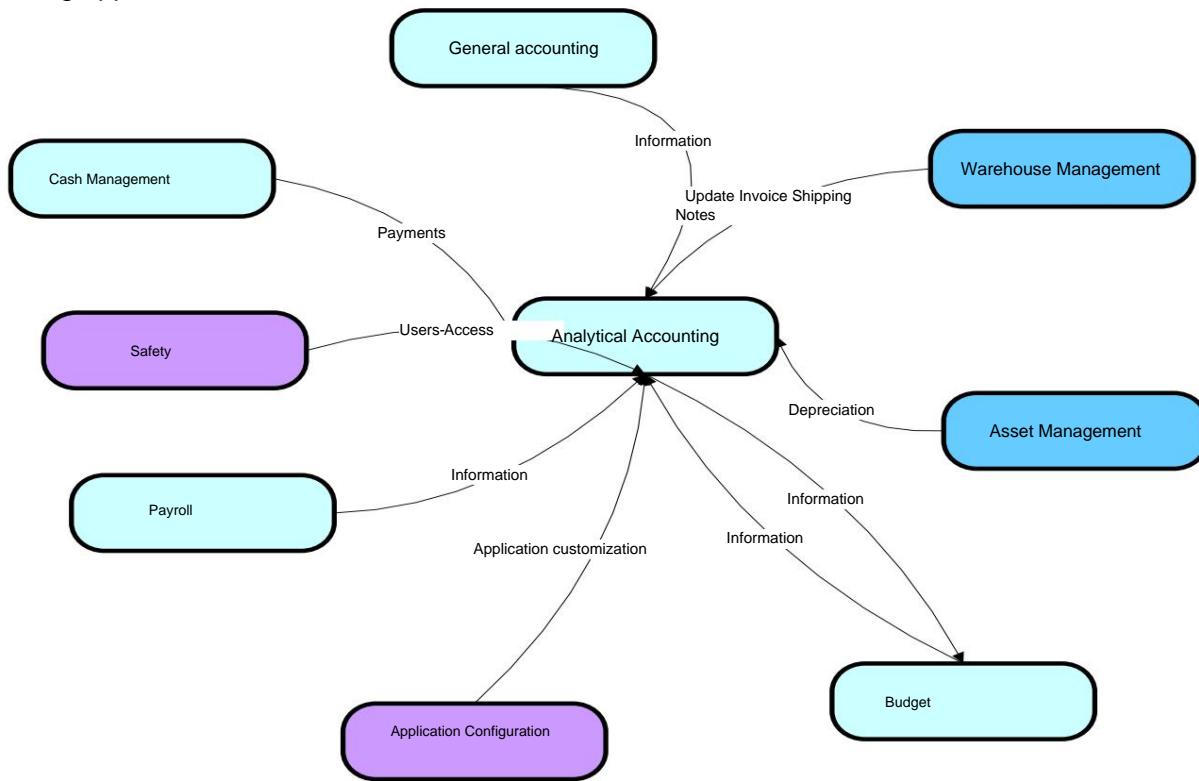
- The updating of the Analytical Accounting accounts, through the above systems, will be done automatically and simultaneously, but there will also be the possibility of manually updating its accounts. • Tools will be provided to monitor the flow of Analytical Accounting update allocations Accounting (90,91, 92, 93).

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

- The work of updating the accounts of the Analytical Accounting will be fully separated from General Accounting.
- A comprehensive range of printouts will be provided such as: Analytical Accounting Journals and Balance Sheets, Account Analysis Printout, expense allocation sheets, allocation amount closing statements and others. The information system will provide all the data required to compare and reconcile the Analytical Accounting results.
- Coverage of Public Accounting requirements.

Interconnection -

communication The Analytical Accounting application as shown in the figure will communicate with the following applications:

**A.3.4.3.3 Afternoon Clinic Schedules**

This application has as its main objective the distribution and monitoring of doctors' fees in the afternoon clinics. It communicates with the outpatient visits application as well as with General Accounting.

Functions**Calculation of fees**

This process will accurately and automatically calculate the amount that will be appropriate and should be attributed to each of the medical personnel who have worked in the afternoon clinics. Reports

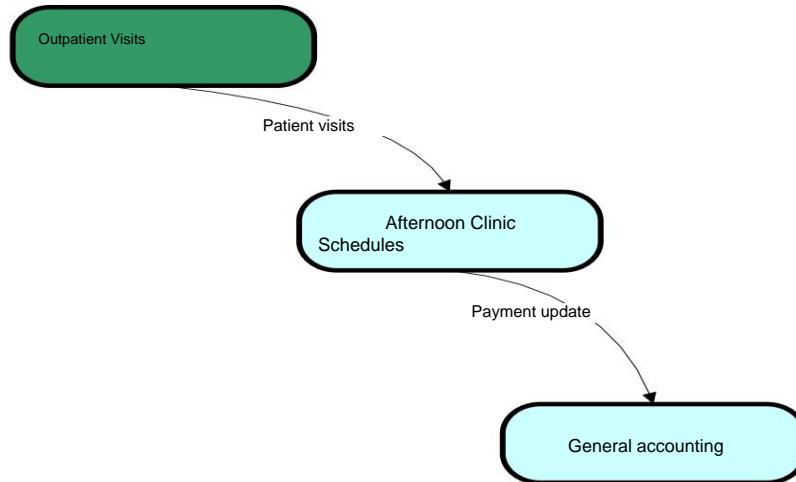
This section provides an information system that includes all the necessary printouts needed, such as:

- Aggregate fees for clinicians
- Fees from laboratory tests
- Fees from radiological examinations
- Fees from surgeries
- Revenue distribution per clinic
- Distribution of revenue by exam category

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

Interconnection -

communication The application of the Afternoon Clinics Schedules as shown in the figure communicates with the following applications:

**A.3.4.3.4 Contracts - Procurement**

With the Contracts - Procurement system, it is possible to computerize the life cycle of a tender through which the organization procures various items or even services, on an annual basis, as well as to reduce the manual and mental work performed by users during the tender life cycle and mainly during the evaluation and comparison phases of the submitted offers. The procedures that will be supported by the Contracts - Procurement application are:

- Budget management
- The announcement of the competition
- Technical evaluation of offers
- Submission of bids
- The combined financial-technical evaluation and scoring of the offers
- The preparation of lists of submitted offers per requested item and their classification of offers depending on the type of competition
- The award of the bids
- The final recording of the Contracts

It will be possible to monitor:

- Draft competitions
- Direct award competitions
- Major competitions

for the supply of consumables, fixed assets, provision of services or work.

Functions

The Procurement - Contracts system will cover all the functions required to be carried out in order to fulfill the Organization's need to procure goods or services from third parties. The main procedures that fulfill this need are:

Budget

This main process includes the actions of the initial budget submission for the items or services being procured, the approval of the submitted budget, and its rejection.

Competitions

This main process includes the actions of:

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

- Initial registration of a declaration with the requested items or with the requested services "with declaration" or "without" declaration, as well as the registration of any technical specifications
- Registration of participation guarantee letters submitted by suppliers
- Submission and evaluation of technical specifications, based on the criteria that have been defined, when the competition is "with announcement"
- Submission and evaluation of financial offers, whether the competition is "by announcement" either "without declaration"
- Awarding of the bids that have been approved or even rejecting them

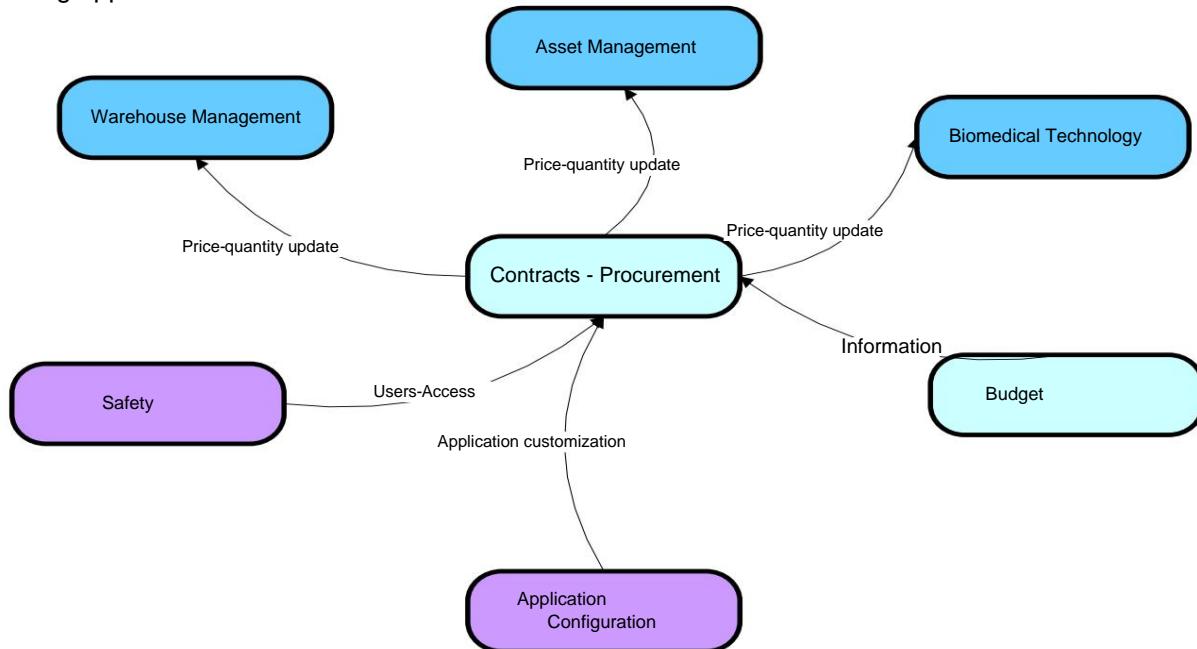
Contracts

This main process includes the actions of:

- Signing contracts for the awarded items or services of a supplier.
- Registration and monitoring of letters of guarantee for the proper execution of the provisions from the contract.

Interconnection –

communication The Contracts - Procurement application as shown in the figure communicates with the following applications:

**A.3.4.3.5 Budget** The

application will cover the preparation and management of the budget, the control of available funds in relation to the balance sheet and the active availability of funds against the planned expenditures.

Basic functions that will be provided are:

- budget management of income & expenditure per area of responsibility of the Organization (budget entities),
- monitoring future capital movements in relation to the available budget, and
- preventing budget overruns in the short term.

The budget will be monitored in relation to the current account.

In addition, the necessary information will be provided regarding the progress of the approved budget and the management of existing funds.

Tender Announcement for the Project

"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"

Part A: Project Scope and Specifications

Functions

In detail, the functions of the application are:

Budget Structure

The ability to capture the organizational structure of the Health Unit will be provided so that the budgets reflect the actual organizational structure of the organization, as follows:

- Budget Entities. It is an area of responsibility that is responsible for the management of financial resources. In each such entity, the budget manager is assigned. The entities are hierarchically related to each other.
- Budget Categories. Budget categories (accounts) are the groups that the organization has selected to budget for (e.g. purchases of materials, medicines, medical equipment, etc.).

Budget categories can be linked to accounts in the Chart of Accounts and are hierarchically related to each other.

Budget Phases

The following phases of the Budget will be supported:

Training

- Finalization
- Approval
- Execution
- Commitment
- Consumption
- Disbursement (accounting)

Budgeting Methods

Various budgeting methods will be supported, such as:

- Based on historical data
- Zero-based

Budgeting Tools

A comprehensive budgeting tool environment will be provided, where the user can perform their work with ease. For example, there will be the ability to copy part or all of the budget per entity based on percentages from a previous use. Budget Features

The budget will have a time dimension of one year and may combine data from previous years.

There will be the possibility of executing multiple budgets per account and center (cost centers, etc.), as well as combinations of the organization's activities. Budget Revisions

The budget is subject to review until its final approval, but also during its execution and monitoring. An integrated budget revision

management environment will be provided, where the user can maintain and compare different versions of the budget.

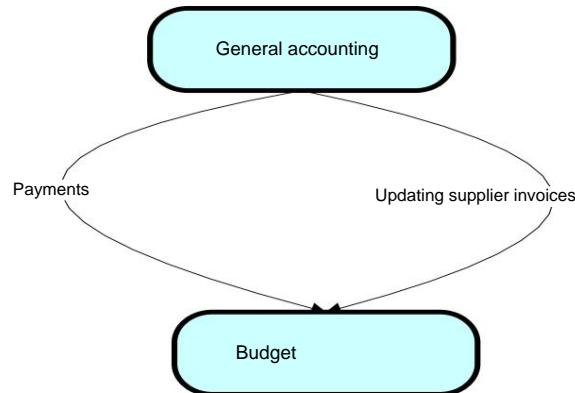
Budget Execution

When entering capital commitment transactions (such as material purchases) or capital consumption transactions (such as supplier invoices), the budget amount per entity and budget account will be checked and the appropriate transactions will be executed. In particular, the budget will be updated with the costs incurred and the available funds will be reduced/increased depending on the commitments resulting from the upcoming expenses.

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

Interconnection -

communication The Budget application as shown in the figure communicates with the following applications:

**A.3.4.3.6 Cash Management**

The Cash Management application covers the management of the Health Unit's transactional relationships with suppliers of goods (health materials, pharmaceuticals, medical equipment, etc.) and services.

Main Features of the Application

The application records and manages accounting and financial data for all suppliers and:

- It is an integral part of purchasing

management. Purchase invoices charge the suppliers in real time.

- Provides the necessary information to optimize liquidity planning, giving an overview of future obligations (maturity of balances, payment obligations based on invoices, etc.).
- Provides tools for monitoring open balances such as account analysis, warning prints, overdue payments and more.
- All entries are transferred in real time to General Accounting where different accounts are updated depending on the type of transaction (e.g. advances, checks, guarantees).

Functions

The main functions of the application are:

General Ledger Reconciliation Accounts

Transactions with suppliers are automatically reflected in the General Ledger. Depending on the transaction, the Reconciliation Account or other alternative accounts are activated (as in the case of supplier letters of guarantee, etc.).

Thus, in a single supplier record there are all of his transactions, which may be reflected in different accounts of the General Ledger. Checking and Entering Invoices

The registration and control of Supplier Invoices is done in collaboration with Procurement. Invoice Control has the following features:

- There is a complete connection of supplier invoices with orders (Purchase Orders). Invoices are entered based on one or more Purchase Orders or Receipts. Conversely, a receipt can be related to one or more supplier invoices.
- When entering invoices, the invoice is compared with the corresponding Receipts and Purchase Orders in terms of the invoicing quantity, unit price, invoicing time, etc. If there is a difference that exceeds an allowable limit, the invoice is blocked for payment and its accounting is not allowed.

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

- Once the reason for blocking the invoice has disappeared, there is the possibility of automatically releasing the invoice.
- The invoice can also be reserved by the user.
- Invoice Release is permitted by authorized users only.

Additional features:

- Supplier Invoices charge either the warehouse or different departments of the organization (one or more Cost Centers etc.).
- Procurement costs (transportation or other costs) may be allocated upon entry to the procurement items or may be charged to one or more Cost Centers (Department or Organization) and allocated at the end of the period.
- There is the possibility of directly calculating the deductible as well as the withheld amount tax.

Supplier Payments

The supplier's payment method will be by check (full management of checks from all banks, as well as issuance of a check register).

In addition, full functionality for issuing payment orders should be supported.

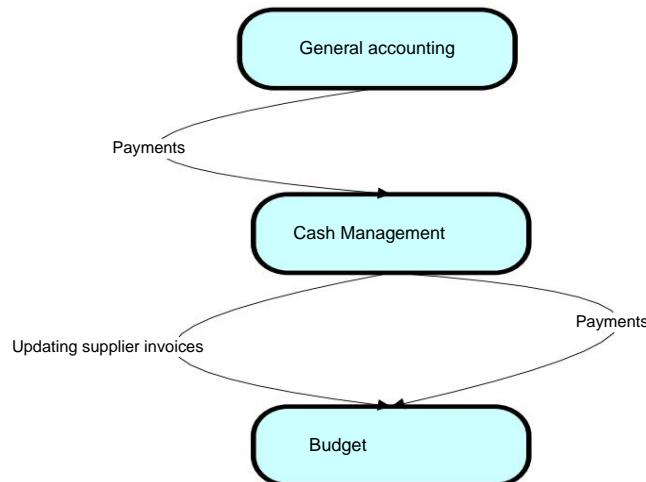
Printouts

All required printouts will be provided, such as:

- Supplier balance •
- Supplier card (possibility of displaying a common supplier card for all companies, due to the fact that the customer master file is one for all companies • Lists of supplier master files

Interconnection -

communication The Cash Management application as shown in the figure communicates with the following applications:



A.3.4.3.7 Warehouse Management

The main objective of implementing warehouse management is the timely planning of the supply of the Health Unit with materials and its effective service while minimizing the tied-up capital.

This application, depending on the customization it receives, will be able to manage and service all types of warehouse management such as general materials, non-sterile medical materials, technical materials, food, fixed assets, sterile medical materials and even medicines.

Main Features of the Application

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

The Warehouse Management application is used to monitor and control the materials and warehouses of the Health Unit. It visualizes and monitors all Warehouses, Storage Areas and Storage locations.

Warehouses are immediately informed of receipts of supplies, movements between warehouses and consumption, while an updated balance per item and warehouse is maintained at all times.

Functions

The main functions of the application are:

Warehouse Organization

There is the ability to maintain and display multiple warehouses and distinct storage spaces.

Species Archive

The Item Archive is common to all warehouses and departments, thus offering efficient inventory management and comprehensive information at the code level.

The file records all storable items, which are differentiated according to the Type of Material, such as Medicines, Spare Parts, Reagents, Consumables, etc.

Some of the data in the Species Archive are:

- Basic material information (Code, Brief & Detailed Material Description)
- Units of Measurement
- Materials can be tracked with more than one unit of measure. For this reason, each material has a Basic Unit of Measure based on which relationships with alternative units of measure are maintained (such as the unit of supply, the unit of export from the warehouse, etc.). • Material Groups:
 - o Grouping based on the nature of the material
 - o Species Hierarchy (level grouping)
 - o Material Categories & Characteristics
 - o Creation of a system of categories and subcategories with characteristics and values that will provide an effective mechanism for finding codes and prevent double-entry of items
- Reorder Level & Safety Stock. For each material and per facility or storage area, parameters are registered that control automatic reordering and inventory management, such as the reorder level and safety stock.

Change Management

The ability to access the materials file and change its details will only be provided to authorized users.

Batch Management

The batch is characterized by its expiration date, while there is the possibility of creating user-defined characteristics, which are updated upon creation and are intended to record quality and other characteristics.

The management of batches both during Reception and during Shipping is governed by rules:

- When receiving a batch in the warehouse, the date must be entered expiration date (or the batch manufacturing date and its validity period). • When exporting from the warehouse, there is the possibility of automatic selection

Digital Codes (BARCODES)

There will be the possibility of managing items by reading Barcodes on medicines.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****Warehouse Movements**

All imports, exports and movements are recorded in the warehouse with codes (movement reasons). Each warehouse movement is accompanied by a reverse / cancelling movement, which is executed in case of cancellation and which has the opposite effect.

- **Imports**

Warehouse imports mainly include receipt from the market. The receipt is based on an existing purchase order. The ability to easily find open purchase orders, based on criteria, will be provided. Upon receipt, the Warehouse and Historical Procurement Data are automatically updated.

Other entries in the warehouse may be: Free Sample Receipt, Return, etc.

- **Exports**

Exports from the warehouse are all material consumption, returns to suppliers, etc.

- **Internal movements**

Internal stock movements from the central warehouse to the departments as well as between departments or health units will be supported.

- **Other Movements**

In addition to the above movements, other movements will also be supported, such as destruction, inventory differences, inventory adjustments, etc.

Physical Inventory – Warehouse Adjustments

Physical Counting of species (Physical Census) can be done either periodically during the year or at the end of it. The process includes:

- Selection of warehouses in which a physical inventory is to be taken
- Creation of auxiliary sheets for recording warehouse materials
- Locking the warehouses to be counted to avoid movement during the counting process inventory
- Registration of the counting results (the system informs about any differences between the actual and the accounting balance)
- Ability to re-count for any items the user chooses
- Automatic entry of corrective actions in case of acceptance of differences by authorized users

Other Features

- **Materials Valuation**

The valuation of materials will be supported at least using the last purchase price method. There will be the possibility of directly displaying the results of the valuation by item code and item category.

- **Warehouse Book (Detailed Item Tab) – Warehouse Balance**

All printouts required by the CPS (Warehouse Book, journals, balance sheets, detailed ledgers and detailed balance sheets) will be issued by the system.

The system will issue a Detailed Item Record in which all material movements appear, analytically classified in columns with quantity and value. The Warehouse Book is issued per Warehouse, Material and Material Group (according to the grouping of the General Accounting e.g. Consumables, Spare Parts etc.).

- **Reports – Statements**

All required reports and statements will be available, such as:

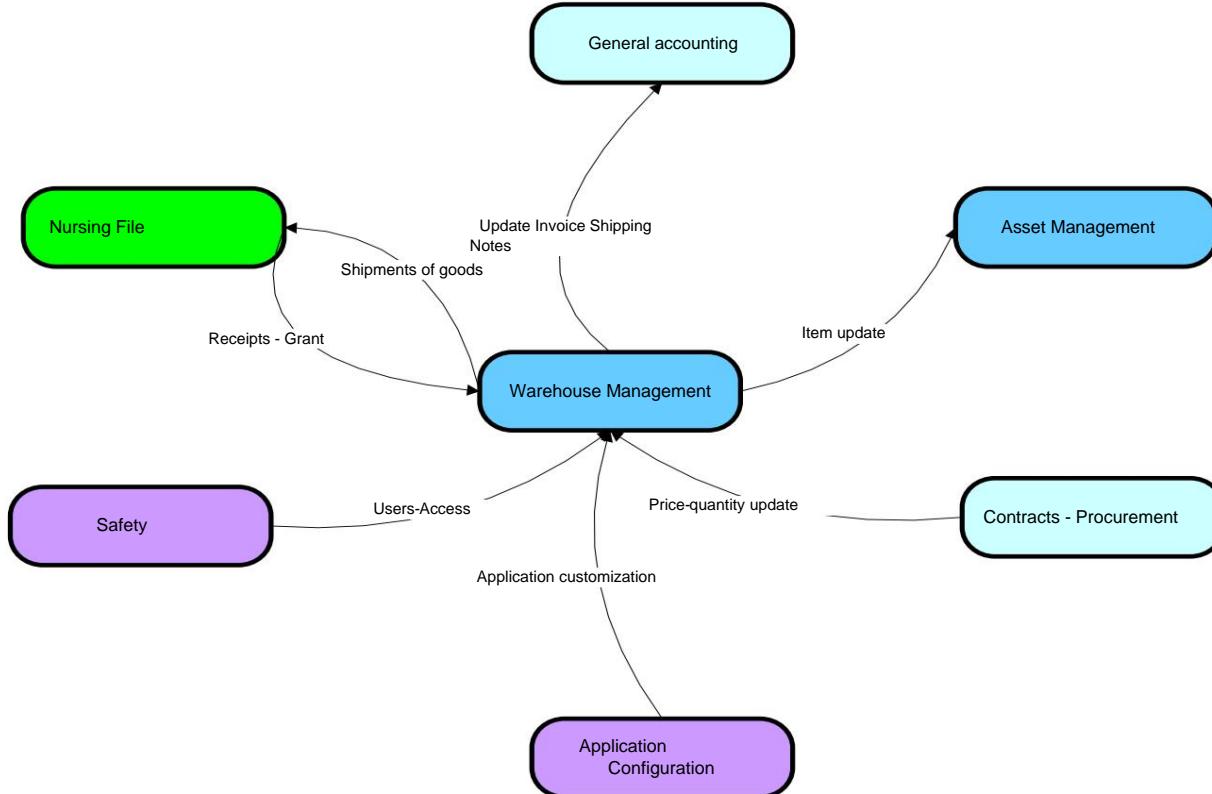
- o Aggregated & Detailed summary report of warehouse movements, giving dates from – to (total imports / exports of the item from the Warehouse).
- o Inventory overview by storage location, material code, batch.
- o The possibility of direct monitoring of all import movements will be provided, exports as well as warehouse charges.
- o Warehouse valuation reports by item code, warehouse

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

- o Reporting of all materials with zero inventory or inventory below the safety limit.

Interface - communication

The Warehouse Management application as shown in the figure communicates with the following applications:



A.3.4.3.8 Asset Management

The implementation of fixed assets concerns the monitoring of the movable and immovable assets of the Health Unit. These include both the typical fixed equipment of an organization (buildings, cars, offices, etc.) and the specialized medical equipment needed for the operation of the Health Unit (tomographs, analyzers, etc.).

Main Features of the Application

The fixed assets application is used to manage and control the fixed assets of healthcare units. It provides detailed information for each transaction related to fixed assets, using an auxiliary, in General Accounting, ledger.

It receives data from the Procurement Management application for requests, purchase orders and fixed assets being manufactured. At the same time, depreciation is recorded in General Accounting.

Functions

The main functions of the application are:

Basic Fixed Assets File

A key component of the subsystem is the basic fixed assets file, in which a multitude of data is maintained, such as:

- General data (description, quantity and unit of measurement, date of acquisition, deactivation etc.)
- Time-varying data (cost center, facility, location, outage indicator depreciation operation, etc.)
- Allocations (various criteria for grouping fixed assets) •
- Origin (supplier code and name, original fixed asset, etc.)

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- Leasing (leasing company, agreement number, etc.)
- Depreciation areas (depreciation rate, depreciation start date, etc.)

The technical characteristics of the asset are monitored through the equipment file that is directly linked to the asset (integration with the Biomedical Technology application).

The main criterion for grouping fixed assets is the Fixed Asset Categories. Each fixed asset category corresponds to a set of general ledger accounts, which are used in the various fixed asset transactions.

The main fixed asset movements that take place are the following:

• Possession

The life of a "fixed asset - equipment" begins either with its purchase or with its rental / loan. Once some equipment is purchased or rented, then it is initially assigned to a cost center and / or profit center on which all costs and revenues related to it are concentrated and can be time-planned and managed at all levels. The Purchase of Fixed Assets is done through the supply chain. In summary, the steps required are:

- o Purchase Request for Fixed Asset & Request Approval
- o Purchase Order
- o Receipt of Fixed Asset
- o Fixed Asset Invoice Entry.

Upon receipt and entry of the invoice, the asset code is automatically charged with the acquisition value.

• Additions / Improvements

Additions or improvements to an asset are shown as sub-numbers (sub-assets). This approach provides the ability to:

- o Data extraction, aggregated or detailed
- o Differentiation of all data in the master file by sub-number (e.g. acquisition date, cost center, depreciation rate, etc.).

• Sale

There is the possibility of selling a fixed asset in whole or in part (part of the original value, a certain percentage or a certain quantity). It is also possible to sell a sub-fixed asset separately, or all the sub-fixed assets of an asset together.

The profit or loss is calculated, the asset is decommissioned, the values are reset to zero, and the necessary accounting entries are automatically generated.

• Destruction - Loss

When an asset is retired due to destruction, loss or theft, the asset code (and therefore the fixed assets account in the general ledger) is credited and the extraordinary losses account is debited. It is stated whether the

destruction, loss or theft of the asset is total or partial (part of the amount of the original value, a certain percentage or a certain quantity), as well as the date on which the asset is deactivated, so that the calculation of depreciation stops. • **Value Transfer**

The transfer of values from one fixed asset to another will be supported. The transfer can be full or partial based on value, percentage or quantity. The date from which the transfer is valid is defined, depreciation calculation stops on the original fixed asset and starts on the new one.

• Adjustments

The revaluation factor and the year of acquisition are linked to the appropriate asset categories.

The objective value of the asset is taken into account and it is calculated whether the revaluation will be based on the factor or on the objective value.

• Depreciation

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

It will be possible to calculate multiple depreciation methods, e.g. a different rate for tax purposes and a different one for information or cost purposes. Also, statutory depreciation and depreciation according to International Accounting Standards will be supported for each asset.

Depreciation values will be automatically calculated and the necessary accounting entries will be generated (which can also be made in a second year). The depreciation calculation method will be according to the straight-line or declining-balance method. The depreciation start date will be suggested by the system and can be changed. Depreciation can be deactivated for a specific period of time.

Tools and Facilities Briefly,

the facilities that will be provided by the system are:

- Ability to analytically monitor and categorize fixed assets using any combination of fields in the master file
- Possibility of monthly automatic recording of depreciation
- Ability to predict depreciation in the future
- Ability to display and categorize all asset movements in real time
- Automated recording of all accounting entries generated by movements of the real-time fixed assets subsystem
- By default, General Ledger is aligned with the fixed asset management application because the accounts related to fixed assets are only updated automatically through the fixed asset management application

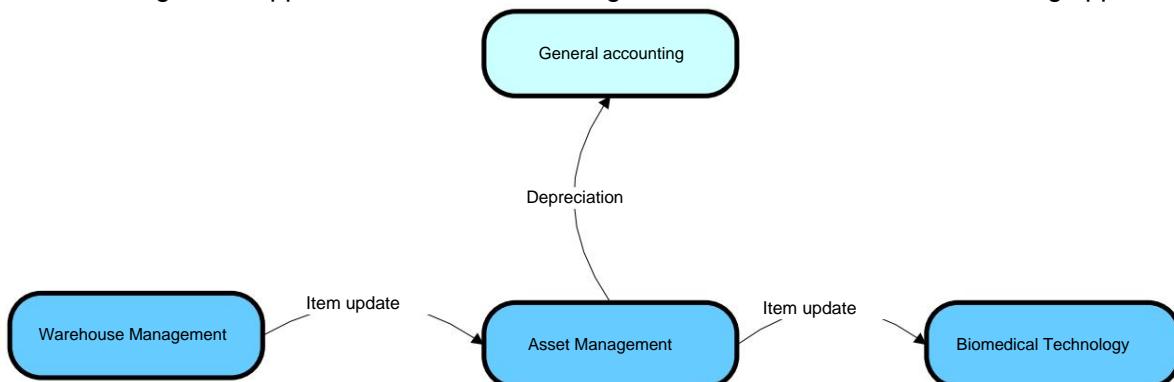
Statements - Reports

All required printouts and reports will be provided, such as:

- Fixed Assets Register
- Asset values by depreciation area • Lists of asset master files (active, inactive, etc.)
- Display of fixed asset movements as well as all fixed asset data (year comparisons, values, etc.)

Interface - communication

The Asset Management application as shown in the figure communicates with the following applications:

**A.3.4.3.9 Biomedical Technology**

The implementation of Biomedical technology concerns the implementation of functions and procedures that will cover the Biomedical Technology department of the Health Unit.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

The application will support the Recording and Archiving of the cadastre, the planning and monitoring of preventive maintenance, the repair and periodic inspection procedures, and the processing of all the above data to draw conclusions.

The main objective is to improve the quality of health services by ensuring the availability of medical equipment, reducing maintenance times, controlling adverse events and continuously upgrading and developing the biomedical infrastructure.

The application will operate in full cooperation with all necessary applications of the subsystem to which it belongs as well as the remaining subsystems that require the exchange of information.

Authorized users of the Ministry of Health will have access to the Biomedical system.

Medical Equipment Cadastre Management

The process of recording and archiving medical equipment is a primary process for the Biomedical system. In addition, the structuring of technical assets (e.g. medical equipment inventory) is crucial for the proper functioning of an asset management system. Equipment is defined as an individual physical object, which can be

maintained independently.

The system will support the following:

- management of many types of equipment, such as medical devices, servers, terminals, telephones, hotel equipment, etc.
- synergy of the equipment with the fixed asset management subsystem. It will be possible to manage the equipment as a Technical and Accounting Fixed Asset and to monitor its historical status and cost in a unified manner.
- maintenance of characteristics such as code, category (multi-level categorization), technical characteristics, manufacturer details, serial number and year of manufacture
- location of the equipment (where it is at that moment)
- categorization of technical assets (Classification System) according to the GMDN standard
- Supplier and Manufacturer data management
- possibility of parametric categorization (Classification System) (such as Device Category, General Device Group with code, Device Type and manufacturer details, etc.)

Additional:

- Information on spare parts for each machine or device will be included in Table of Materials.
- For each piece of equipment, accurate information on the type and number can be recorded of the spare parts that concern it.

With this interface, it will be possible for the maintenance service to have access to data such as material batch numbers, inventory and spare parts availability for each piece of equipment, while on the other hand it will be possible for the inventory management service to have a comprehensive view of the use of a specific material (for example, on which machines a material is installed and in what quantities).

- The coding of technical assets can be predefined in a desired format based on standards.

Preventive and Repair Maintenance Management

The subsystem will support all activities related to the planning and processing of maintenance tasks. These activities originate either from emergency maintenance orders when outages or failures occur (remedial/repair maintenance) or from scheduled maintenance (preventive/predictive maintenance). Preventive Maintenance

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

The subsystem will support the management of preventive maintenance procedures either at the equipment level or at the functional unit level. *Corrective Maintenance*

- **Report a fault**

The failure report will be recorded in the system as a Failure Notification. o The ability to register Failure Notifications (Repair Requests) and direct them to the corresponding individuals or departments of Maintenance, Planning and Inspection will be provided.

- o Each Fault Notification will include information about the personnel and department that identified the fault, the description of the fault and/or the equipment to which the fault refers. It will be possible to organize lists of faults, causes of faults, activities, tasks, etc. which are used in the notifications and participate in the reporting of the subsystem
- o Issuance of the Damage Notification Bulletin.
- o Notifications will be checked and characterized (e.g. postponed, completed, etc.) and if approved, will be converted into Repair Orders.
- o Depending on the needs, it will be possible to issue printouts of notifications with the necessary information. • **Repair Orders**

Repair orders schedule the repair work and monitor their execution. o Repair Orders will be created by converting a notification or by direct entry.

- o The Repair Order will refer to a piece of equipment and will list the required tasks, for each task the activities per phase as well as the required resources (personnel, subcontractors, materials or tools).
- o The system will perform availability checks and resource booking (materials, labor or machines). If required, Purchase Requests will be created for the supply of materials (spare parts or consumables) or services from subcontractors. o There will be the possibility of scheduling all necessary work in combination with the calculation of the required materials or human resources (engineers, workers, subcontractors and all human resources related to maintenance work).

- **Execution of Repair Order**

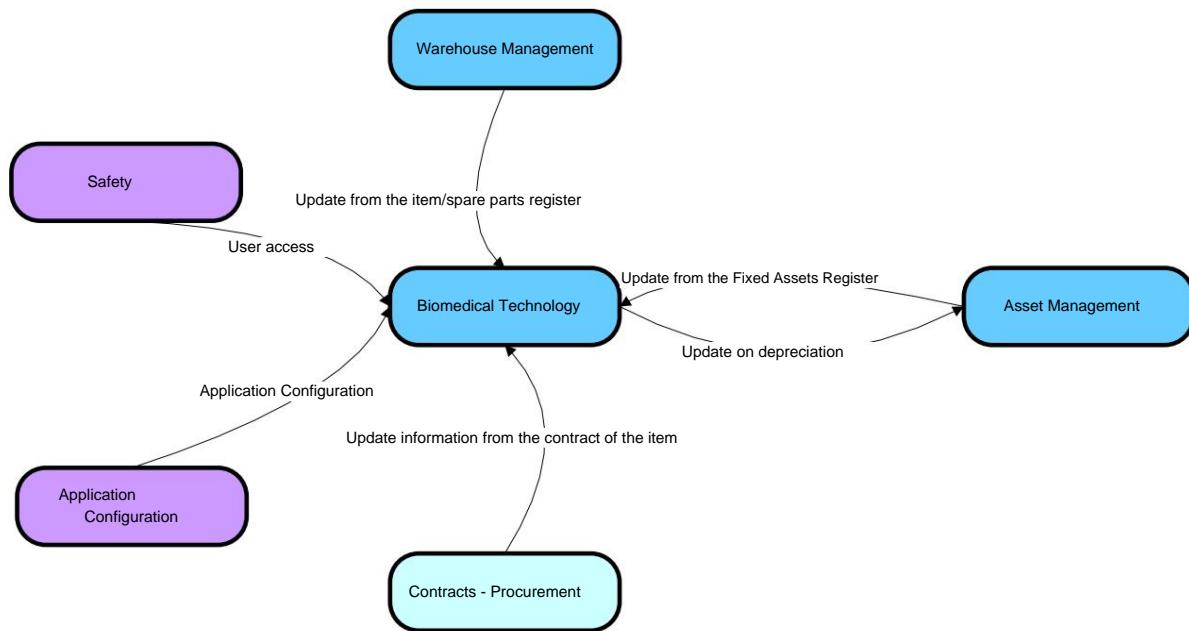
The execution and monitoring of repair work, the recording of resources consumed and the recording of results will be done in the same way as in Preventive Maintenance.

- o After completion of the work, a Damage Restoration Report will be issued.
- o Corrective Maintenance

Interconnection -

communication The Biomedical Technology application as shown in the figure communicates with the following applications:

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications



A.3.4.3.10 Meal Management

The application is used to monitor the meals prepared and made available to the patients of the Hospital if the Hospital or the Hospital prepares the meals. **Functions** The main functions included are:

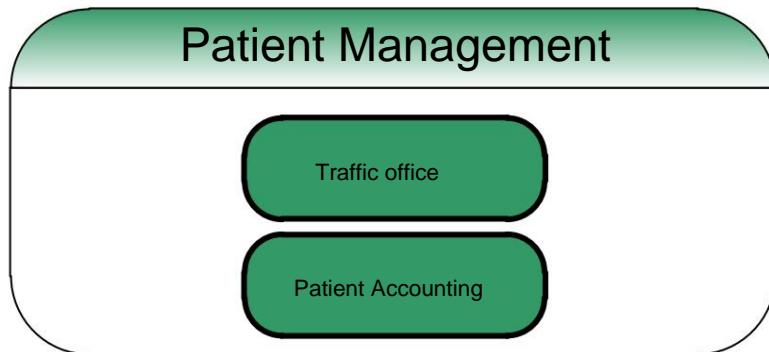
- **Operation tasks** The procedures included in this operation are:
 - o Weekly schedule
 - o Requested food portions
 - o Playback of weekly schedule
- **Auxiliary tasks**
 - o Food items
 - o Diet categories
 - o Types of food
 - o Technical specifications
- **Searches-prints**
 - o Diet printouts

A3.4.4 Functional Module "Patient Management"

The patient management subsystem is the logical grouping of the Patient Movement Office and Patient Accounting applications.

The functions included in these applications directly affect the Customer - Patient service part of the Hospital and, as a whole, are essential for the smooth operation of the entire Hospital.

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications



Below is a detailed description of each of these. **A.3.4.4.1 Traffic**

Office

This application includes all the individual functions related to regular or emergency admission, internal movement, patient registry management, administrative exit, as well as a section of functions that belong to the Patient Accounting application, such as payment for visits and services received by the patient during his outpatient course.

In addition to these, it has a series of standardized reports that serve the administrative staff for their daily work as well as reports - certificates that are given to patients. The Hospital's administrative staff has access

to the application, always in accordance with the rules and the application's customization.

The application and the functions included in it are of critical importance for all further information flow to other applications of the Unified Information System.

Functions

The main functions included in this application are:

Admission Waiting List Management

The first and basic function of the Movement Office is the management of admissions, which is carried out by this function. All requests

(regular - emergency) for admission of patients are collected from all departments in this list. The administrative employee of the Health Unit who manages the list can perform a series of actions such as (call for admission, admission, deletion, etc.)

Patient Registry Management

This function aims to manage all demographic and insurance information concerning the patient. Patient Movement

This function is used to manage the internal movement of the patient. Correspondingly, part of it is also used by the clinics or departments of the Health Unit to move a patient within the Health Unit.

The user is asked to select the patient who is:

- Newly admitted
 - patients should be placed in a clinic/bed
- Hospitalized
 - o will be moved to another bed/ward or clinic in the hospital
 - o will be temporarily transferred to another medical service facility hospital
- being examined by an outpatient clinic
 - o will be transferred to another outpatient clinic
 - o will leave outpatient clinics and go home.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****Cashier- Collections**

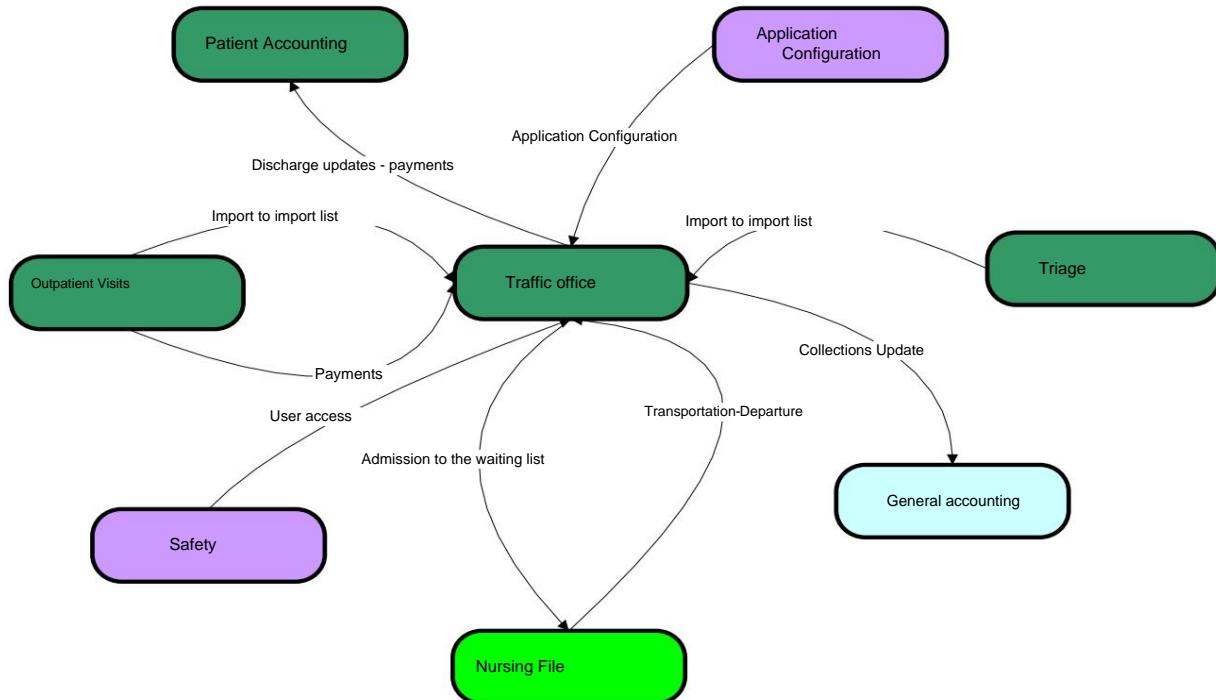
Although this function is structurally part of the "Patient Accounting" application, for organizational reasons it is also included in the "Mobility Office" application.

This function is used and serves the collection needs for services provided to patients such as:

- Payments for visits from any department or outpatient clinic of the Health Unit
- Payments for medical procedures, examinations, etc.
- Treasury control financial statements

Interface - communication

The Traffic Office application as shown in the figure communicates with the following applications:

**A.3.4.4.2 Patient Accounting**

This application includes all the individual functions related to the financial settlement of patients and Insurance Funds, along with the movement office, which constitute the same logical entity but are separated for organizational reasons.

In addition to these, it has a series of standardized reports that serve the administrative staff in their daily work as well as reports - certificates that are given to patients.

The Hospital's Administrative staff has access to the application, always in accordance with the rules and customization of the application.

The application and the functions included in it are of critical importance for all further information flow to other applications of the Integrated Information System. **Functions** The basic functions included in this application are:

Cashier- Collections

This function structurally belongs to this application, but part of it is also presented in the "Mobility Office" application.

This function is used and serves the collection needs for services provided to patients such as:

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- Payments for visits from any department or outpatient clinic of the Hospital.
- Payments for medical procedures, examinations, etc.
- Inpatient billing
- Fund audit financial statements. Insurance

Fund Pricing

This functionality is used and serves the billing needs of Patient Insurance Funds for medical services provided to their insured persons. Specifically, the basic functionality will include:

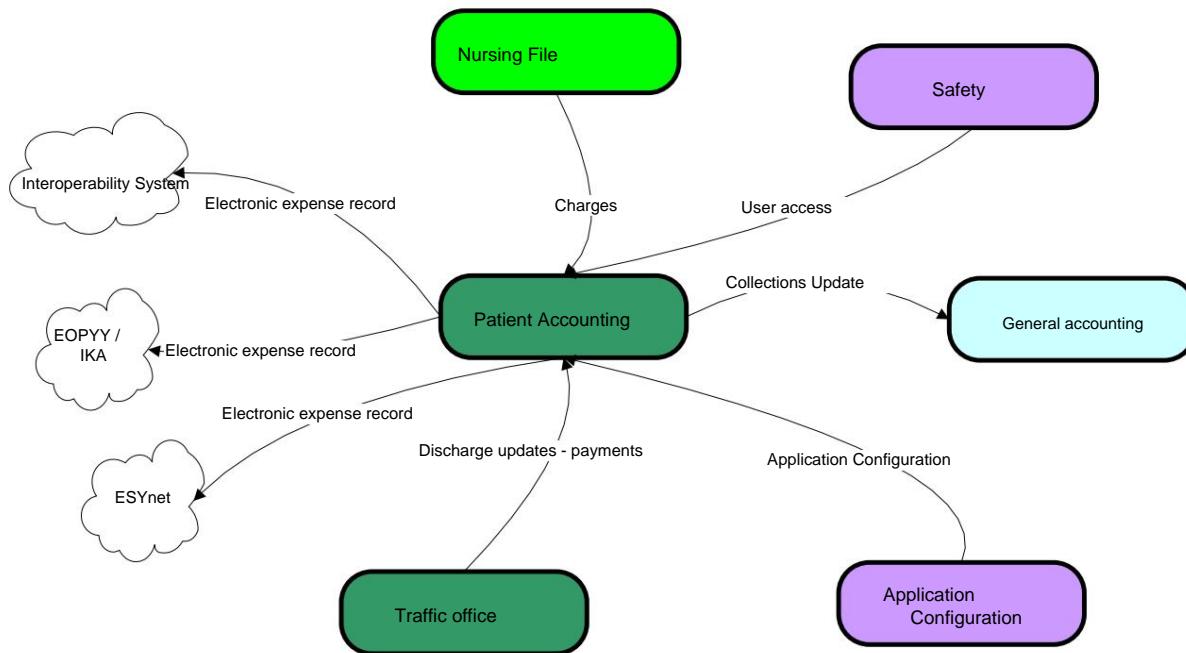
- Printouts of Consolidated Statements of Insurance Funds
- Electronic file of EOPYY expenses using the HL7 v2.6 standard and generally covering the EOPYY information requirements
- Electronic communication with the "Social Security Institution Interoperability" system for the transfer of "expense file"
- Insurance Fund Pricing • Insurance Fund Audit Financial Statements

Patient Registry Management

This function aims to manage all demographic and insurance information concerning the patient. **Interface – communication**

The Patient Accounting

application as shown in the figure communicates with the following applications:

**A3.4.5 Functional Module "Personnel Management - Payroll"**

The Functional Module "Personnel Management - Payroll" includes the necessary functions for the comprehensive handling of the requirements of the Personnel Office of each Health Unit.

The personnel system should have a parametric personnel selection system that meets the requirements of ASEP. In addition, it will monitor the presence of employees based on their presence schedule and will calculate the employment of employees with the ability to transfer them to payroll. It will be fully integrated with the payroll application. Payroll will automatically calculate retroactively with reduction to the period they relate to. It will

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

includes a generator for printing personnel and payroll data, as well as a large number of ready-made prints. It will be connected to accounting and will export accounting articles. Finally, it will cover the requirements of the IKA and other insurance funds, the tax office, etc.

The Hospital's Administrative staff, and in particular the personnel of the Personnel Office, have access to the application, always in accordance with the rules and customization of the application.

FunctionsOrganizational Structure

The application will monitor the organizational structure of the Ministry of Health in a hierarchical format. For each organizational structure unit, it will monitor data such as the unit to which it refers, the level of the position, the expected people, the location in which it is located, etc. Also, additional data can be defined parametrically, such as allowances related to the service in the specific position, qualifications required, specialties that can serve in the position, the equipment and means available, etc., the duties of the position, the internal work regulations. There can be many organizational structures at the same time. The application should be able to compare the requirements of the position with the employee who holds it. The application will have a history of hiring - leaving for each employee under a unique code so that the entire history of his relationship with the organization is known.

The application will maintain an unlimited number of user-defined parameters for each employee. These data are divided into groups, which will also be defined parametrically without restrictions, depending on the department that monitors them or depending on their relevance. Groups can be defined as follows:

- personal data including surname, first name, date of birth, address, telephone numbers etc.,
- Salary data (Collective Employment Agreement, Employment Relationship (Permanent, Probationary, Fixed-term, etc.), Remuneration Relationship (Salaried, Daily Wage), Working Hours, Salary, Pay Scale, Time Allowance, Other Benefits),
- Family information (spouse, children's information with dates of birth, studies, etc.),
- Transfers-Secondments (within or outside the organization),
- Previous service details (Employer, employment, position in the organization, etc., if recognized as previous service for seniority calculation)
- Education Details (Education Level, School, School Specialty, Grade, Seminars, Participation in Professional Associations),
- Trade Union (Trade Union organization, Board member, etc.),
- Leave (Paid, Unpaid),
- Illnesses (Paid, Unpaid, Doctor Visits),
- Occupational Accidents,
- Moral and material rewards,
- Court Decisions with interest calculation,
- Disciplinary Offenses,
- Anything else that the organization deems necessary to be coded.

Each element can belong to multiple groups. Multiple sub-parameters are defined in each parameter depending on the needs of the organization. For example, when an employee is transferred, the work performed will be monitored, the position held, if it is on secondment, additional details of his placement, the file location of a document linked to the change, etc. All changes will be monitored historically so that there is a complete picture of each employee at any time. Each change can take effect at a future date so that internal changes can be planned.

The system will issue various statements with personnel data, including the difference between projected and serving personnel in a future time based on retirement limits or

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

expiration of fixed-term employment contracts, per job position in order to plan the recruitments that need to be made, allocation of leaves and various statistical reports. In addition, the user will be able to compose reports by specifying the data of his interest. Finally, the system should communicate with office automation applications for the issuance of certificates and the production of data for further processing.

Recruitment

The Application will have information in relation to the projected positions per unit and those of those actually serving at any date, even in the future, so that recruitment planning is possible. For each position and depending on the requirements of either the organization or the A.S.E.P., the criteria required in each announcement will be defined parametrically. The criteria are divided into mandatory or optional and the application will reject candidates who do not meet the mandatory criteria and rank the candidates in order per position based on the optional criteria either with the system of points per criterion or with the order of evaluation of each criterion.

The application will compile an evaluation table of candidates per job position and, in the event of recruitment, will draw data from the candidate's details.

Personnel Evaluation

The application will allow each employee to be evaluated with a performance score by one or more evaluators through their response to predetermined goals, to note their training needs and to judge for which positions they are suitable. This evaluation can be either regular, e.g. annual, or extraordinary for the staffing of a certain position. It will be able to automatically search, through the data that has already been entered, the employees who satisfy the conditions defined (degrees, seminars, years of service, etc.) by the user.

In addition, the application will monitor personnel penalties by coding the offense, its severity, the stage the case is in, e.g. (Provisional, final, acquittal, etc.) as well as the impact on their payroll (fines).

Finally, it will calculate the salary (scales, time allowances) and grade promotions of the staff, based on the date of hiring, recognition of prior service, penalties, leaves and other parameters depending on the customization that will be made in the context of the implementation of the application.

Attendance / Staff Leave

The application will monitor each type of staff leave (paid, unpaid, special, illness, regular, work accident, etc. depending on the needs of the organization, parametrically defined), absence (justified, unjustified) with a coded reason. The application will be able to record employees' declarations of preference for taking their leave so that the organization can make its annual planning. It will be possible to record the days entitled for each type of leave in order to obtain the balance of staff leaves either by organizational unit or by employee.

Personnel attendance / entry - exit recording system

The Application will have the ability to import a file generated by a system for recording employee entry and exit in order to calculate working hours, absences, overtime, night work, exceptions, etc. It will have printouts so that incomplete entries can be identified and corrected before the calculation is made.

The system, after calculating the working days, will create summary tables per day per employee where additional data can be entered, corrected, approved and finally transferred to payroll.

Staff Training

The application will provide the infrastructure to improve the educational level of employees:

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- assessing the training needs of employees through recording them from the employee evaluation, • selecting employees who need training and matching them to seminars,
- recording their performance.

The seminars created will include information such as the hours of the seminar and the start-end dates so that the organization can schedule the participation of employees in them. The characteristics of each seminar will include its subject, the body that carries it out, the body that finances it as well as the days and hours of its duration. Also, for each employee, the employee's grade will be recorded, if they interrupted the seminar and the hours during or after hours so that there is the possibility of connecting with their payroll. Upon the realization of the seminar, this will be entered into the employee's seminar file in order to update their electronic file.

Additional benefits / compensations

The application will be able to track any benefit provided to each employee, at any time. Cash benefits can be either individual for each employee or collective by assigning them to an Employment Contract. The application will also be able to track non-cash benefits per employee.

Personnel Cost Planning – statistics

The application, collecting the distribution of employees for each type of regular acceptance, will propose the current calculation formula and will enable the user to change the elements of the remuneration, either the amount if the acceptance is quantitative or the percentage if the remuneration is percentage-based, or its calculation basis, using formulas to budget each element of the remuneration. It will also allow the user to define an increment step and define the number of repetitions so that with one execution of the program, it can obtain all the combinations of the resulting payroll costs.

Payroll

The Payroll Application will be designed to meet the needs of Greek labor legislation, collective and company employment contracts as well as individual employment contracts. It will cover payroll and insurance deductions for Permanent Public Employees, Permanent Employees, Fixed-Term Employees, Transferred Employees, Special Consultants, Seconded by Various Agencies, Hospital Personnel, Medical Personnel, Nursing Personnel, Personnel with insurance deductions on a different calculation basis than the salaries they receive, etc. It will also calculate deductions such as loans, club contributions, etc. with any calculation method (on salaries, fixed amount, etc.).

The main features of the Payroll application are the following:

- It will provide categorization of employees into contracts from which they "inherit" those of the salaries and deductions that are common to each group of employees, minimizing the time spent maintaining their payroll data.
- It will be fully parametric and the end user will be able to change it in an easy-to-use way the method of calculating salaries and deductions.
- It will keep historical data on remuneration and deductions and will export them retrospectively with full simulation with the period to which they refer. It will support ceilings on remuneration or deductions (e.g. IKA). The calculation of remuneration and deductions will be descriptive with calculation formulas defined by the user and has a validity date for the specific calculation type.
- The tax scale and its deductions will be entered by the user and will be calculated according to the instructions of the Ministry of Finance for the payroll settlement time.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- It will be able to extract data from external applications either directly or indirectly via ASCII or XML files.
- It will support an unlimited number of monthly movements defined parametrically, they will be grouped and their entry screens will be automatically created. It will have alternative ways of registering monthly payroll movements (per employee, per organizational unit and transaction reason or only per transaction reason).
- It will keep a complete record of the payroll periods and will define the coefficient of the period, the period that concerns the data of the employees, the salaries and the deductions and, if it concerns gifts or bonuses, the period for calculating the gift days or the salaries that increase the gift.
- It will provide support for the costing of overtime, night, exceptional, off-site, illnesses, bonuses, compensations, etc. so that it can be done either with the exact salary of the date they were made or with the weighted average of the month to which they refer. Overtime can either be settled together with payroll or in separate decisions with control of the ceilings of both earnings and insurance contributions.
- It will automatically find the changes made to the employee or to the calculation method and will calculate retroactively from the date of the change and any subsequent periods it affects.
- It will calculate the proportions of days, overtime, gifts and bonuses automatically.
- It will monitor loans, advances, alimony, debts, fines, seizures, etc. and will withhold from the employee's pay from the start to the end of the debt or until the amount of the debt is paid. It will automatically update the change in loan installments through incoming data from banks.
- It will calculate the payable in two or more advances depending on its requirements organization.
- It will have the ability to issue payroll with restrictions per employee, or relationship work or any element of the employees.
- It will finalize payroll periods by transferring the calculation amounts to a historical file that is protected from changes.
- It will have the ability to parametrically link payroll codes (salaries, deductions, taxes, payables, loans, etc.) with general accounting accounts and organizational units with analytical accounting accounts. Accounting articles will be issued for a period or for a certain period of time, for all or part of the employees with any criteria (organizational units, specialties, etc.), for the total payroll amounts or only for those that are retrospective and refer to a limited period of time, e.g. the amounts that were accounted for in a period of time and concern retrospective salaries of the previous year.

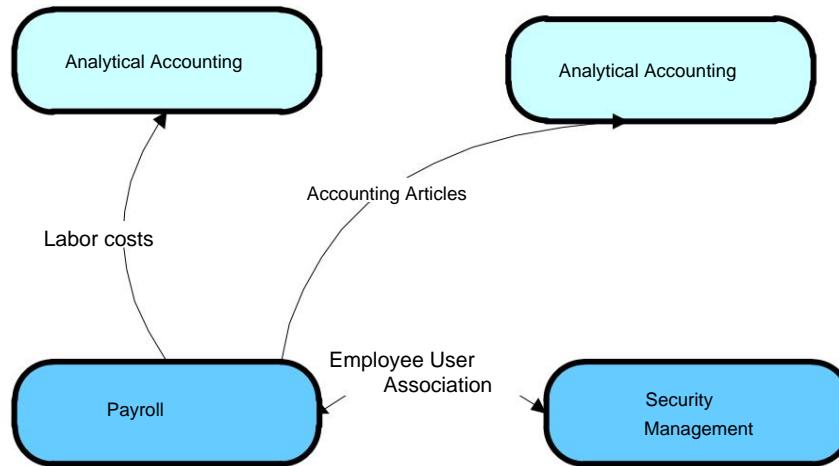
- Will update the general and analytical accounting with the appropriate articles.
- Will issue payroll statements and payment receipts, tax return statements, in favor of insurance funds, loan deductions, etc., parametrically defined.
- Will issue the appropriate file for payment via bank or DIAS.
- Will issue the appropriate records and statements for insurance organizations.
- It will cover the requirements of the APD for IKA
- It will meet the requirements of the Ministry of Finance for the certification of salaries and the file of the Tax Office
- It will withhold loans and clear the salaries of those working away from home as well as the on-call staff.
- Will perform a monetary analysis for any employees who are paid in cash.
- It will cover all aspects of employment relations with the appropriate customization.

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

- It will have a statement generator for any employee's payroll item and will collaborate with standard office automation software for issuing certificates and for further processing of payroll data.

Interface - communication

The Personnel - Payroll application as shown in the figure communicates with the following applications:



A3.4.6 Functional Unit "Diagnostic and Imaging Laboratories"

A.3.4.6.1 Diagnostic Laboratory Information System

It concerns the introduction of a Medical (non-imaging) Laboratory subsystem in the project's MS.

The laboratory subsystem is called upon to cover different functions, such as:

Managing daily work

- ordering tests
- distribution to laboratories
- scheduling of work
- connection with analysts (worklists)
- management - control - distribution of results

Informing medical and other scientific personnel

- Quality control of medical devices.
- Statistics of exam price fluctuations
- Control - Processing of medical device messages
- Test correlations to identify any anomalies or other problems.
- Longitudinal monitoring of a patient's results.
- Support for research projects.

Communications – data exchanges

- The system should exchange data with other subsystems of the Unified Information System. These data include at least the transfer of demographic data and source data (MH, practice, clinic, etc.), the consumption of reagents and other materials, the ordering of tests and the updating of the medical file (return of approved results). • In each laboratory, the system will be connected to the analyzers with full exploitation of all connection possibilities such as one-way - two-way communication, use of bar-code, quality control, check digit control, etc. The Contractor is free to choose the connection arrangement of the analyzers according to the spatial layout and ergonomics of the laboratories, however, also covering the condition of preserving the full availability of the system in the event of a failure of a workstation connected to an analyzer.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

The proposed subsystem must meet all the specifications analyzed below and in the compliance tables. However, it is a requirement that the user interface be graphical and friendly, while technically the offered integrated system is required to be of open architecture and to operate in compliance with the operating criteria described in another chapter of this document (availability, application response times, etc.).

The system architecture must cover the MSs included in the project and manage the data and functions of the laboratories in the MSs, as follows:

- Hematology
- Biochemical
- Microbiological
- Pathoanatomical
- Cytological
- Immunological
- Immunobiological

Also, in its offer, the prospective Contractor should describe how the architectural solution it proposes makes it possible to order tests from a department of one medical institution to a laboratory of another medical institution, and vice versa, to send results from a laboratory of one medical institution to a department of another medical institution.

Prospective Contractors should take the following into account in their offer:

- Coded data (e.g. Test groups, standard-based test coding
 - LOINC, etc.) should be maintained centrally and be common to all MS. The prospective Contractor is invited to propose the optimal architecture in order to satisfy this request. These elements will only be modified by authorized users.
- The nomenclature of laboratories may change from one MS to another due to different organizational structures of each MY.
- Participants in the competition may, after an on-site study of the situation, offer (with justification) a support circuit and other workshops, which will be taken into account during the evaluation.

Observation 1: The Diagnostic Laboratory System must be able to operate locally, independently of the operation of each MS's data network to the central systems.

Functionality

The required functional needs of the subsystem are described in the conformity tables in Part C hereof, which form an integral part of the technical and functional specifications of the system. The binding specifications for the candidate contractor are the set of technical and functional specifications of the conformity table and this paragraph.

Below are listed some of the points of the software specifications in order to provide a concise picture of the subsystem specified for the MS.

The laboratory information subsystem is required to cover many different functions, such as the following:

- Daily work management:
 - Exam orders
 - Performing exams – work lists. Examples include:
 - Lists by date, clinic, examinee, patient code, etc.
 - Lists per exam
 - Exam checking
 - Distribution - search results
 - Print results
 - Informing medical and other scientific personnel

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- o Machinery quality control
 - ÿ Price fluctuations over a period of time (average, extreme values, exceeding limits, typical deviation etc.)
 - ÿ Comparisons between time periods, use of different reagents, etc.
 - ÿ Levey-Jennings diagrams and/or other diagrams
 - ÿ Relevant reports on the workload of the laboratory, medical equipment, of users
 - ÿ Relevant reports on the need to repeat exams
 - ÿ Related reports on problems in the operation of medical devices
- o Exam correlations
 - ÿ Correlation of test results in specific populations
 - ÿ Longitudinal comparisons of test values in specific patients or populations
- o Other medical information
- Management Information:
 - o Traffic volumes. Indicatively, the following are reported:
 - ÿ Detailed data on traffic volumes per clinic, doctor
 - ÿ Aggregated data on traffic volumes per clinic, doctor
 - ÿ Comparative data by time periods
 - o Audit and log files of the tasks. Indicatively mentioned are:
 - ÿ Finding (in case of disputes) the history of order entries and results
 - ÿ Presentation of the examinee's origin information (clinic, other hospital or carrier etc.)
 - ÿ Presentation of the doctor who ordered the tests, the user who registered the order
 - ÿ Presentation of the laboratories and machines that carried it out
 - ÿ Presentation of any repeats of the results and the user who defined them
 - ÿ Presentation (by examination and time) of the results, user or machine that generated them imported, user who validated them
 - ÿ Presentation of the values of the controls and other elements of the machines that correspond to the tests of the specific patient
 - o Decision-making support
- The subsystem must be of modern technology (e.g. windowed environment, support for relational or object-oriented databases, etc.) and offer the greatest possible degree of parametricity both in terms of security and management, as well as in terms of operation. Possible variations in the organization and operation of the laboratories will be addressed by changes in the parameters.
- The management of incoming orders (test orders) will be done in a unified manner, so as to allow the definition of test orders for all laboratories, in different ways depending on the respective conditions of the laboratories. The definition method may be:
 - o centralized (laboratory secretariat), o decentralized, i.e. assignment to
 - ÿ clinics,
 - ÿ outpatient clinics,
 - ÿ emergency department, etc.
- Decentralized ordering of tests is done through the system in the hospital to which the laboratory belongs (transfer of orders - test orders). This system's capability concerns the on-line ordering of laboratory tests from a point in the hospital (e.g. clinic where the patient is hospitalized) and the notification of the Medical Center of the hospital to which the laboratory belongs, which will execute the order. In the event that for any reason the order through the system is not possible (e.g. temporary problem

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

interconnection), then the system should implement this decentralized process (e.g. through the laboratory secretariat).

- Each order will have a unique order number. The laboratory subsystem should be able to register the patient's unique registration number (AMKA), as well as other absolutely necessary demographic or other data for the full execution of the order. This data should be obtained from the AMKA-EMAES system. In case communication with the AMKA-EMAES system is not possible, then the laboratory subsystem should be able to operate autonomously. In order for this functionality to be possible, the laboratory subsystem should be able to register multiple codes for a patient, while the search for previous laboratory results should be made possible by multiple criteria.
- If there are laboratory applications already installed in some hospitals that will be maintained, these should be synchronized with the new laboratory subsystem (unified coding of patients, tests, etc.).
- The system should print sample labels (plain or with bar codes) if this cannot be done by the order issuing system. It is possible that an order has more than one type of sample and sample number. The sample number should uniquely code the order in combination with the type of sample (e.g. Blood, urine, etc.).
- The registration of orders should ensure the following rules:
 - The patient's registration number will be common to all laboratories, so that the tests can be grouped per patient. This number will be obtained from the AMKA-EMAES system.
 - Each examinee will be able to have more than one order code (ID) within in one day.
 - The system must provide the greatest possible security in terms of data accuracy during registration. The Contractor must indicate the methods used used to avoid identity conflicts and errors both in the definition of tests and in the identification of samples.
 - Authorized persons must be given the opportunity to transfer orders and test results from examinee to examinee in cases of double-registration (merging of files).
 - Each order will be accompanied by the details of the ordering physician, as well as the details of the user who registered it (user code, date, time).
 - The origin of the examinee (clinic, department, etc.) will be a mandatory element registration.
 - There must be special labeling for emergency tests.
 - Upon validation of the registration, the system will distribute the test orders to the processing areas and the corresponding medical devices, while providing the necessary information for the movement of the samples.
 - After sample preparation, it is determined which samples are excluded from further processing and for what reason.
 - Specifically for the Microbiology Laboratory, the system should also monitor the intermediate stages of the cultures. The workflow for each examination should be able to be parametrically defined by a competent person in the laboratory. Consequently, the system should allow, through appropriate parameterization, the definition and monitoring of all the distinct steps required to complete the procedures of the various cultures, taking into account any specificities and differences that exist between them and in accordance with the existing workflow of the Microbiology Laboratories.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- In each laboratory, the system must be connected to the analyzers with full exploitation of all connection possibilities (one-way - two-way communication, use of bar-codes via query mode communication, quality control, check digit control, etc.). The supplier is free to choose the connection arrangement of the analyzers according to the layout and ergonomics of the laboratories, however covering the condition of preserving the full availability of the system in case of failure of a workstation connected to an analyzer. The Contractor must pay attention to the following:
 - o Two-way communication and query mode communication will be implemented where this supported.
 - o In case of implementation of one-way communication, the necessary measures will be taken for the identification of the sample - examinee and the general security of the system. Results that do not correspond to system orders will be recorded in a special log file per machine.
 - o The ability to repeat exams will be provided. The system will be able to highlight identical exams per examinee, so that the user can choose one of them at the end.
 - o The possibility of executing repetitions or pending tasks on a machine other than the one originally designated will be given, provided that it is possible to execute an examination on more than one machine.
 - o All the possibilities offered by the respective communication protocol with the analytical device will be exploited.
 - o The user will be able to check the status of the communication at any time, as well as the progress of the analyses.
 - o Urgent examinations are given priority in execution. Since medical devices offer the ability to schedule and execute urgent examinations, they will be scheduled as such.
- Examination controls include a wide range of different processes that result in their validation. The most important tasks are:
 - o Calculation of the result (in case of calculated exams).
 - o Flagging incomplete exams.
 - o Flagging unacceptable values, outside normal limits or outside panic limits.
 - o Checking batch control values.
 - o Highlighting any anomalies in the exams (through a parametric audit file).
 - o Checks of average values per test in previous days – comparison with current results to check the reliability of machines and reagents.
 - o Possibilities for group intervention in results after recording the intervention in the database (audit trail), depending on the estimates for deviations due to machines - reagents. Such corrections will be made in exceptional cases and only by authorized users (e.g. laboratory manager).
 - o Final validation of results and forwarding for printing - distribution. The validation of urgent tests will be followed by a special audio or visual signal to the ordering physician or the registration workstation.
- When managing results (i.e. entering, correcting, changing status [approval etc.], re-examining etc.) it is crucial that the user can simultaneously see on the screen the previous values (at least the 2 previous values, while it is desirable to have as many as possible) of the results of all tests in the sample.
- The possibility of approving - releasing results of part of the order up to the examination level must be given and not necessarily of the entire sample or order. (That is, it is not necessary to execute the entire order, or all the

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

tests of the sample so that an already ready and approved result of the sample or order can be printed).

- It must be possible to enter both quantitative and qualitative results or both at the same time in exams in separate positions.
- User-configurable algorithms must be provided for the evaluation of the quantitative result and its automatic conversion (or addition) to a qualitative result. The algorithms must be parameterized for each analyte separately. Consequently, the laboratory subsystem must allow, through appropriate parameterization, the definition of algorithms that will convert the respective quantitative result of a test (e.g., the value of a parameter) into the corresponding qualitative result (result characterization such as "outside normal limits" or "positive sample", etc.) for each analyte, test, reagent, etc.
- There must be the ability to automatically extract findings based on an evaluation of one or more correlated (based on a customizable algorithm) tests.
- Unified coding of tests in the participating hospitals. This concerns all tests ordered in the laboratories, such as individual, complex, calculated and groups of tests (e.g. Checkup etc.). The coding of tests (e.g. according to LOINC) should be the same as that of the medical subsystem of the hospitals or if this is not possible, then there should be a possibility of synchronizing and correlating the codes of the two information systems (e.g. by maintaining multiple test codes in the laboratory subsystem).
- Uniform coding of sample type (blood, urine, etc.)
- The laboratory subsystem must support results management in various ways to facilitate users, especially when entering them. On these groupings, it is particularly useful to have "filters" for the laboratory and the date range. The groupings should be at least the following:
 - o Per sample
 - o Per Exam
 - o Per Patient
 - o Per referral
- The distribution of results also includes sending data for further analysis. updating the medical file.
- Unified Examination Forms in the participating hospitals. An examination form is, for example, the General Blood Test with the tests it contains. It is very common for the laboratory of each hospital to perform other (more or fewer) tests for the General Blood Test. This may continue to happen, but the "superset" of the General Blood Test parameters should be created so that it appears unified with results for any tests that exist and the other blanks.
- Printing of results must be possible in various ways, such as:
 - o Per clinic
 - o Per examinee
 - o With a range of patient codes
 - o By type of examination (profile)
- Printed forms should provide users with complete freedom in terms of their formatting (text format, images, charts, headers, footers, etc.).
- The system should have the ability to display graphical diagrams for all statistical reports and should allow data to be exported to third-party, widely used office automation applications for processing and presentation.

Organization - Management of exams and related files

In the following, the concept 'file' refers to a set of related information that may be located in multiple tables.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

• Exam record

It should be possible to organize tests into groups (profiles), so that many can be selected in one go. These profiles will be defined by authorized users only. It is desirable that an analytical test can belong to more than one profile (e.g. both the check-up order profile and the hematology order profile). The minimum required characteristics of analytical tests (beyond the obvious ones, such as description, unit of measurement, etc.) are the following:

1. Type of result

- Numeric (user-defined number of decimal places)
- Alphabetical (number of digits defined by the user)
- Date
- Text (free or pre-designed)
- Selected values (per review)
- Image

2. Normal values

- By age and gender, as well as explanatory text.
- Three levels of labeling:
 - Unacceptable prices
 - Panic prices
 - Values outside normal limits.

3. Sample type (serum, urine, etc.)**4. Reagents used (code, quantity, normal values)****5. Calculation type (for calculated exams)**

The Contractor should state in its offer how it will deal with the issue of changing the method of calculation (chemistry) of a reagent in an examination, so that the correctness of the data is not disturbed. This occurs when an examination is performed by two or more analysts with different reagents, and therefore usually with a different calculation.

• Organization of exam batches:

The tests are organized in batches per machine, depending on the type of sample, the existence of the necessary reagents, their scheduling, etc. This division is the basis for the organization of work in the laboratory and contributes to the saving of reagents. The system should (at the level of daily procedure) control the type and number of pending tests and (in combination with the required reagents) propose a flow plan for the analyses.

• Parametric control rules file:

It includes rules that interconnect related tests, the value relationships between them, as well as any medical device messages. The goal of this file is to help draw conclusions regarding the correctness of the results, while also providing some useful medical information.

• Management of other files This

includes other basic or auxiliary files (examinees, clinics, forms, etc.), the management of which must be free for the authorized user and carried out through the system. The number and type of these files are left to the discretion of the prospective contractor, but the flexibility provided is one of the key points of evaluation of the offered system.

A.3.4.6.2 Imaging Laboratories The purpose

of this is to implement an information system to support the administrative and clinical work of imaging laboratories and the management, storage, archiving and distribution of the produced medical images to the various departments.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****Application Range**

The specified RIS/PACS system will operate in the hospitals, covering at least the following laboratories and departments (with regard to medical image acquisition):

- Radiological diagnostics of hospitalized patients
- Outpatient Radiology
- Department of Computed Tomography
 - The CT scanner
 - o Magnetic Tomography
- Nuclear Medicine
- Cardiological
- Surgery
- Gynecological

Note 1: The necessary software and/or equipment for the interconnection of medical devices with the PACS under development **will be provided by the Project Contractor.** **Note 2:**

Health Centers and Regional Clinics must at least have the RIS/PACS Viewer capability with image reading/processing capabilities, and asynchronous transfer of images to the relevant PACS/Server.

Observation 3: The Imaging Laboratory System should be able to operate locally independently of the operation of each MS's data network to the central systems.

Functionality

The functional specifications of the RIS/PACS system should be such as to cover to the maximum extent the administrative and clinical needs of the daily work of imaging laboratories, as well as the management of patient examinations.

Regarding the management of imaging lab tasks, the following should be supported at a minimum:

Patient data entry to create a comprehensive patient profile (name, insurance details, other demographics, useful clinical data, etc.) with extensive search capabilities. The extraction of this data should be done from the patient management subsystem and/or the medical record management subsystem whenever required.

Ordering Tests. This concerns both ordering tests directly from the RIS application and the interface with the other applications of the Unified Information System so that test orders and the corresponding parameters (e.g. justification for the test, admission diagnosis, name of the referring physician, etc.) are received online directly from the various departments of the Health Service. The application should print the referrals, as well as the required labels or barcodes.

(e.g. labels for examination films and their folders, etc.) which identify the examination with the patient and the order.

Exam Scheduling. The ability to schedule multiple exams in all imaging laboratories of the National Health Service should be provided with automation of processes such as checks for occupied time slots, support for partial exams, exam repetitions, laboratory resource management, check for double entries, ease of finding available time slots for appointments, etc. In addition, it should provide the ability to define exams and their various parameters, any patient preparation rules, exam risk factors, correlation with required resources (e.g. specific format films),

possibility of cancellation, signaling of examination status, etc. The main result is the creation of the Master Worklist which displays the tasks to be performed in all laboratories. The application should automatically transfer the patient's demographic data to the medical devices, either individually or in the form of a Worklist in order to minimize the time and the possibility of incorrect data entry. Finally, the

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

return of the test results to the referring physician of the Health Service. The goal is to accelerate the processes of planning and performing tests by optimizing the use of animate and inanimate resources and increasing patient satisfaction.

Process Monitoring. The application should support the monitoring of processes and the patient from their arrival until the completion of the examination, recording for example the time and place of the examination, the status of the examination, and alerts for any delays, updating the Work Lists accordingly. The collection of data on the examinations performed should also be supported (e.g. use of films, contrast agents, number of images taken, technical parameters, any events during the examination, etc.). In addition, the application should facilitate the monitoring of films inside and outside the laboratory, providing functionality such as matching films with an examination folder, recording the current location of the film, recording all movements, etc. This application makes it possible to more rationally monitor laboratory resources, correctly charge for examinations, control costs and calculate efficiency.

Opinions – Findings. The application should support the creation of medical findings and their correlation with the corresponding images and collected information for each examination, so that the file of each incident is completed and the responsible physician can have an overall view of each examination. The application has common specifications with the Medical-Nursing File application and therefore the requested functionality can also be achieved through an appropriate interface with it. In any case, the findings should be available for review by authorized users throughout the NHS (e.g. referring physician) and can be printed in any format required to be delivered to outpatients. The possibility of using a voice recording system for the opinions, so that they can be typed by the laboratory secretariat at a later stage, is also desirable. This application speeds up laboratory response time and increases efficiency.

General Requirements. The application should operate in a fully parametric and friendly work environment and allow the definition, organization and management of parameters such as personnel, roles, laboratories, exams, procedures, materials, technical parameters, etc. with the ability to group exams, associate exams, create control rules, manage other auxiliary files, forms, etc. It should also allow the export of statistical data and reports to management (e.g. use of materials, exam statistics, exam completion times, waiting times, etc.) in order to support business planning, decision-making and productivity evaluation. Finally, there should be an interface with the required applications of the Unified Information System.

Regarding **image and examination management**, the goal is to provide functionality that allows for easy interconnection of medical devices with an integrated medical image management environment (automated image acquisition, transmission, processing, storage, archiving and review). The following should therefore be covered at a minimum:

Image Acquisition. The application should ensure the acquisition of all images produced by each machine as well as the other information of each examination (patient data, examination parameters, etc.) and their conversion (where required) into a format editable by the other RIS/PACS subsystems. The system should also be able to receive all data transmitted by the machine at the maximum possible transmission speed supported by it. **Image Management.** The image management application should be based on a Database

Management System. It should also support the creation of user roles and rights in order to meet the security requirements of the system. The central entity should be the patient and his examinations. Each examination should be associated with the images (storage and management of correlation indices with the images that are physically stored in the subsystem

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

storage or archiving), its download parameters, its status, medical findings and other attributes. A hierarchical way of categorizing and grouping the tests should therefore be supported based on the characteristics selected and depending on the rights and roles of the users. Indicatively, there should be at least a categorization where the highest level is the patient file and subfolders are created with the tests per laboratory, per machine, per body part where the test was performed, etc. Queries should also be supported for the creation of various work lists (e.g. tests per medical machine that have been performed but have not yet been diagnosed, tests that are in the first storage level, tests that must be reviewed by a specific doctor, etc.). The candidate contractor should describe in detail the functionality provided by the application and its customization capabilities. Through the application, it should also be possible, in accordance with the user's rights, to change the characteristics of an examination, delete selected examinations, users or work lists, retrieve examinations from the archiving system, view and print stored images and/or findings, etc. both autonomously and in collaboration with the work management application, where required. The image management application should finally ensure (upon request or based on predefined rules and algorithms) rapid access to the stored examinations, simultaneously to any users who request it from any workstation, while ensuring the integrity of the examination data. It is emphasized that this application, in case it is provided separately from the RIS application, should be fully synchronized with the latter so that it is updated and updates the corresponding database. The candidate contractor is invited to describe in detail the interconnection methodology.

Storage – Archiving. The application should allow for the secure, automatic storage and archiving of data. Thus, configurable automatic transfer and deletion rules, request queue management, scheduled transfer, smart transfer algorithms (e.g. pre-fetching), management of available storage space, search capabilities based on criteria, etc. should be supported where required, so that on the one hand the information is made available in a timely manner where it is requested and on the other hand the storage space is optimally used. It is noted that the results of any processing performed on the images should be stored in the subsystem, maintaining copies of the pre-processing images. **Distribution – Overview.** The application should provide an easy-to-use and friendly work environment for users (doctors, technologists, nurses, etc.) for registering, finding, viewing and editing the examination data, including the images. The appropriate workstations should provide the ability to parametrically review and create folders, work lists and images as described above using a user-friendly interface and with task automation capabilities. Depending on the type of workstation (diagnostic, clinical, simple review), corresponding functional navigation tools, handling folder lists, lists, reports, macro creation, statistics generation, specialized capabilities for each laboratory, and image processing tools (zoom, distance measurements, annotations, window width, image conversion between various formats, etc.) should be provided. The candidate contractor should indicate the set of functions offered for each workstation category. The system should have mechanisms to warn users if a specific examination has been opened simultaneously by another diagnostic workstation, in order to avoid double diagnosis.

Specialized capabilities: Specialized capabilities will include at least the following:

- Zoom, • Pan
- distance and angle measurements
- Annotations •
- Window size/layout, • ROI's

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- Sequence Synchronization (Automatic, zoom/pan, window, location, parameters) • Cine mode
- MIP/MPR
- Localizer

A3.4.7 Functional Unit "Surgeries / Clinics"

This application includes all the individual functions related to the Management of the operating rooms / Clinics of a Hospital.

Advantages and Benefits

The productive operation of the operating room application maximizes the possibility of a more complete provision of health services.

More specifically, the following are ensured:

- Scheduling surgeries with the aim of better utilization of human and material resources
- resources
- Detailed recording of all materials used
- Recording of Diagnostic Test Orders
- Order analytical tests
- Ordering deposits
- Individual and general prescription
- Administration of medications
- Provision of consumable materials or not
- Diagnosis Recording
- Intervention protocol

Parameterization

For the smooth operation of the subsystem, extensive parameterization of the subsystem is required in order to serve the needs. This parameterization is presented below and indirectly displays the range of functionality.

- Definition of Surgeries at a physical level.
 - o Number of rooms in operation and not.
 - o Room operating hours.
- Technological Equipment
 - o Fixed o
 - Mobile • Coding of
 - surgical procedures
 - o Coding of interventions
 - o Severity of interventions
- Association of Technological Equipment with a room
- Correlation of surgical procedures by room
- Surgeon Scheduling
- Scheduling of assistants and general Surgery staff
- Planning and organization of surgical intervention

Functions

The surgeries include the following functions which each user has the ability to use depending on their role.

These procedures are selected to serve the basic and inflexible functions of operating rooms.

Surgery planning This process

based on the above parameterization is used to compose the surgery plan.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

Commands This procedure is used by the Nursing or Medical roles. The user is asked to select the patient for whom to perform one of the following functions:

- Deposit Order
 - o must order from the internal deposit warehouse the material that will be placed on the patient.
- Individual Order
 - o must order from the Pharmacy or other departments of the Health Service the medicines or sanitary materials (sterile or not) required for the patient's surgery.
- General Order
 - o must order from the Pharmacy or other departments of the Health Service the medicines or sanitary materials (sterile or not) required to fill the operating room stock.
- Administration
 - o should record at the appropriate time the administration to the patient of the medicine or sanitary material (sterile or not) that comes either from the clinic warehouse stock or from other management of items. At this point, it should be made clear that the administration also includes the items (medicines/sanitary materials whether sterile or not) that are included in the closed hospital as, regardless of whether they do not additionally burden the patient or his Insurance Fund, they are calculated in the total cost of the patient's hospitalization and medical monitoring.
- Warehouse management
 - o Records any movement, destruction, return of medicine or medical supplies (sterile or not) from the clinic warehouse to any other clinic warehouse or central management.
 - o Issues a warehouse book at any time to control stocks of medicines or health materials (sterile or not).
- Analytical Test Order
 - o Records the order of analytical tests to all the laboratories of the Hospital (connected to the Laboratory Information System). This process will be covered using the special test ordering process available in the Laboratory Information Subsystem. This process also covers the collection of a sample and the issuance of a barcode sticker for the automatic identification of the sample by the laboratory.
- Ordering Diagnostic Tests
 - o should record the order of diagnostic tests to all radiological laboratories of the Hospital (connected to the RIS). This process will be covered using the special test ordering process available in the RIS Laboratory Information Subsystem
 - o should record the order for diagnostic tests to all diagnostic laboratories of the Hospital that will not be interconnected with the RIS. At this point, it should be made clear that the order will also include the diagnostic tests that are included in the closed hospital, as, regardless of whether they do not additionally burden the patient or his Insurance Fund, they are calculated in the total cost of the patient's hospitalization and medical monitoring.
- Intervention protocol
 - o The purpose of this process is the final and complete recording of all details that constitute an intervention. o It complies with the CPT coding or any other code chosen by the Contracting Authority.
- Nursing card

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- o Using this procedure allows the user to record and present all medical information recorded for each patient. In this tab, nursing staff has the ability to record and monitor the following information:

- ÿ Patient diagnosis
- ÿ Short free history
- ÿ Analytical and diagnostic test results from LIS and RIS
- ÿ Recording of nursing assessment
- ÿ Writing of free opinions

Reports - Printouts •

Surgeries scheduling plan per time period

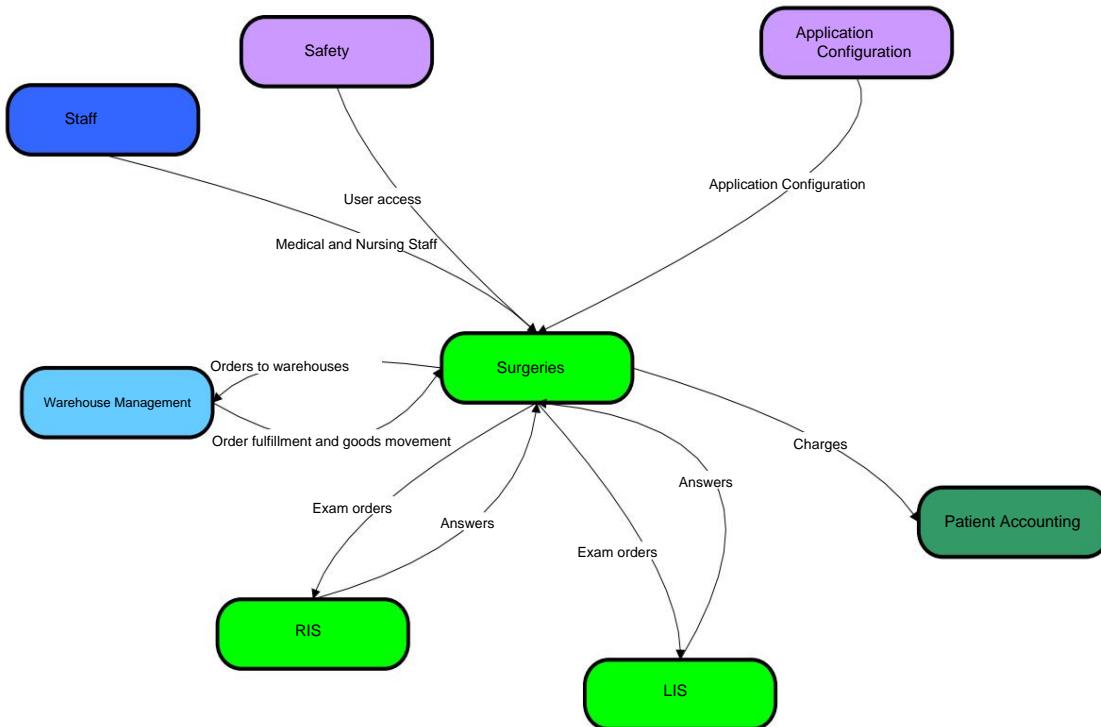
- o Hall
- The Doctor
- o Intervention (severity)
- Intervention protocol

Statistics •

Physician productivity per operation per time period • Operations by gender and age

Interconnection –

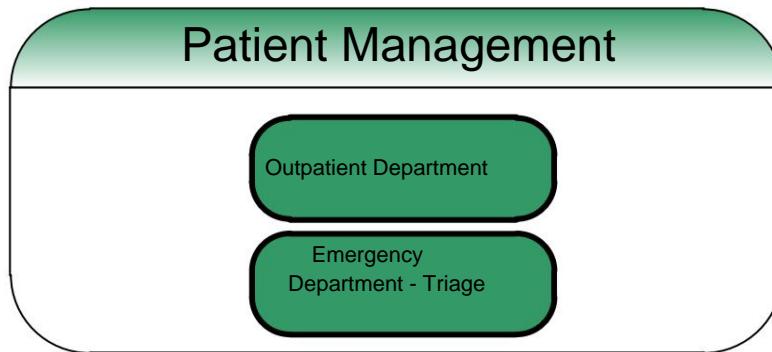
communication The Surgery application is interconnected with the other subsystems as shown in the following figure:

**A3.4.8 Functional Unit "Outpatient Management"**

The outpatient management subsystem is the logical grouping of the Outpatient Visits and Emergency Department - Triage applications.

The functions included in these applications directly affect the Customer - Patient service part of the Hospital and, as a whole, are essential for the smooth operation of the entire Hospital.

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications



A detailed description of each of these follows.

A.3.4.8.1 Outpatient Department

This application includes all the individual functions related to the management of a patient's visit to those departments, units or structures of the Health Unit that operate in this way.

Such structures are the Regular Outpatient Clinics and the Afternoon Clinics, which under the umbrella of their structure contain clinics that examine patients.

All visits are scheduled and for this reason the proper functioning of this application is based on a very large series of parameterizations found in the Functional Module "Management of Basic and Parametric Files".

The Hospital's Administrative staff has access to the application, always in accordance with the rules and customization of the application.

The application consists of a series of functions aimed at determining the examination of a patient by a department, unit or structure of the Health Unit.

Beyond this basic function, a series of others are performed that complete or assist other applications or functional structures of the MY.

Through this application, the following is achieved:

- Uniformity in the way visits are managed. • Common handling of all incidents

Functions

The application includes a group of basic functions whose use is mandatory for the proper functioning of the MY.

Automatic loading of visits from the Appointment System

This function automatically loads all patient visits from the Appointment System into the system. Provision should be made to ensure the accuracy of the data and all kinds of checks should be possible to avoid errors and malfunctions. For example, the availability of clinics, the absence of duplicate appointments, etc. should be checked.

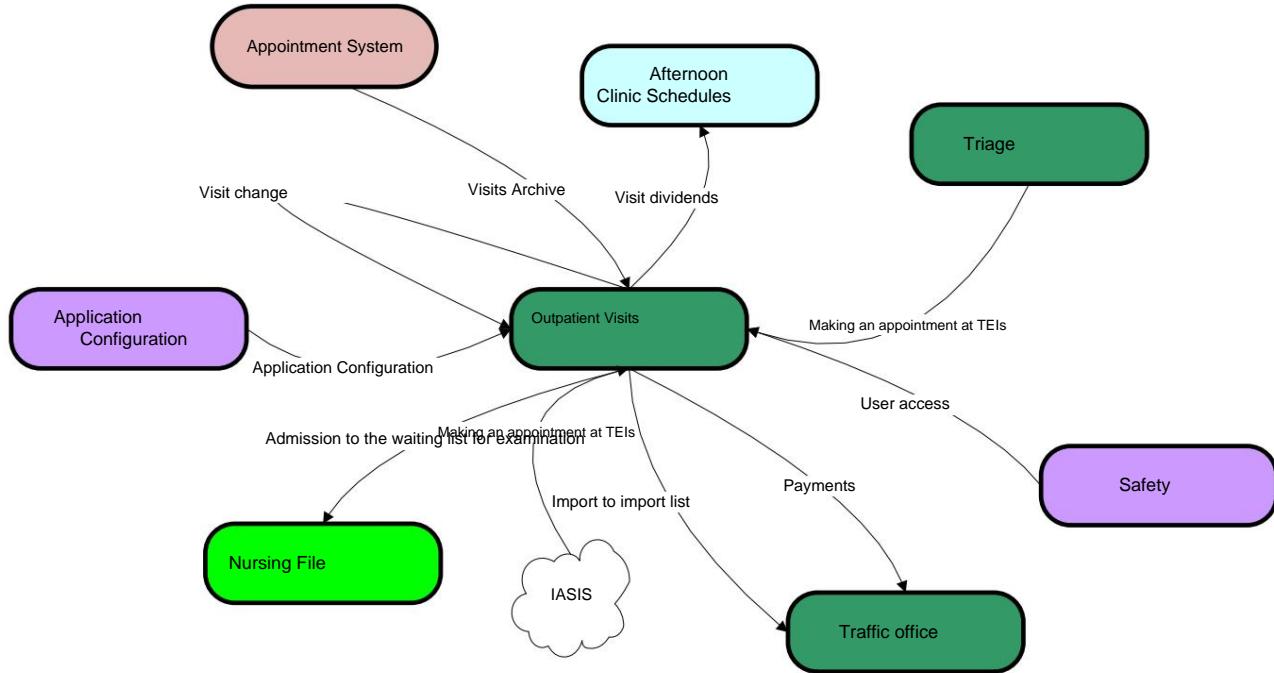
Appointment Scheduling

This function records a visit in the system, which requires the recording of the patient's basic demographic information, the desired Doctor or Clinic, and the day and time that the system declares free for it to take place. The visit is then entered into the waiting list of the corresponding clinic. In addition, this function can delete, transfer, or change the visit details.

Interconnection – communication

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

The Outpatient Department application as shown in the figure communicates with the following applications:



A.3.4.8.2 Emergency Department – Patient Triage

Triage holds a prominent position in healthcare systems internationally. Unfortunately, in our country, it has not been adequately implemented in almost any of the tertiary hospitals.

All Nursing staff of the Health Unit have access to the "Triage" application, always in accordance with the rules and customization of the application.

Triage consists of a series of functions aimed at recording the patient's first contact with the emergency outpatient clinics of the Health Unit.

Through this application, the following is ensured:

- Common point of contact for emergencies
- Monitoring the patient's progress in the T.E.P.
- Incident control is ensured
- Fast and organized patient service
- The organization of the Health Unit

Functions

Triage includes a group of basic and inflexible functions whose use is mandatory for the proper functioning of the MS.

Patient Registration

This function is used by nursing or administrative roles in Triage.

"Triage".

The user is asked to record the absolutely necessary demographic information for a patient who comes to the Health Unit's emergency department for the first time or to update the existing information through the identification function.

Subsequently and based on international practice, specialized nursing or medical personnel should, using the application's functions, examine the patient, classify him based on the criticality of the incident and direct him to the appropriate outpatient clinic. Alternatively,

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

There is the possibility to register in the "Patient Registration" function directly the external Clinic that will examine the patient and place him on the T.E.P. waiting list.

Nursing Assessment Recording

This function is used by nursing roles in Triage. Qualified nursing or medical personnel examine the patient, record basic medical information, classify them based on the criticality of the incident, and direct them to the appropriate outpatient clinic.

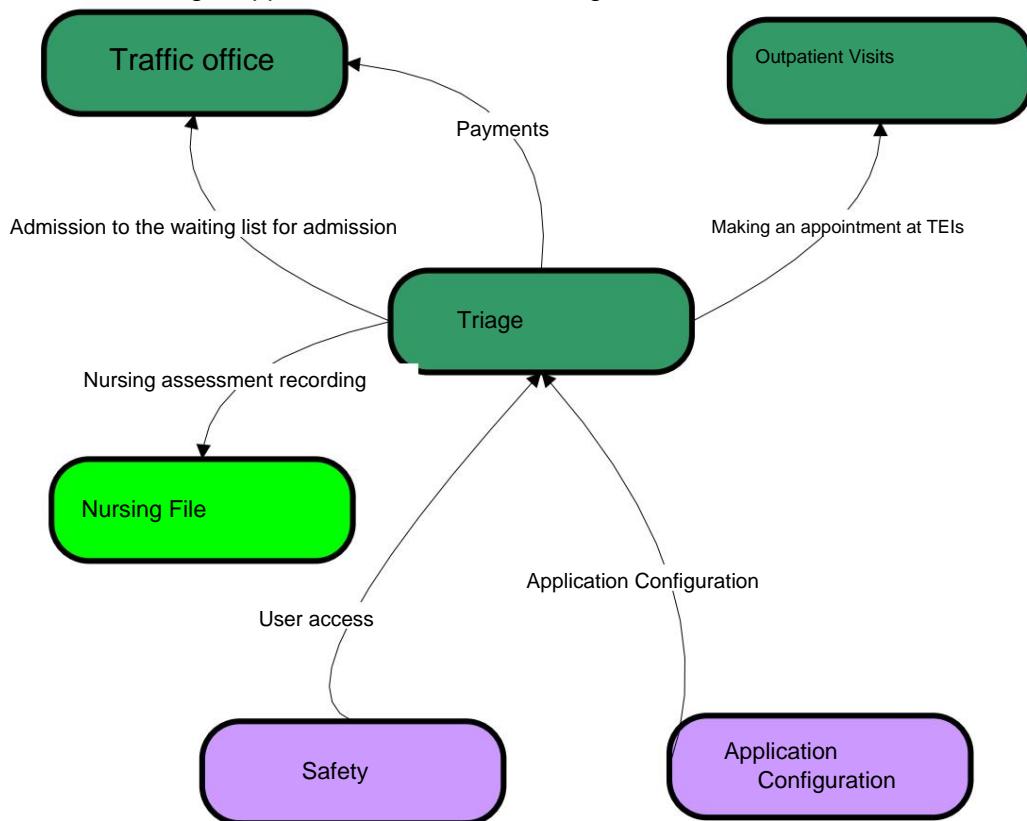
Waiting List Management

The purpose of this function is:

- the release of the T.E.P. waiting list from cases that were examined and due to non-use of the "Nursing File" by the Hospital's medical staff remain on the waiting list while discharge instructions should have been given and the case should have been closed
- Redirection for examination to another emergency department in the same episode
- Introduction to the list of visits to TEIs
- Admission to the waiting list for admission to the Hospital.

Interconnection –

communication The "triage" application as shown in the figure communicates with the following applications:

**A3.4.9 Functional Module "Electronic Prescription for Doctors"**

The Electronic Prescription System (part of the nursing circuit) aims to organize the pharmacy services to the clinics / departments of the hospital (including outpatients and the emergency department) and to schedule the administration of pharmaceutical materials based on individual / general prescriptions. The application will be interconnected with all departments of the hospital and there will be the possibility of On-line ordering from the floors / departments as well as the execution of drug prescriptions from the pharmacy. It will also manage drug returns from the clinics and, more generally, the transactions of pharmaceutical materials inside and outside the

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

hospital (in the latter case, in interoperability with the Electronic Prescription system). Finally, the application will have an approval system for individual / general prescriptions and will suggest alternative medications to be administered in case of inability to administer a medication (e.g. due to an expired batch of medication or due to rejection by the approval system).

The system should be able to find the patient via AMKA and/or clinic/name and register the required drugs and dosage via drug code (EOF) and/or active substance of the drug. Search assistance will be offered via the trade name or the name of the active substance, while it will be able to suggest alternative drugs. Access will also be offered (for informational purposes) to the characteristics (SPCs) of the drug.

For the implementation of good prescribing practices, the following will be checked (based on protocols, rules, etc.):

- Any adverse drug reactions (ADRs) of the drug in the patient
- The dosage (in relation to age, biometric characteristics, etc.) of the patient
- The suitability of the drug for the specific condition.

The system will support at least two levels of messages:

- Warnings in case of minor violations of the rules
- Fatal in case of serious violation

The system will support two ways of ordering medicines

- With active substance. Providing information on the commercial preparations that correspond to it with or without the right to determine by the Doctor a specific commercial preparation.
- With a trade name.

Finally, there will be the possibility of approving / modifying / canceling the prescription.

With regard to the execution of the electronic prescription (Pharmacy), it should provide at least:

- Their grouping by clinic / department / floor to facilitate distribution
- Partial execution of a prescription
- Checking the characteristics of the batch (by scanning the packaging barcode)
- Informing the Pharmacy warehouse of the execution or any return of medicines.

A3.4.10 Functional Module "Management of Patient Medical and Nursing Records"

This application includes all the individual functions related to the Nursing Management of the Patient regardless of type (Inpatient / Outpatient). Essentially, it manages the contact for any patient incident which is opened either in the Regular Outpatient Clinics, emergencies, afternoons, or as a direct admission to a clinic of the Health Unit.

All Medical and Nursing staff of the Health Unit have access to the Nursing Record application, always in accordance with the rules and customization of the application and the provisions for the protection of personal data.

The Nursing File consists of a series of mandatory but additional functions which are assigned parametrically to each user with the aim of simplifying use and focusing on the specific actions required by their daily activities.

Advantages of the common "Medical-Hospital Patient File Management" application are:

- Consistent presentation of all contacts for each incident.
- Common functions for Medical and Nursing staff
- Simplicity in the use of absolutely necessary functions
- Interconnection with all necessary subsystems and applications

The operation of the Medical Record application will maximize the possibility of a more complete provision of health services. More specifically, it will ensure:

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- Error correction during hospitalization
- Detailed recording of all medical services provided
- Recording of Diagnostic Test Orders
- Order analytical tests, receive results
- Individual and general prescription
- Administration of medications • Administration of consumables or not
- Diagnosis Recording
- Medical Discharge

Fixed Functions

The nursing file includes a group of fixed functions that each user has the ability to use depending on their role.

These procedures are selected to serve the basic and inflexible functions of a clinic or outpatient clinic and their use is mandatory for the smooth operation of the Health Unit.

Waiting list

This process is used by nursing or administrative roles in the clinic or outpatient clinic.

The user is asked to select the patient who is on the waiting list in order to either admit him to a clinic or for his examination in an outpatient clinic (regular / emergency / afternoon).

Patients can be registered on the waiting list from the Outpatient Office and Outpatient Visits applications or from the Medical Record application itself in case of transfer to another clinic.

Patient transportation

This process is used by nursing or administrative roles in the clinic or outpatient clinic. The user is asked to select the patient who,

if he/she is:

- Newly admitted
 - o will be placed in a ward and bed • Inpatient o will be moved to another bed/ward or clinic of the hospital
 - o will be temporarily transferred to another medical service facility of the Ministry of Health
- being examined by an outpatient clinic or will be transferred to another one
 - o will leave outpatient clinics and go home. Orders

This process is used by nursing or administrative roles, and rarely by medical roles in the clinic or outpatient clinic. The user is asked to select the patient for

whom he will perform one of the following functions:

- Individual Order
 - o Orders from the Pharmacy or other departments of the Health Unit the medicines or health materials (sterile or not) required for the treatment of the patient which do not come from the clinic warehouse stock. In particular, for the ordering of medicines, the specifications of paragraph A3.4.9 are observed. • General Order
- o Orders from the Pharmacy or other departments of the Health Unit the medicines or health materials (sterile or not) required to fill the clinic warehouse stock.

Tender Announcement for the Project

"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"

Part A: Project Scope and Specifications

- Administration
 - o Records at the appropriate time the administration to the patient of the medicine or sanitary material (sterile or not) that comes either from the clinic warehouse stock or from other item management. At this point, it should be made clear that the administration includes the items (medicines / sanitary materials sterile or not) that are included in the closed hospital, as these, regardless of whether they do not additionally burden the patient or his Insurance Fund, are nevertheless calculated in the total cost of the patient's hospitalization and medical monitoring.
- Warehouse management
 - o Records any movement, destruction, return of medicine or medical supplies (sterile or not) from the clinic warehouse to any other clinic warehouse or central management.
 - o It will be able to issue a warehouse book at any time to control stocks in medicines or medical supplies (sterile or not).
- Ordering Detailed Tests
 - o Records the order of analytical tests to all laboratories of the Health Unit (connected to the Laboratory Information System LIS). This process will be covered using the special test ordering process available in the Laboratory Information Subsystem LIS. This process also covers the collection of a sample and the issuance of a barcode sticker for the automatic identification of the sample by the laboratory.
 - o Records the order of analytical tests to all laboratories of the Health Unit (with the Laboratory Information System LIS). This process will be covered by a separate procedure provided for in the "Nursing File" application itself. For non-computerized departments, the sample collection process and the issuance of a barcode sticker for automatic identification of the sample will not be covered.
- Ordering Diagnostic Tests
 - o Records the order of diagnostic tests to all radiological laboratories of the Health Unit (connected to the RIS). This process will be covered using the special test ordering process available in the Laboratory Information Subsystem RIS
 - o Records the order of diagnostic tests to all diagnostic laboratories of the Health Unit that will not be interconnected with the RIS. At this point, it should be made clear that the order will also include the diagnostic tests that are included in the closed hospital, as these, regardless of whether they do not additionally burden the patient or his Insurance Fund, are nevertheless calculated in the total cost of the patient's hospitalization and medical monitoring.
- Discharge – patient exit
 - The purpose of this procedure is to release the bed or outpatient clinic for the purpose of accounting for the patient. The following information must be recorded:
 - o The discharge diagnosis must be recorded according to the ICD-10 coding translated into Greek.
 - o The hospitalization outcome in coded form.
 - o A free text with discharge instructions etc. (optional)
 - Nursing card
- The use of this procedure allows the user to record and present all medical information recorded for each patient. In

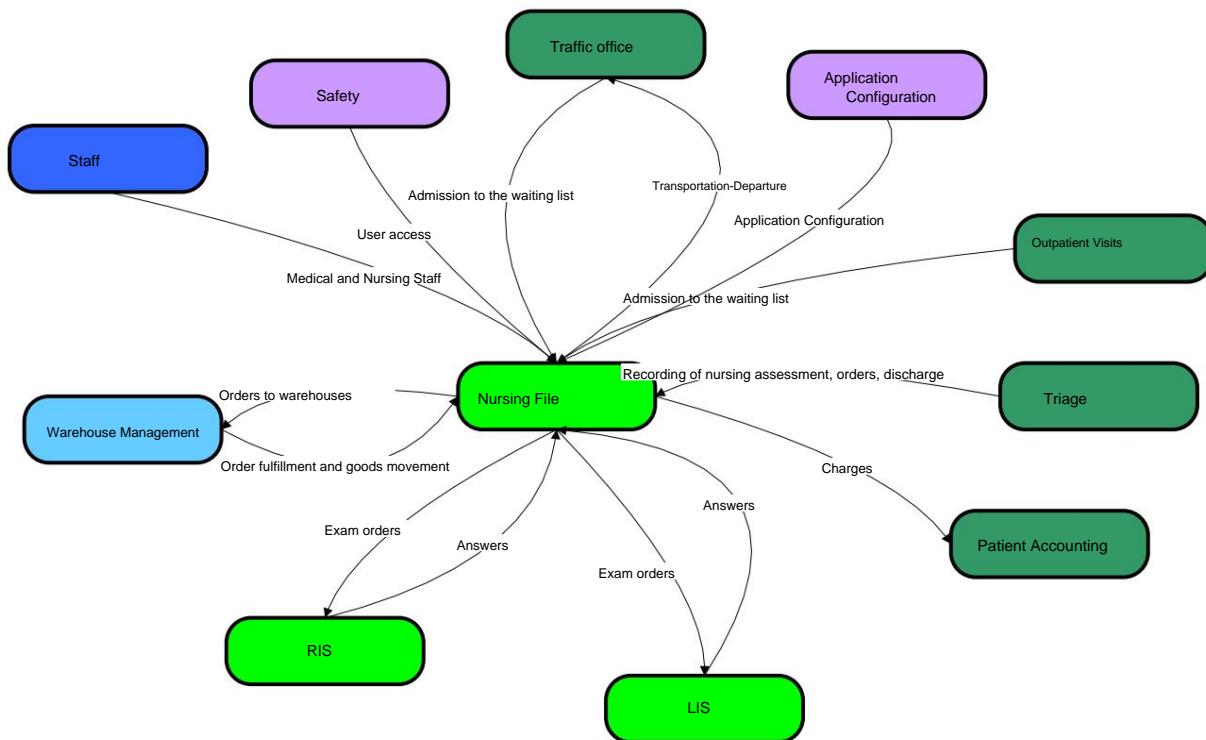
Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

This tab allows nursing staff to record and monitor the following information:

- o Patient diagnosis
- o Short free history
- o Analytical and diagnostic test results from LIS and RIS
- o Recording of nursing assessment
- o Writing a free opinion

Interface - communication

The Medical Record application as shown in the figure communicates with the following applications:



A3.4.11 Functional Module "Appointment Management"

Appointment Management will be carried out as follows:

- Scheduling a request through an electronic online service. The citizen who has been identified in the system can "book" and "cancel" his personal appointments in real time through the online electronic service supported by the system. Full tracking of the use of the service by the citizen is ensured with the aim of ensuring and maintaining the existing quality characteristics of the service.
- The citizen's confirmation of attendance at his "appointment" is a crucial factor in the efficient utilization of the service. It is noted that non-attendance without prior cancellation of the appointment constitutes a significant "loss" of utilization of the Agency's service capabilities, with negative impacts on the "waiting time" for the examinations (if the citizen canceled the appointment in time, the doctor's or laboratory's time could be "given" to another citizen with a significant reduction in waiting time). The system should provide for the function of "confirming" citizens for the upcoming appointment, a few days before the day and time of their scheduled performance, especially for those appointments that have a long waiting time. Appointments that will ultimately be canceled can be made available to other citizens, thus reducing the loss of utilization of the capabilities.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

Regarding citizen communication for appointments via an online electronic service, the subject of the proposed approach is the design and implementation of specific Digital Services which can be provided via the YY Website and will allow citizens to:

- have access to the appointment database
- be able to reschedule their scheduled medical and diagnostic tests
- to "make an appointment" for a medical examination
- possibly cancel their personal scheduled medical examinations • confirm their attendance before the scheduled medical examination.

FunctionalityCitizen registration in electronic services

A structural prerequisite for the use of the electronic interface is the citizen's registration in the electronic services that will be provided by the Website. After the citizen's successful registration and association with his AMKA through an appropriate interface with the AMKA-EMAES system, the now authorized user can activate electronic transactions.

Scheduling a Request for a Doctor's Examination

The user, in the electronic form that appears on their screen, will choose whether they want to search for available appointments with a specific specialty or a specific doctor.

Search by Specialty

In this case, through the electronic form that appears on his screen, the user will select from a predefined list of prices (which is retrieved in real time from the database) the specialty for which he wishes to perform the examination. The user selects the Health Unit in which he wants to be examined and the system will display the closest, time, appointments that are available, while for each one the doctor who will perform the examination will also be displayed. In the event that these available appointments for some reason do not satisfy the user, there will be the possibility of retrieving the free - available appointments for the next day. In any case, the user selects the desired date and time for him and completes his application. The system will perform the appropriate availability and non-binding checks and will inform the user of the successful or unsuccessful completion of the transaction by displaying the details of the request (e.g. System Number, Doctor's Name, Specialty, Date and Time, Insured Person's Details and Health Unit) while also providing the option to print the relevant document.

Search by Doctor

Corresponding to the previous case, the system will provide the ability to search for an appointment with a specific doctor based on various search criteria such as last name, specialty, Health Unit, etc. The remaining functionality remains the same.

Cancelling a Scheduled Request for a Doctor's Examination

The user will be able to search for the scheduled examination requests that they have submitted and which have not yet taken place. They will then have the option to request the cancellation of a specific appointment. From the moment of successful cancellation, the specific date and time of the canceled examination will be available for selection by another user.

Confirmation by a citizen of a Scheduled Request for a Doctor's Examination

For appointments scheduled beyond a predetermined number of days, the citizen will be required, through a special online transaction, to confirm his/her attendance at the Health Center. Otherwise, the appointment will be automatically canceled and the reservation may be rescheduled.

Statistical information

The system will provide at least the following reports to management:

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****1. GENERAL INFORMATION**

- Total number of Scheduled / Made / Arrived / Extraordinary / Not Made / Not Arrived / Cancelled appointments
- Total number of Scheduled/Performed Medical Examinations,
Blood tests, laboratory tests, MRI tests
- Number of Emergencies / Specialty / Health Unit
- Age distribution of visits (e.g. 0-15, 16-65, 65+)
- Distribution of visits by gender (men - women)
- Distribution of telephone calls according to call time (7:00 - 19:00) and scheduled and made calls

2. MEDICAL VISITS DETAILS

- Health Unit Doctors participating in the appointment booking process
- Number of visits per Specialty / 1000 users / Health Unit
- Number of Emergencies / Specialty / Doctor / Health Unit
- Waiting Time / Specialty / Health Unit
- Waiting Time for Doctors / Specialty / Health Unit
- Number of Scheduled and cancellation rate of medical visits / Doctor / Specialty / Health Unit and reasons for cancellation
- Working hours per Doctor / Specialty / Health Unit / Month
- Percentage of canceled appointments out of all scheduled appointments in Specialties
Health Units and reasons for cancellation
- Average Waiting Time / Specialty / Prefecture / Region
- Average Waiting Time / Specialty / Region

3. CLINICAL TEST DATA

- Total number of planned and performed paraclinical and laboratory tests / Health Unit
- Number of paraclinical and laboratory tests performed per 1000 users /
Health Unit
- Average Waiting Time per paraclinical and laboratory examination / Health Unit
- Number of planned, performed paraclinical and laboratory examinations
/ Health Unit

4. BLOOD COLLECTION DATA

- Average number of daily scheduled blood collection requests per Health Unit
- Average number of daily blood collection requests per Health Unit
- Number of Active Blood Donors per Health Unit
- Analysis of Blood Collection Laboratory Hours per Health Unit

5. DIAGNOSTIC TEST DATA

- Summary Table of planned, realized, not realized,
Cancelled by Health Unit
- Analysis of scheduled appointments by Health Unit, Referring Physician
- Total scheduled examinations per Referring Physician, specialty, health unit

A3.4.12Functional Unit "Administrative Information"

The "Administrative Information" Functional Unit includes an MIS subsystem with which the data drawn from the Unified Information System of each Ministry of Health is converted into information that assists the decision-making process and the information of the administration.

The subsystem will include all reports and statistical data regarding patient movement data, hospitalization cost data, human resource management data, etc., as well as their forecasts. In addition, it will utilize the report generator that the Contractor will offer within the framework of the project for the production of ad-hoc reporting from the data that will be kept in the database of each hospital.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

The MIS subsystem will be based on its supply from the individual subsystems that make up the Unified Information System of each MH. In addition, it will produce all the data in analytical or aggregated form with which the MH MIS System under development will be supplied. It is emphasized that in statistical analyses and medical reports, as well as wherever else required, the subsystem should be able to maintain the anonymity of the reference data and make it impossible to identify the patients to whom they correspond.

It should be mentioned that this Subsystem is considered to be of particularly great value for the Military and the Armed Forces and is the visible result of all the other subsystems, which form the basis of.

Users of the MIS subsystem are divided into two main categories:

1. End-users. This is the category of users who produce the usual reports according to the corresponding periodicity. They are the majority of users and belong organically to various functional departments of the IT. Potentially all end-users of the system should be able to use these functions,
2. Power users. This is the category of users who generate reports on demand and for this purpose use the report generator that the Contractor will provide. The number of Power Users is estimated at 2 people per M.Y.,

Reports for MY

The reports are categorized into logical groups according to the type of information they concern. The groups are then presented with the characterization of the magnitude they express.

The data and information mentioned in this section constitute the minimum information that must be provided by the MIS subsystem for the HR.

The final references will not be numerically more than 25% of those mentioned later in the announcement.

Reports of produced work of the Ministry of Education

These reports provide a qualitative and quantitative presentation of the operation of the departments. The data analysis focuses on the areas of activity and the progress of the work.

The reports are produced by maintaining data relating to the quantitative and qualitative presentation of activities of users of the MY services in given periods of time, as well as the prediction of the evolution of these values over time. The categorization is done according to the following criteria:

1. The reason for entering the system (visit to Outpatient Clinics, examinations, hospitalization, afternoon clinics, etc.).
2. The evolution of the cases (discharge, days of hospitalization, transportation, etc.).
3. The characteristics of the users (gender, geographical reference, insurance fund etc).

Human resource management reports

This category includes reports concerning the presentation of the current human resources situation, their distribution into employment categories, personnel development, future needs and productivity indicators.

Cost reports

Reports in this category are considered very critical for the effective financial management of the NHS in light of the institutionalized management framework of the Health institutions. A sufficient and necessary condition for the production of cost reports is the maintenance of analytical accounting as prescribed in this declaration and the existence of the relevant procedures.

Esynet Reports

This specific category includes reports requested monthly by the Ministry of Health.

Financial reports MY

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

This specific category includes the presentation of the financial statements of the Company and the production of basic financial reports for the most effective dynamic monitoring of the Company's most important financial figures.

Basic techniques and architectural directions.

The proper and efficient operation of the MIS subsystem is directly intertwined with the Unified Information System architecture that the Contractor will develop. In its offer, the candidate Contractor should take into account the following:

1. To assess the functionality and architecture of already installed applications in MS to the extent that they will be maintained in operation
2. The institutional framework governing the YY and the MYs
3. Each MS should only have access to the data it produces
4. Data used for operational, epidemiological and statistical purposes must be anonymous and not refer to personal information of patients or healthcare professionals.

5. The aim of the subsystem is to produce reports with operational and other HR data with the aim of enhancing management decision-making on complex information issues.

For the implementation of the subsystem, the Contractor must take into account the following:

1. Within the framework of the Implementation Study, the Contractor should give particular importance to the analysis of existing applications (if ultimately, based on the Implementation Study, some of them are retained), to the method of interconnection with existing applications and subsystems and to the method of secure data extraction.

2. The Contractor should provide for the training of the different types of users separately (end users, power users).

A3.5 Interoperability

The interoperability requirements of the systems are divided into the following categories:

1. Horizontal interoperability (between the subsystems being procured)
2. Vertical interoperability (between the systems under procurement and the existing systems of the Entity)
3. External interoperability, i.e. interoperability between the systems being procured with external third-party systems

In particular:

A3.5.1 Horizontal interoperability

The system under procurement must, for reasons of flexibility and scalability, have a modular architecture. The minimum interoperability requirements of the various modules are set out in the table below. It is noted that this list is indicative, and that the candidate Contractors must develop a comprehensive proposal in their offer to cover horizontal interoperability. This interoperability must have traceability features, i.e. it must be possible to identify the origin and justification of the movements in each subsystem.

More detailed communication requirements between the various functional parts (modules) of the system have been developed in the relevant sections (A3.4.3 – A3.4.12). The basic elements are summarized here.

(Sub)systems/Services that must interoperate	Information exchanged	Observations
ACCOUNTING with: MANAGEMENT, PHARMACY PATIENT ACCOUNTING, SUPPLIES OUTSIDE MEDICINE, PAYROLL	Transaction type, cost center, date, value	The accounting department is updated one-way from the movements

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

MATERIALS MANAGEMENT – WAREHOUSES (Medicines, Materials, Healthcare Materials, Food, Reagents, Fixed Assets, Biomedical Equipment) with SUPPLIES	Material type, material code, Movement type, cost center, date, quantity, value	Management informs procurement of needs, procurement informs management of orders, receipts, etc. of materials
MATERIALS MANAGEMENT – WAREHOUSES with TECHNICAL SERVICE	Material type, material code, Movement type, cost center, date, quantity, value	THE TECHNICAL SERVICE informs the managements of needs, the managements inform the TECHNICAL SERVICE with material dispositions
MATERIALS MANAGEMENT – WAREHOUSES with PATIENT ACCOUNTING	Material type, material code, Movement type, cost center, patient code, date, quantity, value	
MATERIALS MANAGEMENT – WAREHOUSES with CLINICS/SURGERIES	Material type, material code, Movement type, cost center, date, quantity, value	
SUPPLIES – CONTRACTS with PHARMACY	Drug Details, Type of transaction, date, quantity, value	
MOBILITY OFFICE with: PHARMACY, ACCOUNTING, MANAGEMENT, CLINICS	ADT (Admission, Discharge, Transfer)	
PATIENT ACCOUNTING with: PHARMACY, ACCOUNTING, MANAGEMENT OUTDOOR MEDICAL CLINICS, CLINICS	Material type, material code, Movement type, cost center, patient code, date, quantity, value	
PERSONNEL OFFICE with PAYROLL	Personnel details, changes, leaves, illnesses, overtime, etc.	
PERSONNEL OFFICE with CLINICS	Personnel details, shifts, overtime, on-call hours, etc.	
DIAGNOSTIC (and IMAGING) LABORATORIES with: CLINICS, SURGERIES, OUTPATIENT MEDICINE	Test orders (patient details, orderer details, test details, date) Exam results	
DIAGNOSTIC (and IMAGING) LABORATORIES with: PATIENT ACCOUNTING	Patient information, examination data, date, value	
TEI-Department of Outpatient Clinics with: PATIENT ACCOUNTING	Patient details, cost center, transaction type, date, value	
TEI-Department of Outpatient Clinics with: MOBILITY OFFICE	Patient details, date	It applies in the event of a patient being admitted from outpatient clinics.
Emergency Department with: MOBILITY OFFICE	Patient details, date	It applies in the event of a patient being admitted from outpatient clinics.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

ALL OF THE ABOVE SYSTEMS with MIS	Analytical or aggregated movements as appropriate	communication it is The one-way MIS. A clear definition of the movements is required to avoid double updates. The movements are characterized by traceability and drill down capability with
--	---	--

The above applications should communicate with each other and between Health Units through international standards such as HL7 or equivalent.

Any additional application/function offered (e.g. telemedicine) must have the features of the applications of this project and be able to interface with them.

A3.5.2 Vertical interoperability Vertical

interoperability applies in the case of installation of individual subsystems (Administrative - financial (ERP), and/or hospital (HIS) and/or laboratory (LIS-RIS)), as well as in the case of the existence of individual small systems (e.g. special laboratory or clinical systems, which will communicate to receive patient data via HL7).

The required interfaces are determined by the above horizontal interoperability table, taking into account the structure of the subsystems, and specifically:

1. Administrative-financial subsystem (ERP). Includes:

- o Accounting – costing
- o Procurement - contracts
- o Management
- o Personnel Office
- o Payroll

2. Hospital subsystem (HIS). Includes:

- o Traffic office
- o Patient accounting
- o Clinics
- o Surgeries
- o Outpatient clinics
- o Emergency department

3. Laboratory subsystem (LIS-RIS). Includes:

- o Biochemical, hematological, hormonal, etc. laboratories (LIS)
- o Radiology, tomographs, ultrasounds, etc. (RIS-PACS)

The above applications should communicate with each other and between hospitals via international standards such as HL7 or equivalent.

Candidate Contractors must thoroughly develop in their offer both the characteristics and standards of interoperability that they intend to develop, as well as the natural way of achieving it (e.g. via message broker).

A3.5.3 External interoperability

External interoperability (with external third-party systems) includes a wide range of systems and communication methods. These systems are grouped into the following categories:

A. Provision of periodic information: They mainly concern codings (diseases, health materials, treatment protocols, etc.).

The renewal of their information is not daily, and communication with the systems that provide it may be done off-line.

Specifically, the information that will be provided is (indicatively) the following:

ÿ From the Ministry of Health – EOF

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- Coding of diseases, conditions (ICD10 – ICPC2, correlations)
- Coding of Drugs, Active Ingredients
- Other codings (medical procedures, health materials, accounting plan, etc.)
- Medical protocols

The information is mainly one-way, i.e. from the third-party systems (Ministry of Health and EOF) to the system under procurement. **B.**

Provision of basic data: They mainly concern patient data (demographic, biometric, medical) and their insurance capacity. They are made available online, mainly during the patient's first contact with the health unit, through interoperability with the AMKA system, the FKA systems and the electronic prescription system.

In particular:

AMKA – EMAES system

The AMKA-EMAES system offers information on basic demographic data of the insured, as well as their insurance provider. The information is one-way, i.e. from the AMKA-EMAES to the system under supply. It is possible that to some extent the possibility will be provided to users to correct / supplement missing data.

FKA Systems

The FKA systems will provide information on the patient's insurance eligibility. The information will be one-way (from FKA to the system under supply).

Note: The implementation of a unified system (E.M.A.P.S.: National Registry of Insurance, Retirement and Monitoring of Pension Payments – Income – Insurance – is being studied.

Awareness), which will collect and consolidate data from the FKA and possibly the identification - verification of the patient's insurance capacity will be done through interoperability with the above registry.

Electronic prescribing system

The Electronic Prescription system will provide information regarding the biometric characteristics of the examinees, a brief medical history, medications administered and tests performed.

C. Provision of movement data: It concerns the information of third-party systems from intra-hospital movements, upon admission but mainly upon discharge of the patient (Interoperability Project of FKA - Health Units - Banks) or on a regular periodic basis (e.g. monthly), for sending data of a financial and operational nature to a central database of the Ministry of Health (NSA Management and Business Intelligence System").

Specifically, the minimum topics that will be supported are the following:

To the Ministry of Health ("NHS Management and Business Intelligence System"):

- Financial data such as expenses, financing, payments, financial data of services provided by external suppliers, extraordinary grants, reserves, infrastructure investments.
- Flow and movement: Incoming, outgoing, by gender, age, Insurance institution, categories diseases, treatment outcome, readmissions.
- Duration of services provided by diagnostic category of diseases.
- Waiting time: waiting time for diagnostic, therapeutic, preventive or other services actions.
- Use of Outpatient Clinics and Emergency Departments, rehabilitation units and support.
- Patient transport: Use of EMS or other means in relation to symptomatology and initial diagnosis.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- Liaison and coordination with other services: referrals internally and to others carriers.
- Disease-Diagnosis Categories: Type and set of patients falling under each diagnostic category category and their categorization in terms of resource utilization.
- Medical and other procedures: Therapeutic, Surgical, diagnostic, preventive, rehabilitation and support.
- Drug Consumption: Consumption and expenditure per patient and per therapeutic category, prescription.
- Coverage Rate: Beds by disease category. • Cost Data of the services provided: Cost of medical procedures per patient and category of diseases. Cost of prevention and rehabilitation programs.
- Biomedical Equipment by unit, equipment availability, network participation vigilance.
- Hospital staffing by personnel category - on-call, overtime, leave.
- Hospital assets – maintenance / performance

To and from the Electronic Prescription system

Interoperability is not required in cases of prescription/referral movement that occurs internally within Health Units. However, part of the scope of the project is the development of interoperability in the following cases:

- Prescription by Doctors of Outpatient Clinics, Health Centers for execution outside Hospital - Health Center.
- Ordering examinations from Doctors of Outpatient Clinics, Health Centers for execution inside or outside Hospitals.
- Prescription by internal Hospital Doctors for execution by external pharmacies.
- Review of prescriptions and referrals by hospital doctors for all cases this is foreseen.

Additionally, the Electronic Prescription system will be updated by the system under procurement for data regarding biometric data, medical data, test results, etc.

Towards a System of Interoperability between FKA-Health Units-Banks:

- Patient details
- Cost data for treatment and care
- Credit and Debit Information and Payment Orders

It is particularly noted that all of the above third-party systems are not currently in full production operation, and their maturity varies, as some are in the planning or tendering stage. Therefore, in order to develop the relevant interoperability, close cooperation between the Contractor of this project and the project owners, the operating entities as well as the respective implementation Contractors is required, in order to clarify the details of their interconnection. In any case, the Contractor of this project will propose interconnection standards where they do not exist, and will implement the necessary electronic services on the part of the system under procurement.

The software that will be developed in each case will comply with and implement the "Greek Framework for the Provision of Electronic Government Services and Interoperability Standards" (or Electronic Government Framework - IGF) which is part of the overall planning of the Greek Public Administration for the provision of Electronic Government services to bodies, businesses and citizens.

In order to achieve interoperability, the structure of the e-government and interoperability framework will be fully followed, any necessary proposed technological standard or subsequent version thereof, communication will be based on XML technologies and Web Services, and the logic of Multi-Layer Architectures and Service-Oriented Architectures will be adopted.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

Based on the above finding, the implementation of this project will take into account:

- the principles and guidelines defined by the Greek e-Government Service Provision Framework and Interoperability Standards (or e-Government Framework – e-gif) which is part of the overall planning of the Greek Public Administration for the provision of e-Government services to bodies, businesses and citizens.
- The Recommendation of the European Committee on the Interoperability of eHealth Systems, which concerns electronic patient records, electronic patient files and emergency data.
- The HL7 v3 standard where applicable according to the contractor
- The HL7 v2.x standard where applicable by the contractor
- The HL7 CDA R2 standard where applicable to the contractor
- The interoperability profiles that have been internationally proposed by the IHE body and are relevant to the said project.

A3.6 Multichannel approach

The system will have special applications for citizen services (appointment booking, availability of Health Units, electronic issuance of certificates and information, laboratory test results, health and welfare information, information from health providers, etc.) through free access from the electronic portal (registration of a request and sending a response electronically and in accordance with the legislation). The development of incident management services -

"appointment booking" - at a nationwide level will include the possibility of making appointments both by voice system, and by direct connection to the Secretariat of the Health Unit. Scientific medical information (forums, wikis) will also be available to inform health professionals.

Additionally, system user support (via call center and other advanced forms of communication) will be available on a twenty-four-hour basis, every day of the year.

The above requires the development of a web portal. In particular, the information and communication portal will be the main entry point to the system for all stakeholders (users, citizens, suppliers, etc.), who will execute applications according to access rights. Among other things, it will provide general statistics and information on procedures, Legislation and the Regulatory Framework with smart search methods.

The implementation of the above is part of the scope of the Contractor's work.

A3.7 Safety Requirements

Medical data, which includes all information related to the patient's health, constitutes, according to the current legislation on the protection of personal data, "sensitive" data, which requires special protection and any processing must be carried out in accordance with the strict conditions set by the legislation on the protection of personal data. Furthermore, the processing of medical data must not violate medical confidentiality.

Personal data security issues are becoming increasingly important in the information society. Data security refers to the technological and organizational measures that ensure the right of the individual to the protection of his or her personal data and medical confidentiality. Security is therefore a means to an end and a fundamental condition for the lawfulness of the processing of personal data.

A3.7.1 Institutional Security Framework.

A.3.7.1.1 General

An individual's health data constitutes personal data which is protected in Europe and internationally by special regulations.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

The European Convention on Human Rights (ECHR) of 1950 protects private life, which includes personal data, in Article 8. With regard to medical data, the Court of Human Rights has set strict conditions for their disclosure to third parties.

Recommendation 108 of the Council of Europe of 1981 on the protection of individuals with regard to automatic processing of personal data, stipulates in Article 6 that medical data cannot be subject to automatic processing without guarantees for their protection, which must be laid down by law.

The OECD issued a series of "guidelines" in 1980 for the protection of personal data in general.

As for the Member States of the European Union, the milestone in the protection of personal data is Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data. This Directive ensures the harmonisation of the national laws of the Member States regarding the protection of personal data and their free movement in the Member States. Greek Law 2472/97 transposes the Directive into domestic law and at the same time fulfils Greece's obligation arising from Recommendation 108 of the Council of Europe to adopt specific provisions for the protection of personal data. According to Directive 95/46/EC and Greek Law 2472/97, the processing of medical data is subject to special regulations.

Subsequently, the European Parliament and the Council of Europe adopted Directive 97/66/EC on the protection of personal data in the telecommunications sector, which was recently replaced by Directive 2002/58/EC on the protection of personal data in the electronic communications sector. These Directives specify Directive 95/46/EC in certain aspects related to this specific category of application. Greek Law 2774/99 transposed Directive 97/66/EC into domestic law. Subsequently, Law 3471/2006, which repealed Law 2774/99, transposed Directive 2002/58/EC into domestic law.

Finally, the protection of personal data has also been enshrined in the constitutions of various countries. According to Article 9A of the Greek Constitution, the protection of an individual's personal data is a fundamental right. The processing of an individual's data is permitted only under the conditions laid down by law. Furthermore, the Declaration of Fundamental Rights of the European Union, adopted by the Member States in 2000, provides for a specific article (Article 8) on the protection of personal data.

The protection of medical data is governed by the provisions of Laws 2472/97 and 3471/2006 as well as any other provisions related to medical confidentiality.

A.3.7.1.2 Law 2472/97

Law 2472/1997, which transposes Directive 95/46/EC into Greek law, concerns the automated and non-automated processing of personal data contained in a file. Since Greek regulation does not require the file to be structured, every medical file of an individual, in any form, constitutes a file and falls within the provisions of the law.

A.3.7.1.3 Law 3471/2006.

Law 3471/2006 transposes the corresponding Directive 2002/58/EC into domestic law and concerns the protection of personal data in the telecommunications sector. The scope of the law covers the processing of personal data and the safeguarding of the confidentiality of communications, in the context of the provision of publicly available electronic communications services on public electronic communications networks. On the other hand, the rights of users and the obligations of providers of private networks, such as Virtual Private Networks (VPNs) and providers of services via private networks, are regulated by the provisions of Law 2472/97.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

According to Law 3471/2006, providers of Internet access or hosting services, available to the public, must ensure the confidentiality of communication and take appropriate technical and organizational measures to protect the services provided. Thus, in the event that the implementation of medical IT applications is carried out in collaboration with providers of Internet access or hosting services, they must also take all necessary security measures for the transfer of data. Furthermore, the law explicitly defines the principle of minimization of personal data that are processed.

A.3.7.1.4 Medical Confidentiality

Medical confidentiality is enshrined in Article 371 of the Penal Code, according to which any violation of confidentiality by a doctor or his assistants constitutes an offense. The act is not an offense if the doctor discloses information in the context of the fulfillment of a duty or the safeguarding of a legitimate or otherwise justified, essential interest of himself or someone else, which could not be safeguarded otherwise. Medical confidentiality as an obligation of the doctor who provides his services privately or through public or private law organizations, is also enshrined in the Medical Ethics Regulation (Government Decree of 25/5/1955). The protection of the patient's private life and the confidential nature of the medical file are also enshrined in Article 47 of Law 2071/92 (Medical and Health Law). Finally, the retention period for hospital records is regulated by Presidential Decree 1258/81.

Therefore, in medical informatics applications, the provisions on medical confidentiality and personal data protection apply cumulatively.

A3.7.2 Contractor's Safety Obligations.

The security of processing is an obligation of the controller and a prerequisite for the lawfulness of processing. The controller is considered to be the Contracting Authority, which will also be the host of the Project infrastructure. The following obligations of the candidate Contractor are intended to ensure compliance of the information systems with the aforementioned legislation and modern developments in ICT.

The use of ICT in the health sector requires the adoption of all necessary technical and organizational measures. These measures range from informing and training users, the existence of a person responsible for the information system to the physical and logical protection of the information system, network connections and data transmission. In any case, security concerns the processes and structures of the processing, the participants and the physical and logical security of the information system. In principle, the use of ICT in the health sector must ensure:

- Authentication: checking the authenticity of the identity of the parties to a data exchange.
- Authorization: user access must be authorized.
- Confidentiality: maintaining the confidentiality of data. Information is only available to authorized users. The certification of user authority should be based on the role system, which is the international de facto standard due to the flexibility it offers. All appropriate measures must also be taken to prevent data theft attacks.
- Integrity: data should remain intact, i.e. not be subject to alteration. To preserve data integrity, it is necessary to use database management systems that provide appropriate mechanisms to ensure their integrity and consistency and prevent data sabotage attacks (unauthorized copying, unauthorized data destruction, etc.).
- Non-repudiation: the user must not be able to deny their participation in the data exchange. This is achieved with the appropriate mechanism for recording user movements (auditing, logging).

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- Revision/audit capability: any modification or processing of data must be to be able to be checked, i.e. by whom it was made and when.
- Accountability: it must be clear who is responsible for entering, accessing or modifying each piece of data.
- Transparency: processing procedures must be documented so that they can be checked.
- Availability: data must be available when needed. This is achieved by using mechanisms that prevent denial of service attacks.

The problem of security of medical information systems in general can be analyzed into the following basic components:

- Physical security and computer security. It is related to protection from natural disasters (theft, fire, floods, vandalism), unauthorized access, etc.
- Database security. It is related to the implementation of a predefined information protection policy (security policy), which concerns the ability to access and process database information.
- Network security of the system. It is related to the protection of the system's information during its transmission through computer networks (e.g. cables, telephones, satellites, etc.).

Of the above, the physical security and the security of communication networks will be ensured by the Contracting Authority which will provide and host the infrastructure for the installation and operation of the system. The configuration of the framework and security procedures of the databases is the obligation of the Contractor.

Security concerns both each on-site application and the communication of the subsystems. Of the aforementioned parameters, authorization, control of access to the system, availability of data, non-repudiation and control are considered important for the security of the application. For the security of communication, important parameters are considered to be ensuring authentication, control of access, integrity and confidentiality of data, availability of data and non-repudiation of participation in the exchange of data.

Full protection of medical confidentiality and personal information is required through strict and parametrically defined access rights. Each department or organizational unit will only have access to its own data, except in cases of special authorization. Regarding the integrity of the data, backups should be kept in a secure area of the Contracting Authority and, if possible, in another facility that meets the conditions for maintaining backup copies as defined in the institutional framework, in order to ensure the continuity of the provision of health services in the event of system failure, in an immediately manageable manner.

Within the framework of this Project, the Contractor must deliver to the Contracting Authority:

- OPSN security plan.
- Risk analysis.
- Recovery scenarios from outages due to force majeure situations.

A3.8 System Usability Requirements

The Unified Health Information System of the National Health System is characterized by the particular requirements it has for a high level of usability in the organization and presentation of its services. The Contractor should take into account, during the design, the sensitivity and criticality of the information being transferred and the possible differentiation of users in familiarity with network applications.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

It is considered that the design of applications with the basic principle of achieving high usability and ergonomics is a critical success factor for the present project. The logical / functional completeness of the applications is not in itself a sufficient condition for the successful operation of the system, but must coexist with an interface that allows users who are minimally familiar with network applications to carry out their daily tasks with ease, certainty and without resorting to any type of training beyond the help guidance integrated into the interface.

The basic principles towards achieving a high degree of usability include:

- Customer-centric Perception: The information and functions provided must be oriented towards the user's needs.
- Transparency: When using the system, the user must carry out his tasks without understanding technical details or internal processes of the system that support the completion of transactions.
- Consistency: Applications should have a uniform appearance and there should be consistency in the vocabulary and symbols used. The vocabulary used to describe concepts and functions across the entire range of applications in the system should be consistent. A similar consistency should be observed in the use of graphical representations and the configuration of the system pages/ interfaces.
- Avoidance of repetitive actions: Data entry will only be done once. For example, the doctor enters the patient's data only once, regardless of the number of transactions he will perform.
- Smart search capability: In any case, the user will have smart and versatile search methods at their disposal (e.g. to locate the coded diagnosis, the pharmaceutical preparation or the examination)
- Support from the system: The system should support and guide appropriately users to avoid errors, etc.
- On line help at every step of program execution

A3.9 Accessibility Requirements

In order to ensure access for people with disabilities to the electronic content of the web portal:

1. the construction of the portal and online services must fully comply with the verifiable Web Content Accessibility Guidelines version 2.0 at an accessibility level of at least "AA" (WCAG 2.0 level AA),

In other cases of applications with a "strongly interactive nature" that do not fall into the 2. category of online services, detailed documentation by the Contractor of ensuring accessibility based on international standards and guidelines for accessibility and usability of IT applications is necessary.

A3.10 Project Schedule and Phases

The project implementation period may not exceed forty (40) months from the date of signing the Contract. Furthermore, the project duration may not exceed the deadlines for the eligibility of project costs, as defined by the financing terms of the Special Management Service of the Operational Programme "Digital Convergence". In the event of amendments to the financing terms, the project duration may be amended accordingly. The overall project is divided into two implementation Stages as follows:

- **Stage 1: System Development and Pilot Implementation in the Pilot Health Unit**
- **Stage 2: Expansion of the System to all Health Units**

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

For the needs of this project, 40% of the beds of the participants in the Hospital Health Unit project are designated as Pilot Health Units, with the corresponding 40% of the Health Centers and 40% of the Regional Clinics.

The Health Units participating in the Pilot Health Unit (Stage 1) are the following:

No.	HOSPITAL	NUMBER BENDER	HEALTH CENTERS	DISTRICT MEDICAL CENTERS
1^ο <small>Ministry of Environment</small>				
1. EVANGELISM 2.	950			
POPULAR	580			
3. AMALIA FLEMING	270			
2^ο <small>Ministry of Environment</small>				
4. MYTILINES GENERAL CENTER – VEGETABLE GARDEN	250	Antissa Cathedral KY Kallonis KY Mantamados Plomari Municipality KY Polychnitou Total: 5	WHAT IS SIGRI, WHAT IS MESOTOPOU? WHAT IS ERESOU, WHAT IS VATOUSAS? WHAT IS FRIENDSHIP, WHAT IS SCOUTARO? PI SKALOHORIOU, PI PETRAS WHAT IS PARAKOILON, WHAT IS MORIAS WHAT IS KEY, WHAT IS WIND? PI AGRAS, PI AG. PARASKEVIS WHAT IS A SYCAMINE, WHAT IS A WHISTLE? WHICH IS PAMFILON, WHICH IS MITHYMNAS WHERE IS KAPI, WHERE IS THERMA, WHERE IS SKOPELOS, WHERE IS PLAGIA PI PAPADOU, PI PALEOCHORIOU PI LOUTRON, PI K.TRITOUS PI HORSEMAN, PI EDGE MAN WHAT IS AGIASOU, WHAT IS VRISAS PI VASILIKON Total: 31	
5. CHIOS GENERAL PUBLIC SCHOOL – DOG HOUSE	160	KING OF PYRGIOU Total: 1	PI PARPARIAS, PI NENITONS PI LAGKADAS, PI KOUROUNION PI CAMBOCHORON, PI CAMBION WHAT IS KALLIMASIAS, WHAT IS KALAMOTIS? PI AG. MINA Total: 9	
6. SAMOS GENERAL GOVERNMENT – AG.PANTELEIMON	120	KY KARLOVASIOP Total: 1	WHAT COUNTRY, WHAT TOWER WHAT IS PLATANOU, WHAT IS PAGONDA PI MYTILINEOS MARATHOKAMPOU PI, LEKKAS PI WHAT IS KONTAKAIKO, WHAT IS KOKKARIOU? PI KALLITHEA, PI AG. KONSTANTINOS Total: 11	
7. General - General Directorate of Ikaria	40	KY Evdilou Total: 1	PI Manganite, PI Rahon PI Chrysomilia, PI Karkinagri Total: 4	
3^ο <small>Ministry of Environment</small>				
8. GREVENOS GENERAL CENTER	110	KY DESKATIS Total: 1	PI TRIKOMOU, PI SARAKINAS POMEGRANATE, POLYNERIUM WHAT IS MEGARO, WHAT IS MAVRANEION? PI KRANEAS, PI KNIDIS	

Tender Announcement for the Project

**"Unified Information System for the Support of the Operational Functions of Health Units of the National Health System" Part A:
Project Scope and Specifications**

No.	HOSPITAL	NUMBER BENDER	HEALTH CENTERS	DISTRICT MEDICAL CENTERS
				WHAT IS A GARDENER, WHAT IS A CARPENTER, WHAT IS A KALOIAN, WHAT IS A ZAKAS, WHAT IS A VATOLAKOU PI OF SAINT THEODORE (EMILIAN) PI OF SAINT GEORGE Total: 15
9.	KASTORIA GENERAL CENTER	120	KING ARGUS ORESTIKOU Total: 1	PI OF THE WALL, PI OF SKALOHORIUS PI OF PENTAVRISUS, PI OF INEOS PI OF NESTORIUM, PI OF MESOPOTAMIA PI OF MELANTHIA, PI OF MAVROHORIUS PI OF MANIAKON, PI OF MAKROCHORIUS PI OF KORISUS, PI OF KLIISOURAS PI OF DIPOTAMIAS, PI OF
10.	KOZANIS GENERAL STATION – MOTHERHOOD	200	Servia County Council Siatista County Council Tsotyli County Council Total: 3	<u>VOGATSIKOS</u> Total: 14 PI of Servia: PI OF CHARAVGIS, PI OF TRANOVALTOS PI OF TETRALOFOSS, PI OF TYRGONI PI OF PLATANOUREUMA MILK, MI LYVADEROS, MI KROKO, MI KOMINONOS, MI KAPNOCHORIO, MI VELVENTOS, MI VATHYLAKKO, MI AVLONOS, MI ANO KOMIS, <u>MI EIANIOS</u> MI SIATISTAS: MI PTOLEMAIDAS, MI PONTOKOMIS, MI PALAIKASTROS, MI LEFKOPIGIOS, MI KARYOHORIOS, MI ERATYRAS, MI EMPORIOOS, MI DREPANOS, MI GALATINOS, MI GALATIOS, MI VLASTIS, MI VATEROS, MI ARDASSAS, <u>MI ALONAKIA</u> , MI TSOTYLIOS: MI CHORIGO, MI PENTELOFOS, MI NEAPOLIS, MI MOLOCHAS, MI KORYFIS, PI EPTACHORIOS PI DAMASKINIAS, PI AUGERINOS PI AXIOKASTROS, PI AGIASMATOS Total: 39
11.	PTOLEMAIDAS — BODOSAKIO 12.	200	KY PTOLEMAIDAS Total: 1	
	FLORINA GENERAL STATION – ELENI DIMITRIOU	110	KING AMYNTAIOU Total: 1	What is the most beautiful, what

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

No.	HOSPITAL	NUMBER BENDER	HEALTH CENTERS	DISTRICT MEDICAL CENTERS
				WHAT IS ANTARTIC, WHAT IS AMMOHORI? PI AETOU, PI SAINT PARASKEVI Total: 22
	Pilot MY	Total beds: 3110	Total CU: 15 Total PI: 145	

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

The aforementioned implementation Stages are then analyzed into the corresponding Phases, Activities and Deliverables.

A3.10.1 Project Phases – Stage 1

The initial stage of the overall project concerns all the implementation and operation actions of the Unified Information System platform to support the operational functions of ESY health units.

The expected services during this phase concern:

- Preparation of an Implementation and Specialization Study of the technical specifications of the IT systemic
- Supply, installation and commissioning of ready-made Software and Middleware Software
- Development and installation of specialized software
- System configuration, security testing, migration of existing applications and pilot IT data

- Training of IT users and Operating Body
- Support for the launch of a pilot MS

The following is a description of the phases of the first stage of the project.

A.3.10.1.1 Phase 1 – Implementation Study Start Month

M1 Phase Title Phase Objectives:	Expiration Month	M3
	Implementation Study	
<ul style="list-style-type: none"> • Objective 1: The development of a comprehensive project management and implementation plan • Objective 2: Identifying critical factors and risks • Objective 3: Identifying needs for the integrated information system • Objective 4: Detailed system design 		

Phase Description (with breakdown into activities):

In this phase the following activities are performed:

Project Management and Quality Plan

The procedures and mechanisms that will be described in detail in the Plan should constitute a standard and integrated set, adapted to the specificities set by the organizational, administrative and technological parameters of the project. Based on the above, the contents of the SDPE should at least refer to the following areas, the purpose, structure and content of which will be described in detail in the Contractor's offer:

- Organizational Chart/Project Management Structure
- Communication Plan
- Updated – detailed Project schedule
- Issue Management •
- Assessment - Risk Management
- Quality Assurance – Control
- File - Data Management
- Change Management •
- Management Information.

System Analysis and Design

- User Requirements Analysis, based on operational - time constraints and degree feasibility of implementation
- Analysis of functional requirements of the system (procedures, necessary forms, coding, statistical reports, quality control protocols, etc.)

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

- Analysis of interface requirements and interoperability with external entities
- Complete system design (entity relationship diagrams, system architecture, user roles, system security, application interconnectivity, etc.)

The study concerns the finalization of the technical specifications of the information system that will be developed and reference will be made to the automations and optimizations that the system will offer, as well as to all the necessary actions that will be taken in order to manage the transition and address the corresponding risks.

Specifically, it includes the analytical recording of the requirements, creation of a system model and its description using some of the existing methods. The analysis will be object-oriented using UML (Unified Modeling Language).

Finally, it includes a complete guide that analyzes the requirements for interoperability with other entities at an operational level and the technological dimension of its implementation.

Development of methodology and initial acceptance test scenarios

A complete guide to the process and control tests that will be carried out in the context of the Project's acceptance. At a minimum, the following should be provided for:

- automated unit tests
- application level tests (system tests) • user acceptance tests (user acceptance tests) • high load tests (stress tests).

Development of a methodology and plan for data migration and operation of the Pilot MS

It includes a complete guide for the data migration process from existing systems as well as the planning of the overall operational transition to the new environment for the Pilot MY as well as the identification and documentation of all data that can be utilized in the new applications.

It is noted that the purpose is to migrate all existing data from the Pilot MS that can be utilized in the new system. The contractor will be provided with all available information and his deliverable will be the study and analysis of the quality and integrity of the data and its subsequent utilization.

Analysis of integration of existing software into the new system

Study and documented justification of the maintainability of existing IT applications. Technical issues that arise and ways to address them in order to create a unified and functional Information System.

Development of the methodology and user training program

Detailed training program and process for transferring know-how to users. Definition of training programming and process for integrating (informing - training) new users.

Development of an Information System security policy

Risk Assessment and definition of a Security Plan and Policy for the new Information System, taking into account the requirements of the Personal Data Protection Authority as well as the entire legal and institutional framework that governs the operation of the Entity.

Deliverables:

- P1.1: Project Management and Quality Plan
- P1.2: Finalized Requirements Analysis Document
- P1.3: Functional and Technical System Design – Interoperability Plan
- P1.4: Methodology and initial acceptance testing scenarios
- P1.5: Data and Operations Migration Plan
- P1.6: Study of the spread of existing software to the new system
- P1.7: Methodology and training program

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- | |
|--|
| • P1.8: Risk Assessment Study – Safety Plan and Policy |
|--|

A.3.10.1.2 Phase 2 – Supply, installation and commissioning of ready-made Software and Software Middleware

Start Month M2	Phase Title	Expiration Month	M5			
	Supply, installation and commissioning of ready-made Software and Middleware Software					
Phase Objectives:						
<ul style="list-style-type: none"> • Objective 1: Hardware and basic software ready for operation Phase 						
Description (with breakdown into activities):						
In this phase the following activities are performed:						
<ul style="list-style-type: none"> • Supply and installation of the equipment (servers) and ready-made system software offered by the Contractor (e.g. server operating system, systems management software, antivirus, etc.) • Supply and installation of the systems software offered by the Contractor (RDBMS, Web/Application Server software, Portal, Middleware software) • Integration of the equipment into the existing network • 						
Checking for the autonomous operation of the equipment and software						
Deliverables:						
<ul style="list-style-type: none"> • P2.1: Installed equipment in operational readiness • P2.2: Installed ready-to-use software • P2.3: Equipment and off-the-shelf software documentation manuals 						

A.3.10.1.3 Phase 3 – Development and Installation of Specialized Software

Start Month End Month M7	M3		
Phase Title: Development and Installation of Specialized Software			
Phase Objectives:			
<ul style="list-style-type: none"> • Objective 1: Implementation of Financial Services functionality • Objective 2: Implementation of Patient Management functionality • Objective 3: Implementation of Personnel Management - Payroll functionality • Objective 4: Implementation of functionality of Diagnostic and Imaging Laboratories • Objective 5: Implementation of Surgery/Clinic functionality • Objective 6: Implementation of Outpatient Management functionality • Objective 7: Implementation of Electronic Physician Prescription functionality • Objective 8: Implementation of Patient Medical Record Management functionality • Objective 9: Implementation of Appointment Management functionality • Objective 10: Completion of a Management Information System • Objective 11: Implement interoperability with other systems • Objective 12: Implement compatibility with international codings (e.g. HL7) 			
Phase Description (with breakdown into activities):			
During this phase, the necessary applications will be developed and the corresponding digital services will be implemented. All the required interfaces between the individual subsystems will also be implemented so that they operate as a single system, fully covering the operational requirements of the Agency.			
In this phase the following activities are performed:			
<ul style="list-style-type: none"> • Software development according to Functional and Technical Design specifications of the System • Customization and adaptation of the software (in the case of ready-made solutions) to the functional requirements as defined in the Functional and Technical Design of the System • Development of additional software where required, according to the specifications of Functional and Technical Design of the System 			

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- The completion of all application software (ready-made and additionally developed software)
- Unit testing of application software (based on test scenarios individual functionality)
- Checking the correct operation of all application software (application of scripts controls)
- Complete documentation of the subsystems for which the entire source code will be delivered (in the case of ready-made software packages, additional parameterizations - adjustments will be delivered)

• Documentation of the use of subsystems - applications (user manuals) The software to be used may be a combination of software that will be developed for this purpose, but also ready-made software solutions that will offer ready-made and integrated solutions at the end-user level. In both cases of solutions, usability and friendliness towards the end-user of the operation should be ensured.

It is noted that in both cases of solutions there must be sufficient documentation.

The documentation will be delivered in printed and electronic form and will concern:

- User manuals for each individual application which will describe in detail the operation of the application, user navigation, the graphical environment, usage scenarios, etc.
- Digital user manuals at the level of on-line help facility, with a programmed button, at least at screen level
- Technical description of the database schema (logical and physical design)
- Technical manuals of the system
- System security (user roles, password management, access rights, database movement recording (auditing, log files), data integrity, etc.)
- Documentation of the system's interconnection (interconnectivity guide) with other applications, at least at the level of a detailed specification of the files exchanged (XML, ASCII, etc.) as well as the Web Services used
- System operation, maintenance and tuning manual

The above documentation must be in the Greek language except for manuals concerning ready-made third-party products, which may be in the English language.

The contractor is committed to following a policy of direct cooperation with the Agency's staff (joint working groups) during the development of the applications. Participation in the development will contribute to a more substantial transfer of know-how and a more effective autonomous support of the System by the Operating Agency in the future.

Deliverables:

- P3.1: Financial Services Subsystem
- P3.2: Patient Management Subsystem
- P3.3: Personnel Management - Payroll Subsystem
- P3.4: Diagnostic and Imaging Laboratories Subsystem
- P3.5: Surgery / Clinic Subsystem
- P3.6: Outpatient Management Subsystem
- P3.7: Electronic Prescription Subsystem for Doctors
- P3.8: Patient Medical Record Management Subsystem
- P3.9: Appointment Management Subsystem
- A3.10: Administrative Information Subsystem
- A3.11: Management of Basic System Parameters
- P3.12: Internet Portal
- A3.13: Subsystems and Applications Documentation Manuals

A.3.10.1.4 Phase 4 – System Configuration – Data Migration

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

Start Month	M7	Expiration Month	System Configuration –	M11				
Phase Title	Data Migration							
Phase Objectives:								
<ul style="list-style-type: none"> • Objective 1: Customization of information systems and software according to the needs and requirements of Health Units • Objective 2: Conduct security tests and control scenarios • Objective 3: Migration of existing applications and pilot MY data 								
Phase Description (with breakdown into activities):								
<p>The Contractor will at this stage complete the implementation and configuration of the information systems based on the specifications and will deliver a secure and fully acceptable and functional system.</p> <p>It will also implement the required migration of the existing applications and data of the Pilot MY for their interconnection with the central platform.</p> <p>In this phase, the following activities are performed:</p> <ul style="list-style-type: none"> • Final configuration of the system based on the design and requirements Pilot MY • Conducting Acceptance Tests by the Contracting Authority's personnel based on the test scenarios delivered by the Contractor during Phase 1 • Conducting security tests of the Unified Information System • Finalizing the scope of electronic data to be migrated, based on the criteria of their quality and usefulness, feasibility and migration risks based on the Migration Plan (Phase 1 deliverable) • Finalization of transition process planning (access – recovery – data cleaning and restructuring-storing them in new application structures) based on the Migration Plan (Phase 1 deliverable) • Execution of transition procedures, data integrity and correctness checks in final environment • Preparation of the Pilot MS environment for the start of operation of the new system <p>It is noted that the selection and preparation of data for migration is the responsibility of the Contracting Authority. The Contractor's responsibility regarding the migration of data is limited to the design and implementation of the migration programs and to the verification of the integrity and correctness of the data before and after the migration is carried out.</p>								
Deliverables:								
<ul style="list-style-type: none"> • P4.1: Finalized Transition Plan • P4.2: Configured, tested and installed Unified Information System • P4.3: Implemented data migration 								

A.3.10.1.5 Phase 5 – Training

Start Month	M7	Expiration Month	M12			
Phase Title	Education					
Phase Objectives:						
<ul style="list-style-type: none"> • Objective 1: Conduct seminars at the Ministry of Health • Objective 2: Training of Operating Agency personnel • Objective 3: Creation of Asynchronous Educational Courses (e-learning) for all main functions of the Information System 						
Phase Description (with breakdown into activities):						
<p>The Contractor should at this stage train the users of the YY and the personnel of the Operating Body in the Unified Information System. Special care should be taken for the training of the technical and operational administrators of the system who, in addition to the training in use, should be trained in the daily management functions for the smooth operation of the system. In addition, the Contractor will create Asynchronous Training</p>						

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"**
Part A: Project Scope and Specifications

Courses (e-learning) for all the main functions of the Information System.

During this phase

In more detail, the following activities are performed in this phase:

- Finalization of training program (seminar type), organization and preparation executive training.
- Creation of educational and supervisory training material, based on the needs and readiness of the Agency's executives to utilize the system, and the expected role in its operational utilization.
- Training of HH and Agency executives based on their role in the Project both during the implementation of the Project and during its full operational exploitation.
- Evaluation of the training process and results and suggested measures to maximize the operational utilization of the system.

Deliverables:

- P5.1: Updated Training Program
- P5.2: Educational Materials for classroom seminars
- P5.3: Implementation of training for HH and Operating Body personnel
- P5.4: Asynchronous Training Courses (e-learning) for all the main functions of the Information System
- P5.5: Education Evaluation Sheets
- P5.6: Education Outcomes Evaluation Report

A.3.10.1.6 Phase 6 – Pilot MS Operation Support Start Month End Month M9

Phase Title	Pilot MS Operation Support		M12

Phase Objectives:

- Objective 1: Complete and proper start-up of the Unified Information System in Pilot MS

Phase Description (with breakdown into activities):

During this phase the following activities will be carried out:

- Final functionality control tests, additions / modifications with the aim of confirming the absolutely smooth operation and good cooperation of the applications of the subsystems of the Unified Information System, both among themselves and externally by a fully trained limited community of users (Key Users) with active participation in the Project
- Support of the Agency and the Pilot MS in the operation of the system
- System improvements based on user feedback
- Solving problems that may arise
- Error correction/management
- Support for Pilot MY users in the handling and operation of the system
- Documentation update

It is noted that each component (Hospital, Health Center, Regional Clinic) of the Pilot System will be included in production operation provided that all preparatory work as well as the migration and entry of data have been completed. The order of inclusion of each part in production operation of the system will be determined by the Agency and will inform the Contractor in writing.

Deliverables:

- P6.1: Fully tested Information System ready to enter Production Operation under Guaranteed Service Level conditions
- P6.2: Updated Source Code for all Subsystems (where applicable)
- P6.3: Updated Technical and Functional Documentation

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****A3.10.2Project Phases – Stage 2**

The final stage of completion of the overall project concerns the integration of eligible Health Units, based on the quality of the information services already provided and the ability to connect to the new unified health service provision platform.

The rollout of the system to selected hospitals/health centers and regional clinics is a complex project, requiring appropriate strategy, detailed planning and management. The expected services during this phase include:

- Installation of infrastructure (if provided)
- Software installation
- Migration of processes, methods and data to the new systems
- Empowerment of staff • Operational support to embed new methods and tools.

The type of interconnection of the MS, the required logistical infrastructure, the equipment and the supporting software will depend on the geographical location and the capacity of each unit. The planned application servers will be used for laboratory applications locally in the MS (image storage, analyzer connection, etc.).

Hospitals will be integrated into the new system either through a direct connection to the datacenter, or through a Local Data Center, depending on the existing logistical infrastructure and the volume of information being transferred.

Health Centers and Regional Clinics will be interconnected with the new system either directly or through the hospital to which they belong.

The prioritization criteria for the inclusion of MS in the single software platform - among others - are the following:

- Existence of a structured cabling network
- Existence of a properly staffed Organization and Information Technology Department
- Existence of the necessary User Groups
- Time required to collect and group the basic system files
- Lack of Information System

The prioritization criteria for the inclusion or non-inclusion of existing applications in the single software platform - among others - are the following:

- Application software will be utilized only if it can contribute to the vision of the new unified information platform for a high degree of integration and homogeneity as well as support specific goals

- Application software will be utilized with the ability to send and receive the information maintained by the unified software platform in real time.

The deployment strategy is already defined in the system implementation study. During this study, key features of the deployment approach have already been captured, such as the composition of the transition groups (or waves). For example, it can be per Health Unit (for all its units), or per Health Unit category (hospitals, health centers, regional clinics).

The following set of phases applies to each group (wave) that will be joined.

A.3.10.2.1 Phase 7 – Preparation for System Rollout

Start Month	End Month	M40M9						
Phase Title	Preparation for System Rollout							
Phase Objectives:								
<ul style="list-style-type: none"> • Objective 1: The specialization of the transition strategy for each Hospital that is to be integrated into the system • Objective 2: Identifying critical factors and risks • Objective 3: Creating the conditions for transition 								
Phase Description (with breakdown into activities):								

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

In this phase the following activities are performed:

Finalization of units

The health units, as well as the applications that will be transferred to the new system, are being finalized. To this end, in collaboration with the Contracting Authority and the project owner, broad information is provided to the health unit managers about the goals and capabilities of the new system.

Detailed identification of needs

The current situation in the participating entities is analyzed and the following are identified:

- The subsystems to be installed
- The way to transition existing elements
- Interoperability specifications with central systems
- The potential risks and dependencies of the transition and how they will be addressed.

Change management plan

The relevant strategy (for all entities) and the change management plan per entity (tasks, schedule, organization, resources) are developed so that the transition to the new system is as smooth as possible.

Deliverables:**• P7.1: System rollout implementation study.**

This deliverable is delivered for each group of entities that will be the subject of a deployment "wave" two months before the start of the deployment in that group. It contains the list of the MS that will be included, a detailed description of the existing situation and the subsystems that will be installed in the entity, as well as the method of interconnection with the central system.

The change management plan is also listed for each team.

A.3.10.2.2 Phase 8 – Procurement, installation and commissioning of IT Equipment and Software

Start Month	End Month	M40/M13		
Phase Title	Supply, Installation and Commissioning of IT Equipment and Software			

Phase Objectives:

- Objective 1: Preparing Health Units for the installation of the systems
- Objective 2: Installation of systems and checking their functionality

Phase Description (with breakdown into activities):

In this phase the following activities are performed:

Preparation of Health Units

The necessary installation infrastructures (if required) are being prepared (under the responsibility of the Ministry of Health and under the guidance and supervision of the Contractor), such as (indicatively): Computer room and power supply, uninterruptible power supply system (UPS), air conditioners, etc.

If necessary (for reasons of developing interoperability or supporting data migration), the manufacturers of third-party systems are mobilized within the Ministry of Defense.

Installation of the necessary infrastructure

This concerns the hardware and system software for the operation of the system. Its functionality is installed and confirmed.

Installation – configuration of application software.

The application software is installed (if required) and configured. Interoperability with third-party systems within the IT is checked.

Test migration of existing data

The test migration of existing data and applications that are in production operation has the following objectives:

- identifying any transition problems
- the parallel operation of the systems for a few days to highlight any problems

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- arising from changing processes or other sources
 • preparing user training with familiar data.

Deliverables:

- **P8.1: System installed and functionally tested**

This deliverable concerns the system itself, once the work of the phase has been completed.

A.3.10.2.3 Phase 9 – Training and Placement in Production Operation

Start Month	End Month	M13	M40
-------------	-----------	-----	-----

Phase Title	Training and placement in production
--------------------	--------------------------------------

Phase Objectives:

- Objective 1: Familiarizing users and administrators with the new system
- Objective 2: Cut over to production

Phase Description (with breakdown into activities):

In this phase the following activities are performed:

System administrator training

Administrators are trained in supporting the operation of the system (system architecture, operating procedures, basic processes, etc.) with an emphasis on security and interoperability techniques. The Contractor must deliver (for each Health Unit) complete and detailed documentation required to support the operation of the hardware and software.

User training

User training is provided through on-the-job training, depending on their role. It is recalled here that within the framework of the project, an asynchronous distance learning system (e-learning) should be developed, in order to assist the training of both existing and future users.

Final preparation (Fine Tuning) of the system

It has the following objectives:

- optimizing its response time to internal/external users and the direct and flexible channeling of its services to the internet.
- The final checks of the interconnection of the Health Units with the Unified Software Platform and system security.

Final data migration

Existing data is migrated in its entirety to the new system, and its accuracy and integrity are checked.

Putting into production

The system is put into production with the support of the Contractor (see also next phase)

Deliverables:

- **P9.1: System in production mode**

This deliverable concerns the system itself, once it has been put into production operation.

- **P9.2: Position report in production mode**

This deliverable concerns the qualitative and quantitative recording and assessment of the work carried out and its results, the issues presented and how they were addressed, as well as the lessons learned for further actions.

A.3.10.2.4 Phase 10 – MS Operation Support – Technical Support Start

Month	End Month	M13	M40
-------	-----------	-----	-----

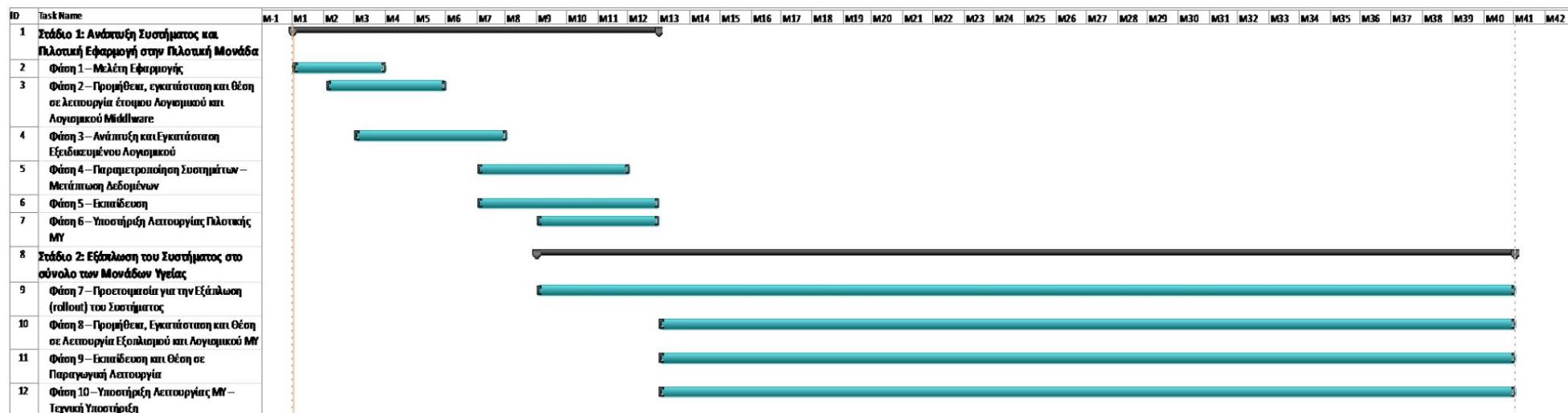
Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

Phase Title	IT Operation Support – Technical Support
Phase Objectives:	
<ul style="list-style-type: none"> • Objective 1: The proper functioning of the installed systems in the MS 	
Phase Description (with breakdown into activities):	
<p>In this phase the following activities are performed:</p> <p>User support The Contractor supports the system users through the helpdesk.</p> <p>System support The Contractor monitors the availability and performance of the system and intervenes correctively whenever necessary, and additionally supports the operation of the system through the pool of executives.</p>	
Deliverables:	
<ul style="list-style-type: none"> • P10.1: Monthly Operating Reports These reports are related to SLA monitoring. They record quantitative and qualitative data of help desk activities, problems that occurred and how – recovery time etc. 	

A3.10.3 Timetable

Below is a brief timeline of the project Phases. It is noted that the duration of the Phases is indicative but the total implementation time of the project as well as each stage is binding for the Contractor.

Tender Announcement for the Project
"Unified Information System for the Support of the Operational Functions of Health Units of the National Health System" Part A:
Project Scope and Specifications



Tender Announcement for the Project

"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"

Part A: Project Scope and Specifications

A3.11 Deliverables Table

Deliverable	Deliverable Title	Deliverable Type	Delivery Month³
No. P1.1	Project Management and Quality Plan	M	M1
P1.2	Finalized Requirements Analysis Document	M	M2
P1.3	Functional and Technical System Design – Interoperability Plan	M	M3
P1.4	Methodology and initial acceptance test scenarios Data	M	M3
P1.5	and Operation Migration Plan Study of the expansion	M	M3
P1.6	of existing software to the new system Methodology and training	M	M3
P1.7	program Risk Assessment Study – Security	M	M3
P1.8	Plan and Policy Installed equipment in operational readiness Installed	M	M3
P2.1	ready-made software in operational readiness Documentation	YL	M5
P2.2	manuals for equipment and ready-made software Financial	YL	M5
P2.3	Services Subsystem Patient Management Subsystem	M	M5
P3.1	Personnel Management Subsystem –	L	M7
P3.2	Payroll Diagnostic and Imaging	L	M7
P3.3	Laboratories Subsystem Surgery / Clinic Subsystem	L	M7
P3.4	Outpatient Management Subsystem Electronic Prescription	L	M7
P3.5	Subsystem for Doctors Patient Medical-	L	M7
P3.6	Hospital File Management Subsystem Appointment	L	M7
P3.7	Management Subsystem Administrative Information	L	M7
P3.8	Subsystem Management of Basic System Parameters Web Portal	L	M7
P3.9	Manuals Subsystems and Applications	L	M7
P3.10	documentation Finalized Migration Plan	L	M7
P3.11	Parameterized, tested and installed Unified	L	M7
P3.12	Information System	L	M7
P3.13	Implemented data migration Updated Training Program	M	M7
P4.1	Educational Material for classroom	M	M8
P4.2	seminars Implementation of training for HH and Operating Agency personnel	S	M11
P4.3		Y	M11
P5.1		M	M8
P5.2		M	M9
P5.3		Y	M11

² Deliverable Type: M (Study), AN (Report), L (Software), YL (Hardware/Equipment), Y (Service), S (System), AL (Other)³ Deliverable Delivery Month (e.g. M1, M2, ...MN) where M1 is the first month (i.e. start month) of the Project

Tender Announcement for the Project
"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"
Part A: Project Scope and Specifications

P5.4	Asynchronous Training Courses (e-learning) for all the main functions of the Information System	L	M12
P5.5	Training Evaluation Sheets Training	IF	M12
P5.6	Outcomes Evaluation Report Fully tested Information System	IF	M12
P6.1	ready to enter Production Operation under Guaranteed Service Level conditions	S	M12
P6.2	Updated Source Code for all Subsystems Updated Technical and	L	M12
P6.3	Functional Documentation	M	M12
P7.1	System rollout implementation study	M	The This deliverable is delivered for each group of stakeholders that will was the subject of a "wave" of spread two months before the start of the spread in this group.
P8.1	System installed and functionally tested	S	Gradually from M13 – M40
P9.1	System in production mode	S	Gradually from M13 – M40
P9.2	Position report in production mode	IF	Gradually from M13 – M40
P10.1	Monthly Operating Reports	IF	Monthly from M13 – M40

A3.12 Important Project Implementation Milestones

No.	Landmark Title	Achievement	Method of measuring achievement
		Month	
1	Requirements Analysis and System Design Installed	M3	EPPE Recommendation and AA Decision
2	equipment and ready-made software Pilot MS	M5	EPPE Recommendation and AA Decision

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

3	Configured, tested and installed Unified Information System	M11	EPPE Recommendation and AA Decision
4	Implementation of e-learning training and courses. Implementation study of the system	M12	EPPE Recommendation and AA Decision
5	rollout.	M10	EPPE Recommendation and AA Decision

A4. MINIMUM SERVICE SPECIFICATIONS**A4.1 Operational Plan for Installation, Commissioning and Expansion**

The candidate contractors must, under penalty of exclusion, provide in their technical offer a concise Operational Plan for the Installation and Commissioning of the system in the Pilot M.Y. as well as for the expansion of the system to the other M.Y. The Plan will include, among other things, qualitative and quantitative characteristics for all the required actions, activities and services for the above.

A4.2 Training Services The degree of

success of the project depends directly on the degree of integration of the services offered into the daily process and practical training of the HR executives.

The user training services provided within the framework of the project are expected to contribute substantially both to the acquisition of knowledge and skills regarding the management and use of the applications and services that will be developed, and to the transfer to the HR executives of the necessary "culture", the advantages of the new information system and the services that are being developed.

User training services concern:

- Training administrators in system management
- Training critical users in the operation of the system
- Training end users in the use of applications and subsystems and in computerized HR procedures through an e-learning system

The Contractor is obliged to provide training services for the Agency's personnel regarding the management and use of the system, based on the requirements highlighted in the previous paragraphs. The methodology and training program must be fully documented.

The training provided should fully cover the user categories in accordance with the above and will be conducted in groups of a maximum of ten (10) people and should not exceed six (6) hours per day.

The prospective contractor should propose the appropriate training program for the above categories based on the products and applications to be developed.

The training material should include, in addition to the material provided by product manufacturers, the material (slides, handouts, etc.) that the Contractor will prepare for the implementation of the training. It should be emphasized that this material differs from the product and application user guides that the Contractor will deliver for each category of users.

A4.2.1 Training of Administrators and Critical Users

The Contractor, within the framework of the implementation of the contractual object, is obliged to provide training services to the administrators and critical users of the system. The training will cover all the individual functions of the system as well as its management.

In their offer, the candidate Contractors should describe-offer the framework for staff training. The description should define the type of training, the group

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

users or administrators concerned, the estimated training time and the procedure envisaged for the provision of the specific training by the Contractor.

The Contractor will deliver, without additional financial burden, all the necessary educational material for all trainees, in printed and electronic form.

The training for managers concerns approximately 10 people for 10 days on Management and System operation, as well as updating basic parameters.

The training of critical users concerns approximately 50 people for 5 days on issues of operation of the Unified Information System with significant depth so that they are able to provide support to the end users of the system if required.

The required spaces and infrastructure will be provided by the project Contractor.

The location of the training will be determined during the preparation of Deliverable P1.7: Methodology and training program of Phase 1 of the project.

A4.2.2 End User Training

The end users of the system (doctors, nursing staff, administrative staff of the health facilities, etc.) will not be trained directly, but through a distance learning system that will include instructions, videos, interactive lessons, etc.

To meet the continuing education needs of the system users, the Contractor is invited to include in its technical offer the creation of a full cycle of electronic educational courses developed according to the SCORM standard.

The characteristics that the development of e-courses should cover are:

- Building and Providing on-line educational material related to the use of the Unified Information System
- Support for exercises, tests, and student assessments
- Frequently asked questions and answers (FAQs) support

Finally, the Contractor will provide full support for the end-users' learning process throughout the project.

A4.3 Awareness Services

As mentioned above, the Unified Information System will provide services to the MS that will be integrated into it, as well as to citizens:

- Indirectly, due to the improvement of the services provided by the MS
- Directly, through the creation and implementation of the system for booking appointments at the Outpatient Clinics of the Health Services and the provision of information through the relevant portal

In order to disseminate information about the new services and improvements that the Unified Information System will provide, a series of workshops or parallel events will be organized that will contribute to the dissemination of information regarding the system to targeted groups (administration and key personnel of the MSs included in the project, other bodies affected by it, etc.). These events will be implemented with the care of the Contracting Authority and the close cooperation of the Contractor.

At a minimum, a workshop or awareness-raising event should be planned, which will be implemented before the start of the Pilot MY. The workshop will be addressed to the management and staff of the Hospitals, Health Centers and Regional Clinics that will participate in the Pilot MY and will concern change management with an emphasis on improving the quality and efficiency of daily work.

For these services, the Project Contractor must comply with the provisions of Presidential Decree 261/1997, to the extent that it falls within them. The

Contractor is free to propose additional publicity actions that will contribute decisively and effectively to the dissemination of the project's results and services.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications****A4.4 Pilot and Test Production Operation Services**

The system will be put into operation in the Pilot MS during Phase 6 of the project and the Contractor is required to provide on-site support services for the smooth integration of the Hospitals, Health Centers and Regional Clinics that make up the Pilot MS. These services consist of:

- System configuration for the integration of a new MS
- Transfer of electronic data to be delivered to the Contractor by the Agency
- Provision of on-the-job training services for the personnel of the Ministry of Health ('on-the-job-training')

In every large medical facility (Hospital), it is possible to carry out, during the rollout phase, a pilot operation lasting a few days with the aim of testing the software adjustments in practice.

A4.5 Rollout Services

The system will be put into Production Operation (Stage 2 of the project) gradually in all the MS specified in this Declaration.

This operation will last until the end of the project (completion of Phase 10).

In this context, the Contractor will provide Deployment Services and support the system, its administrators and users as described in the relevant sections of this announcement.

The deployment services provided by the Contractor will be equivalent to those provided for the Pilot MS (see A4.4 Pilot and Test Production Operation Services).

A4.6 "Good Operation" Guarantee Services during the project

The Contractor must guarantee the proper and compliant operation of the System (equipment, system software, application software) throughout the duration of the project. During this period, the Contractor must proceed to address and remedy any operational and technical problems that may occur in the system, at no additional cost to the Contracting Authority.

The services provided during this period (part of the SLA) will include:

- For equipment, system software and application software:
 - 24/7 fault recovery, including weekends and public holidays. Fault recovery time as specified in Part C, section C4.5 of the tender (Standard Service Contract).
 - Ensuring system availability and performance
 - Conducting preventive maintenance of the software and equipment on an annual basis, in the context of which the Contractor will check the proper functioning of the system. Preventive maintenance must be performed on a scheduled basis and during limited operating hours.
 - Provision of any work or spare parts required to ensure the good functioning of equipment and applications.
- For software (applications and system):
 - Diagnosing and repairing application software problems.
 - Supply, installation and verification of correct operation of patches and/or improvements and bug fixing of application software.
 - Supply, installation and testing of the correct operation of new versions of the software. The delivery of each new version will be considered complete if it is accompanied by any required updates to the corresponding documentation (manuals, etc.) in printed and electronic form.
 - In the event that the installation of a new version of the system software entails the need for interventions in the application software, these interventions will be carried out at no additional charge.
 - Reinstallation of corrupted software.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- o Optimization (tuning) of the system at least once a year to maintain the required levels of performance, reliability and safety.
- o Telephone and technical support as well as e-mail support from its administrators systemic.
- For equipment:
 - o Repair of equipment damage and operating anomalies.

A4.7 "Good Operation" Warranty Services after the final acceptance of the Project

The minimum requested Warranty Period is two (2) years from the Final Acceptance of the Project. The scope of these services is the same as those of the good operation warranty during the project.

A5. PROJECT MANAGEMENT AND IMPLEMENTATION METHODOLOGY**A5.1 Implementation and Support Methods and Techniques**

The project development methodology is based on the following characteristics:

- Unified Project Management and Organization model. Each task of the Project is developed within the framework of a Workpackage, which is managed by the Workpackage Leader. The Workpackage Leader reports to the Project Manager.
- Unified Quality Assurance model. Each Work Package follows common procedures Quality Assurance.
- Satisfaction of the required non-functional characteristics. Each subsystem satisfies the required non-functional characteristics: reliability, ergonomics, availability, confidentiality, integrity, compatibility.

For the best coordination of the project, project management, quality assurance, risk management and change management methodologies must be applied. These methodologies, in collaboration with the analysis, design and application development methodologies, create a robust mechanism for proper planning, implementation and control of the project's progress. The Contractor is required to develop the methods to be used at all stages of the project's development.

In order to ensure the smooth development and high level of quality of the services provided, the Contractor must accurately describe in its offer the tools and implementation tactics that it will use to satisfy the management methodology, such as:

- the Project Management and Administration System
- the Communication Plan between the Contractor and the Contracting Authority
- the Detailed Work Schedule
- the Project Quality Assurance System
- the Project Change Management System

A5.2 Project Management, Planning and Implementation Scheme**A5.2.1 Basic Principles**

The candidate Contractor is required to submit in its Offer a comprehensive proposal for the Project management structure, the knowledge area that each member of the Project Team will cover, as well as the time spent by each Phase of the personnel on the Project, so as to ensure the effective, qualitative and timely preparation of the project.

The Contracting Authority will have the main responsibility for supervising and controlling the development and implementation of the Project, while the main responsibility for implementing the Project will lie with the Contractor.

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

The candidate Contractor should describe the basic outlines of an integrated project management system, defining both the internal structure, roles, tasks and responsibilities and communication procedures of the Project Team, as well as its external interfaces and the method of cooperation with the executives of the Contracting Authority.

The Contracting Authority, in the event that it determines the inability of specific executives to successfully perform their intended supporting role, following the provisions of the project monitoring process, may request their replacement by new executives who will again be subject to its approval.

A5.2.2 Communication and Coordination with the Contracting Authority

The manner in which the administrative bodies of the Contracting Authority communicate with the corresponding bodies of the Contractor is a determining factor in order to achieve:

- The Contractor's continuous information on the relevant objectives and priorities of the HH and the Contracting Authority, as they are formulated, in order for the Project Team executives to be as effective as possible in covering them.
- The parallel approach to the implementation of the Contractor's deliverables
- Covering the ad hoc needs of the Contracting Authority for specific support on individual issues that may arise during the course of the work and can be supported within the framework of the Contract by the members of the Contractor's Project Team
- Developing a climate of trust and ensuring that the Contractor's services will be provided in close cooperation with the Contracting Authority
- Successful management of changes, issues and risks

To support the communication of the parties involved, the Contractor will implement a Communication Plan, which will be finalized during the project's inception phase and will be included in the Project Management and Quality Deliverable Plan. The main objective of the Communication Plan is to ensure the necessary information so that all human resources work towards achieving the set goals and all potential problems are addressed in an organized and effective manner.

The Contractor's communication with the Contracting Authority will be defined and systematized at all levels of the Scheme. The aim is for the Project Management to make timely and correct decisions, having ensured through the communication procedures complete, timely, reliable and objective information on critical issues and alternative perspectives.

A5.3 Quality Assurance Plan and System

Within the framework of the project, the Contractor, in order to satisfy, on the one hand, the quality requirements of the project and its results, and on the other hand, the requirements of the Contract with the Contracting Authority, will implement a project quality assurance system based on recognized international standards.

"Quality" in this project can be characterized as the Contractor's level of compliance with the requirements set by the Contracting Authority through the Notice and the Contract. In particular, Quality can be examined in terms of two axes: the quality of the deliverables submitted by the Contractor to the Contracting Authority and the quality of the work (administration and production) undertaken in order to produce the deliverables. Therefore, the quality assurance system should specify, on the one hand, the approach adopted to ensure the quality of the deliverables, and on the other hand, all those processes that affect the quality of the deliverables (communication management, resource management, risk management, production of deliverables, etc.).

The method that the Contractor will follow for quality assurance is summarized in the following actions:

- Defining quality and quality requirements
- Determination of quality criteria and standards adopted
- Description of quality assurance and quality control techniques

Tender Announcement for the Project**"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"****Part A: Project Scope and Specifications**

- Identification of the processes/procedures required to achieve the objectives
quality

The prospective Contractor must analyze in its bid the methodology and Quality Management techniques that it will implement.

A5.4 Issue and Risk Management Plan and System

Within the framework of the project, the Contractor will implement an Issues and Risk management system (possibly two distinct systems).

The system will ensure the smooth progress of all activities related to the Project, by timely anticipating all problems that occur or may occur. The purpose is to:

- resolving issues that arise during the implementation of the project
- the timely identification of potential risks that threaten the implementation of the overall Project
and designing the best way to deal with them

A5.5 Usage and Control Scenarios - System and Project Functionality Acceptance Process**A5.5.1 Basic Principles**

The delivery of the deliverables takes place according to the contract schedule. To initiate the delivery process, the Contractor sends a delivery request to the Project Monitoring and Delivery Committee (PMDC), transmitting the following indicatively:

- Reporting of activities and tasks
- Documentation for each deliverable, which concerns the supply of equipment-software and provision of services.
- Hard and electronic copies of deliverable documents relating to studies, analyses, educational materials, manuals, etc.
Electronic copies should be delivered in a format that can be edited electronically through common office automation applications.

The individual deliverables of the study services will also be delivered in electronic format, accompanied by an executive summary.

For the receipt of each deliverable, the EPPE - taking into account the specificities of each case - carries out an assessment of its quantitative and qualitative completeness/integrity, through:

- Review and evaluation of studies, reports and other printed deliverables and documentary material
- Conducting acceptance tests for the individual products and functional subsets of the information system

In the event of non-compliance with the specifications, the Committee's observations shall be transmitted in writing to the Contractor no later than 5 working days (when it concerns Studies or Equipment) or within 10 working days (when it concerns Software) from the start of the acceptance procedure. The Contractor is obliged to respond to the observations of the EPC within 10 working days (when it concerns Studies or Equipment) or within 20 working days (when it concerns Software) from the day of transmission of the Committee's written observations. The resubmission procedure may be carried out up to two times.

The receipt process is completed with the drafting of a corresponding protocol by the Commission.

A5.5.2 Temporary Reception

The Provisional Acceptance of each Milestone of the project will be carried out by the EPPE after its successful completion and the acceptance of the corresponding deliverables by the EPPE by drawing up a Provisional Acceptance Protocol.

The time period during which the receipt of each Unit progresses does not affect the expected implementation time of the project and the time commitments for completing subsequent Units. The receipt process of each Unit cannot be carried out if the receipts of previous Units have not been successfully completed.

Tender Announcement for the Project

"Unified Information System for Supporting the Operational Functions of Health Units of the National Health System"

Part A: Project Scope and Specifications

It is possible, and provided that the deliverable presents deficiencies, which, however, in the sole discretion of the Contracting Authority do not render it unsuitable for use for the purpose for which it is intended, to make a partial acceptance of the deliverable (of at least 80% of it, otherwise the deliverable is considered unsuitable). The partial acceptance thereof affects the Contractor's payment.

A5.5.3 Final Acceptance

The Final Acceptance of the entire project takes place after the completion of all Phases and both Stages of the project, within one calendar month from the delivery of the last deliverable and provided that provisional acceptance of all deliverables and Units has been made, with the preparation of the Final Acceptance Protocol.