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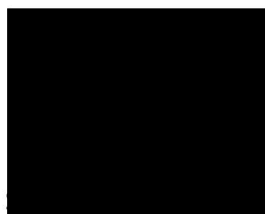
Technological terms and conditions

Phytosanitary register in
Georgia



Ústřední kontrolní a zkušební
ústav zemědělský
Oddělení komunikace a
zahraniční spolupráce

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9.5	Requirements catalogue - Tender proposal requirements .. Chyba! Zázložka není definována.	



Terms and abbreviations

Term	Meaning
AAA	Authentication, Authorization and Audit
ACL	ACcess List - a list of users and their authorizations.
AD / MS AD	Microsoft Active Directory - a set of Applications and services used to control users, computers, resources and their roles and access within a so called "Windows Domain" network.
ADSL	Asymmetric Digital Subscriber Line - a data communications technology that enables data transmission over copper telephone lines.
API	Application Programming Interface - An interface designed to be access, deserialised and used by automated electronic means such as computer programs etc.
Application	A software application used to support some process.
AR	Architectural requirement / Architecture requirement
ArchiMate	A notation for software/hardware/orgware inventarization, organization and design.
B/Byte MB/MegaByte	Unit for information data size.
ČR	Česká republika - a country in central Europe.
ČRA	Česká rozvojová agentura - Czech development agency - and organizational unit of the Czech government in ČR, funding specific projects.
CVS	Concurrent Version(ing) System – a generic software category of a software system for storage of (usually textual - software high-level language source code) data, handling concurrence access and versioning.
data entity	A data record/sentence, whose attributes relate to the same real-world object.
DB	Database - may refer either to the data itself or an entire RDBMs and its services.
dep.	Department
Deployment	Making some application or entire IT system operational and available for its users to use its functionalities.
E-SSO	Enterprise Single-Sign-On - a (SW) solution for centralized user authentication and authorization management within a network/organization.
EU	European union
Excel	Microsoft Office Excel - software for spreadsheet processing.
file	Set of electronic data belonging together
FR	Functional requirement
Georgia	A country in the Caucasus region of Eurasia. Bounded to the west by the Black Sea, to the north by Russia, to the south by Turkey and Armenia, and to the southeast by Azerbaijan.
GUI	Graphical User Interface - interface of a software designed to be used by humans by displaying information in a graphical form typical for common inter-human understanding.
HW	Hardware
Hyper-V	Virtualization environment of the Windows platform (MS) used to run multiple "virtual" computers on one single computer hardware.
I/O	Input/Output



ID	Identifier / identification number
Internet	An open computer network on a global level, using common protocols, administered by IANA and its sub-accreditees.
IR	Integration requirement
IT	Information technology
LDAP	Lightweight Directory Access Protocol - a protocol used to access tree-organized data structures, typically structures of user account data (such as MS AD).
LOD	Level-of-detail - how detailed is the subject depicted.
LR	(software) Legal requirement
module	A part of application
MR	(data) Migration requirement
MS	Microsoft - a major global software provider.
MVC	Model-View-Controller - a programming paradigm e.g. how a software application source code is internally organised and understood by its programmers.
Mx	Project milestone
network	Multiple computers and other electronic devices interconnected together by a common electric and logic protocol.
NFA	National food agency - a legal entity under the public law (order No 2-3 of Ministry of Agriculture of Georgia, from the 14th of January 2011), organizationally subsumed to the Ministry of Agriculture of Georgia. Registration code of business subject at the Ministry of justice: 040.030.000.22.032.016.717
OR	Operating / Operational requirement
orgware/OW	Set of organizational measures (administrative decrees, people, their roles and responsibilities etc.) achieving some common goal.
OS	Operating system - basic application to provide user interaction with a computer, especially then the service of loading and launching other applications.
OU / MS AD OU	Organizational unit - a logical data unit for holding data of an MS AD
PA	Project action requirement
PC	Project cooperation requirement/specification
person	A business (business person) or a physical (physical person) entity, usually conducting a kind of business, related to phytosanitary area, thus being registered (e.g. the person's data recorded) in the system.
phytosanitary	(Botany) of or relating to the health of plants, also measures undertaken or intended to ensure that an imported plant or collection of plants is free of specified pests.
PL	(project) Legal requirement
PM	Project management / Project management requirement
PO	Project Output requirement
PR	Performance requirement
px	pixels - a basic unit of graphical display of a computer output on a computer screen
Q/A	Question / Answer
RAM	Random access memory - a fast volatile computer memory holding data and software being currently executed.
RDBMS	Relational database management system - an IT Application used to store and retrieve data entities interconnected together (referenced between themselves).



Register	In the scope of this document: the aggregate of technical, organizational and other measures to provide the record and evidence of the data in question.
script	How various characters/letters are depicted on a computer screen (based on their originating handwriting such as "Latin", "Cyrillic" etc.)
SEA	Sparx Enterprise Architect – modelling software
SLA	Service level agreement - measurable parameters how fast / in what deadlines some service should be delivered.
SQL	Structure Query Language - a language specified and maintained by the appropriate authority used to manipulate data and data structures in RDBMs.
SR	Security requirement
SW	Software
Tender###	Tender proposal description requirement
TR	Testing requirement
UKZUZ (alt.: UZUS)	Ústřední kontrolní a zkušební ústav zemědělský - Central institute for control and testing in agriculture - an organizational unit of the Czech government in ČR.
UML	A notation used for software design.
UR	User requirement (non-functional requirement applicable the entire application).
WS	Web-service - a type of API accessible over a network.
XMI	XML Metadata Interchange – an OMG (Object Management Group consortium) standard for exchanging modelling metadata information

1. System to-be - tender requirements - System overview and purposes

General overview

The implementation of the Phytosanitary register helps to establish a favourable environment for the transition to the information society and to provision of IT support to the competent authorities in order to ensure the trace ability of phyto-products and ensuring their sanity and protection, enabling fast and accurate reaction and proactive sanitization of the plant health in cases of introduction and breakouts of plant diseases.

Taking into account the principles of modularity and expandability of establishment of the system, both subjects handling the phytosanitary material as well the passports issued for them have to be recorded, as well as the number of information objects recorded in the system and the number of data for each of them can be increased.

In order to achieve this, the system has to be integrated into the current environment of the National food agency, especially when concerning the integration with their infrastructure system (concerning user authentication) and the integration with justice register (legal subjects/persons).

Purposes

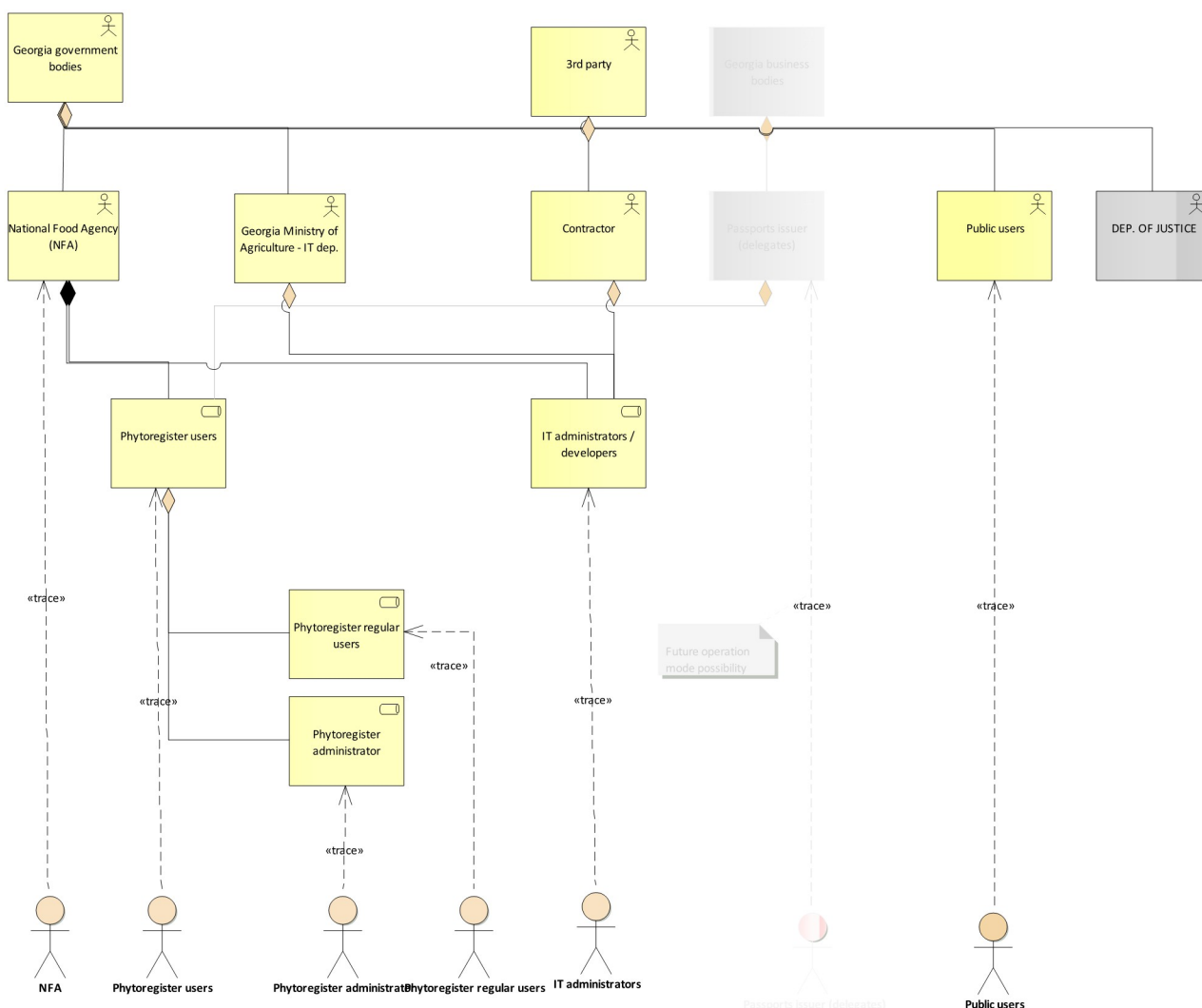
Purposes of the system that have to be addressed within the delivery of the software (including the planned means of fulfilment during the analysis phase for the “Analysis and system design document” etc.):

1. enrolment of persons (subjects) whose business activity contains the handling of phytosanitary material in Georgia;
2. registration of detailed person's activities and production places of them;
3. possibility to keep records and monitor the origins of phytosanitary materials;
4. issuing of the plant passports;

NOTE: In the following diagrams, any elements/concepts grayed out are NOT part of the delivery (or to be supported by the delivered software), however in order to reach mutual understanding and for the sake of completeness and integrity of the diagrams/views, they are part of these diagrams.

2. System to-be - tender requirements - Organization

2.1 Organization

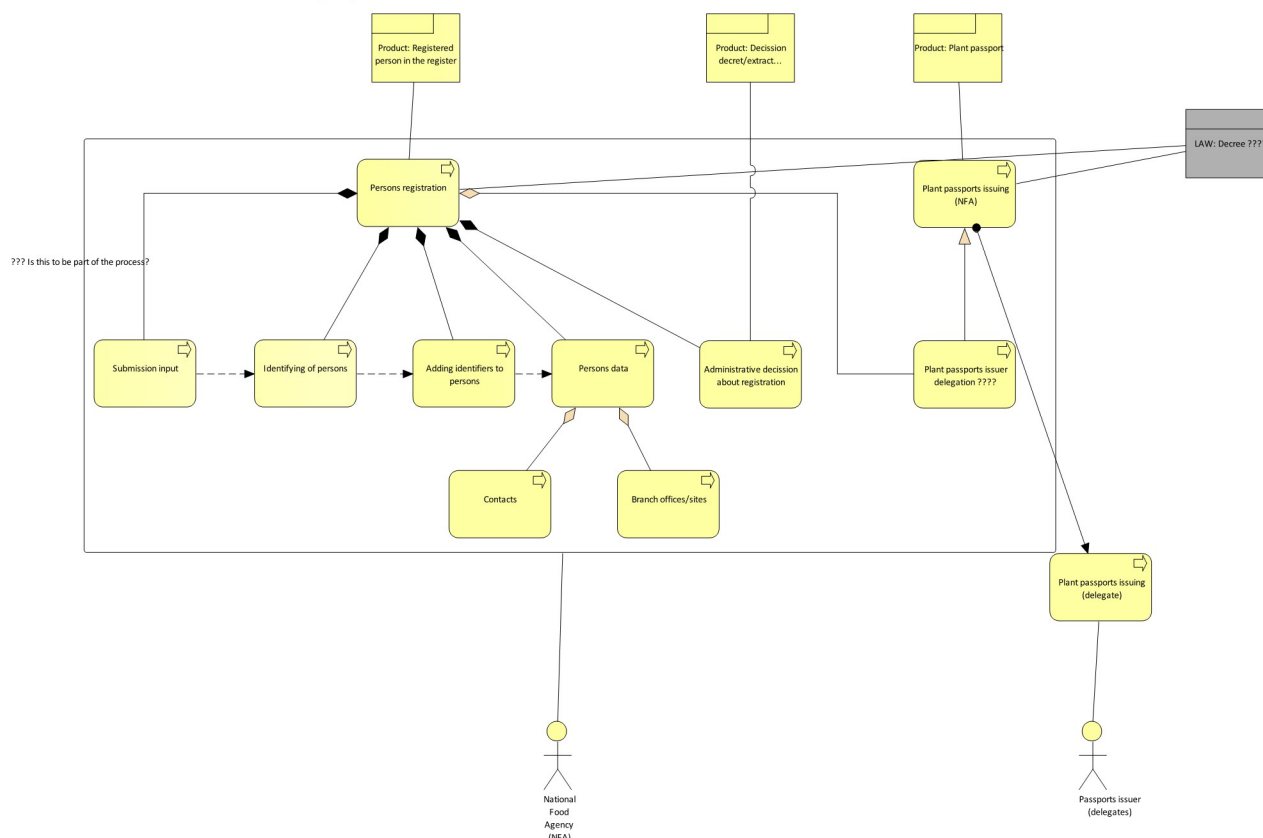


The diagram recapitulates the parties involved in the software usage and specifies their perspective roles (roles registered here are intended for both notations UML and ArchiMate). This might be altered, changed or elaborated in more detail during the analysis within the project.

Public users (::«ArchiMate_BusinessActor»)	This understands rather authorized bodies such as customs office etc.
Phytoregister users (::«ArchiMate_BusinessRole»)	(abstract role / roles grouping)

3. System to-be - tender requirements - Processes

3.1 Preliminary process list



One may observe in this drawing:

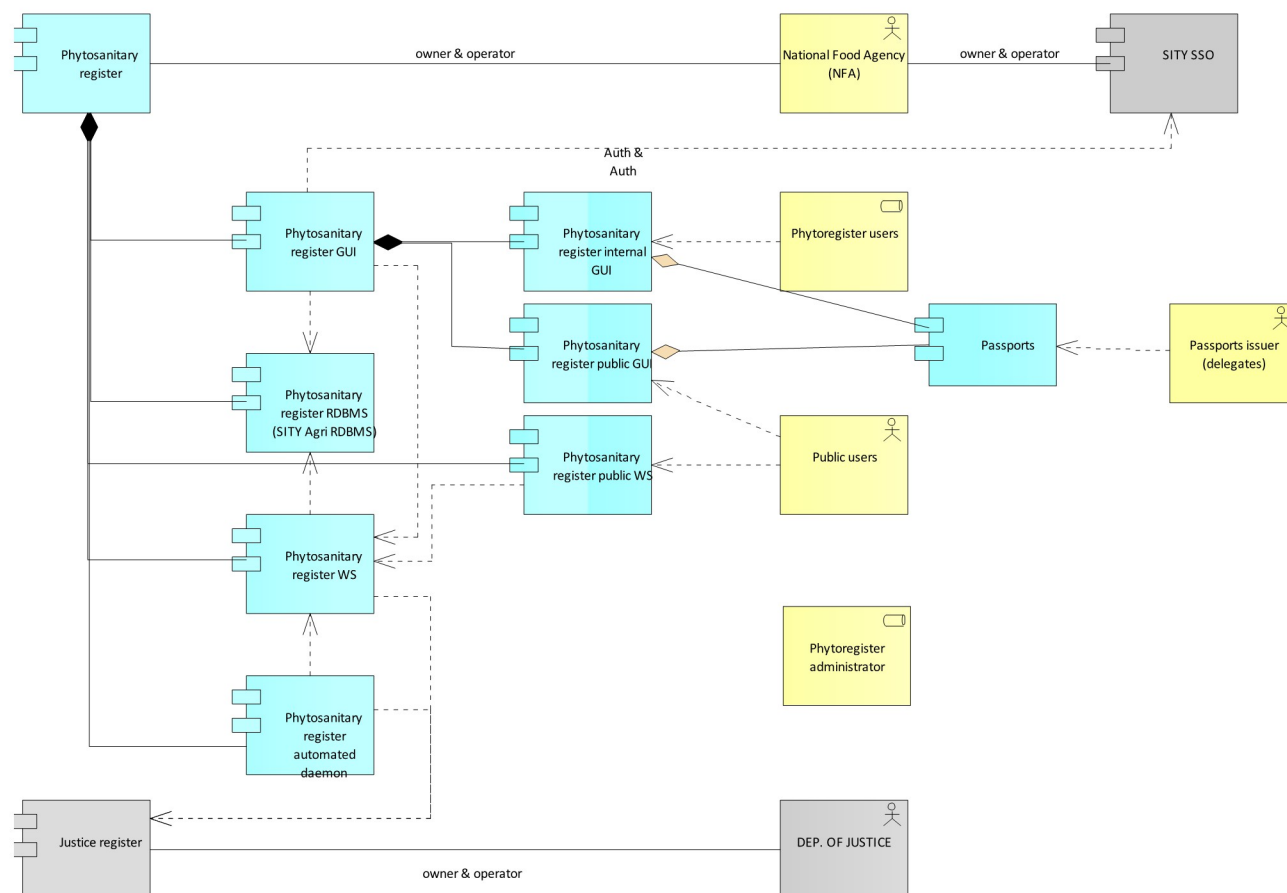
- The structure of the process "persons registration"
- The possible delegation of the passports issuing
- And who (what organization) shall carry out the processes.

This might be elaborated in more detail during the analysis within the project.

Adding identifiers to persons (::«ArchiMate_BusinessProcess»)	NFA is planning to give new number to registered persons, based on crop type and region.
Administrative decision about registration (::«ArchiMate_BusinessProcess»)	Introducing other data as needed
Identifying of persons (::«ArchiMate_BusinessProcess»)	How the persons are to be identified within the register and correlated with the submission for registration (has to be addressed in the analysis and cleared in accordance to the respective Georgian laws as early in the project as possible).
Persons data (::«ArchiMate_BusinessProcess»)	Introducing other data as needed
Persons registration (::«ArchiMate_BusinessProcess»)	The core process being carried out - the registration of persons handling products requiring phytosanitary monitoring.
Plant passports issuing (NFA) (::«ArchiMate_BusinessProcess»)	The process of issuing plant passports for the goods of phytosanitary material.
Submission input (::«ArchiMate_BusinessProcess»)	How the persons are to be identified within the register and correlated with the submission for registration.

4. System to-be - tender requirements - Architecture drafts

4.1 Architecture drafts



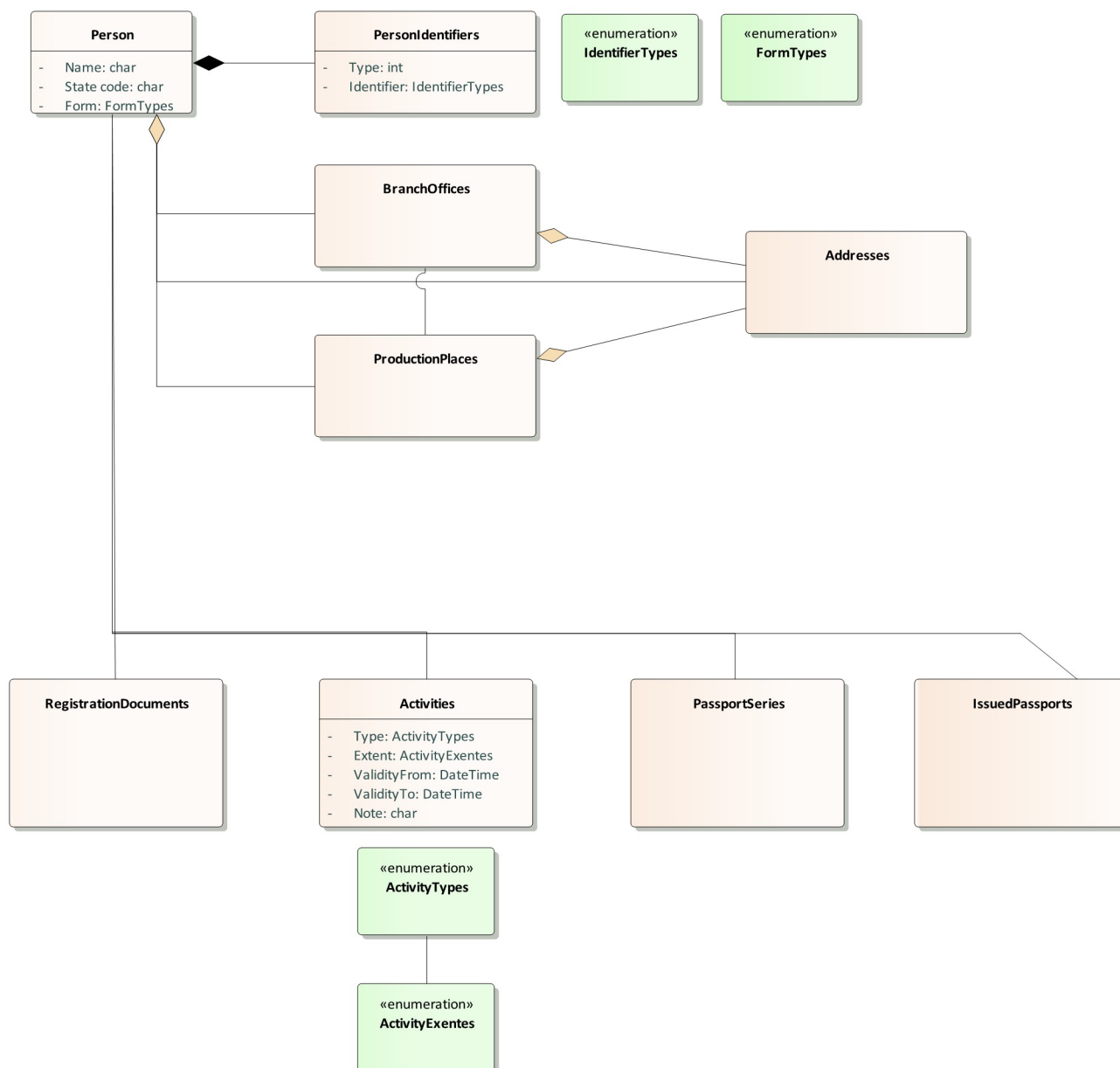
High-level description of modules of which the system should consist and their respective stakeholders roles.

This might be altered, changed or elaborated in more detail during the analysis within the project.

Public users (::«ArchiMate_BusinessActor»)	This understands rather authorized bodies such as customs office etc.
Phytoregister users (::«ArchiMate_BusinessRole»)	(abstract role / roles grouping)
Justice register (::«ArchiMate_ApplicationComponent»)	https://enreg.reestri.gov.ge/main.php?m=new_index&state=search
Phytosanitary register (::«ArchiMate_ApplicationComponent»)	The newly designed and created Information system of Phytosanitary register that is the object of this tender and the resulting delivery.
Phytosanitary register GUI (::«ArchiMate_ApplicationComponent»)	The Graphical user interface used for the users to display, access and manipulate the data records of the register.

5. System to-be - tender requirements - Data drafts (logical classes)

5.1 Data drafts



Main overview of data entities being handled by the system.

FormTypes

Enumeration

List of identifier types (can be set up dynamically)

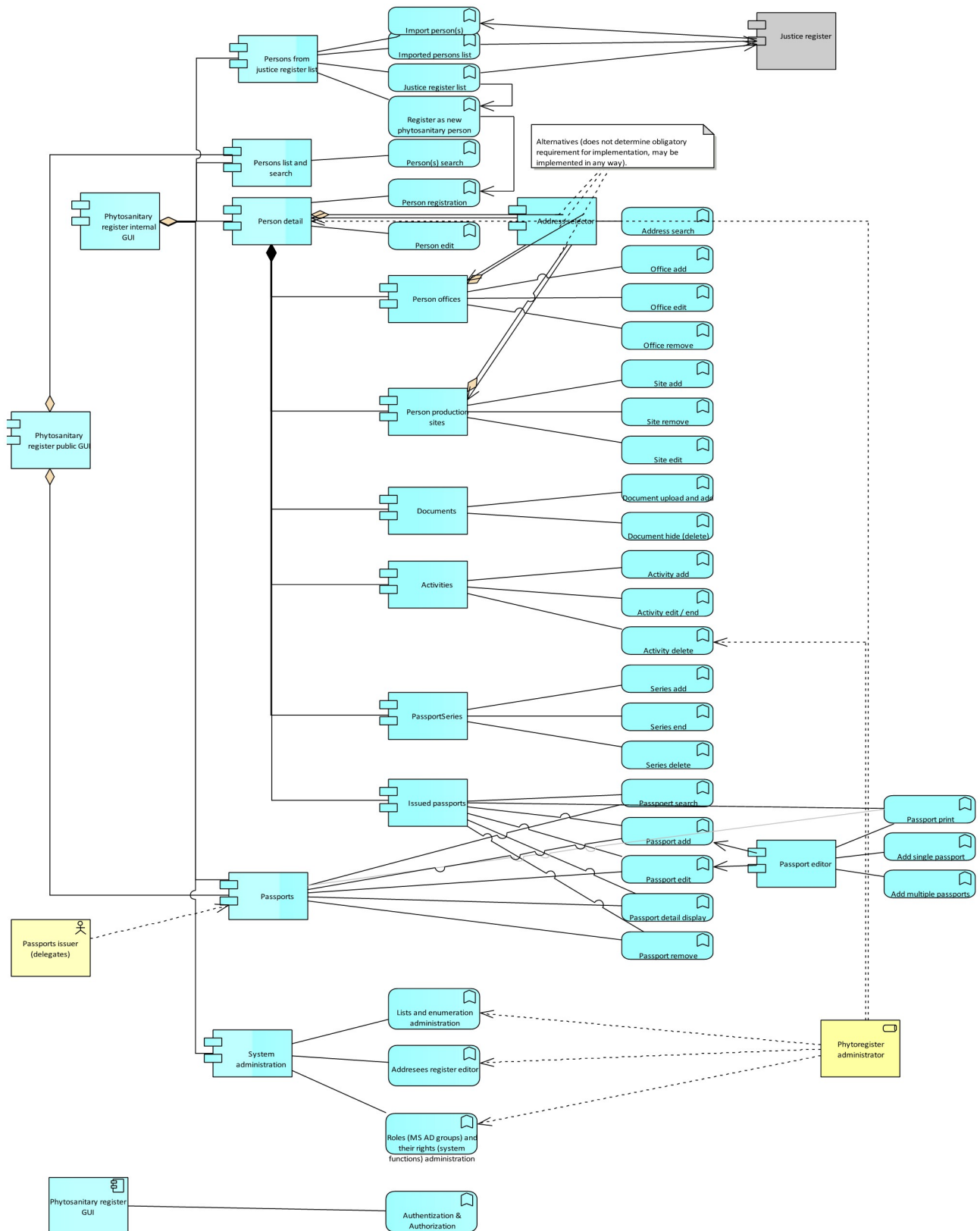
IdentifierTypes

Enumeration

List of identifier types (can be set up dynamically)

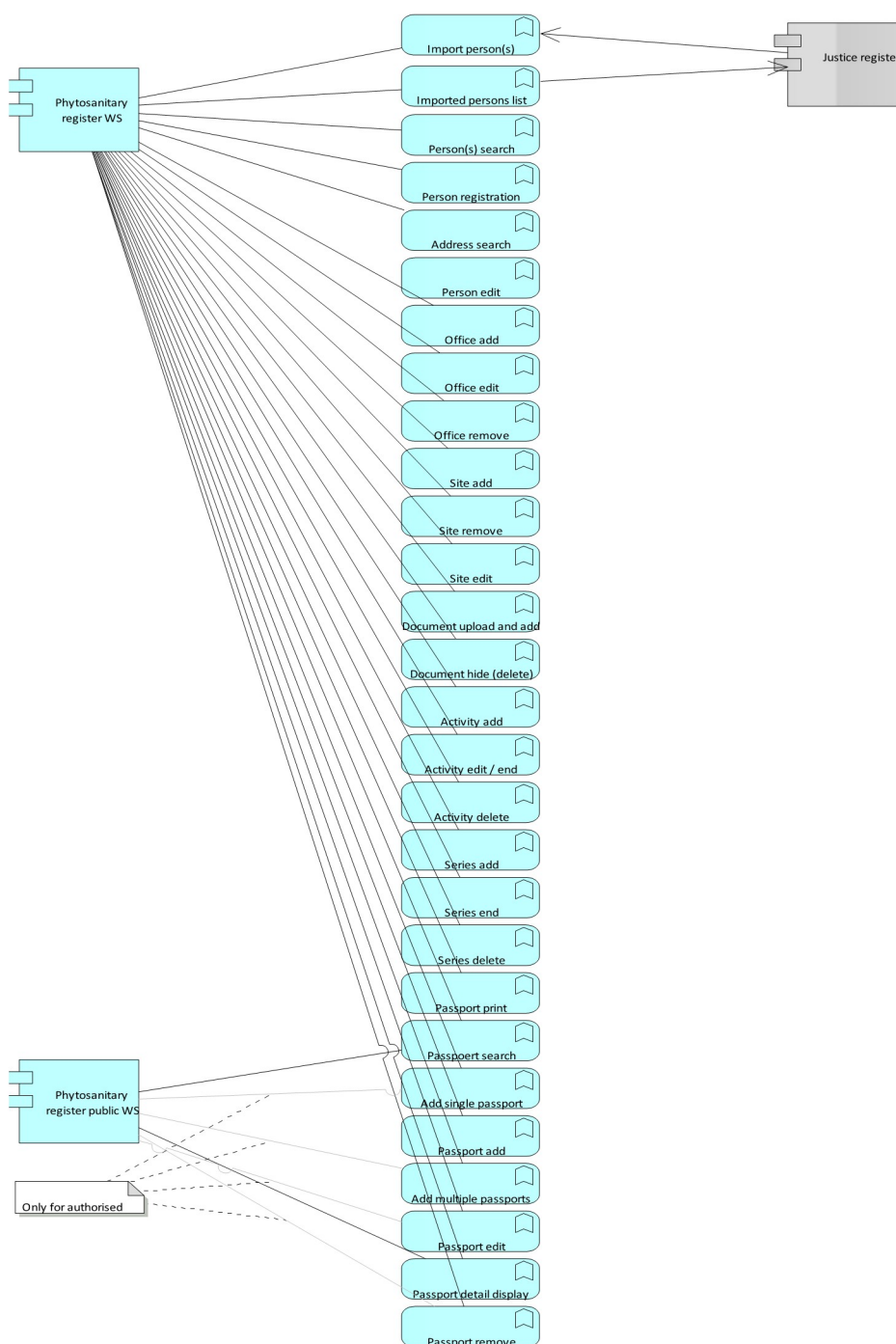
6. System to-be - tender requirements - Functional drafts

6.1 Functional drafts - GUIs



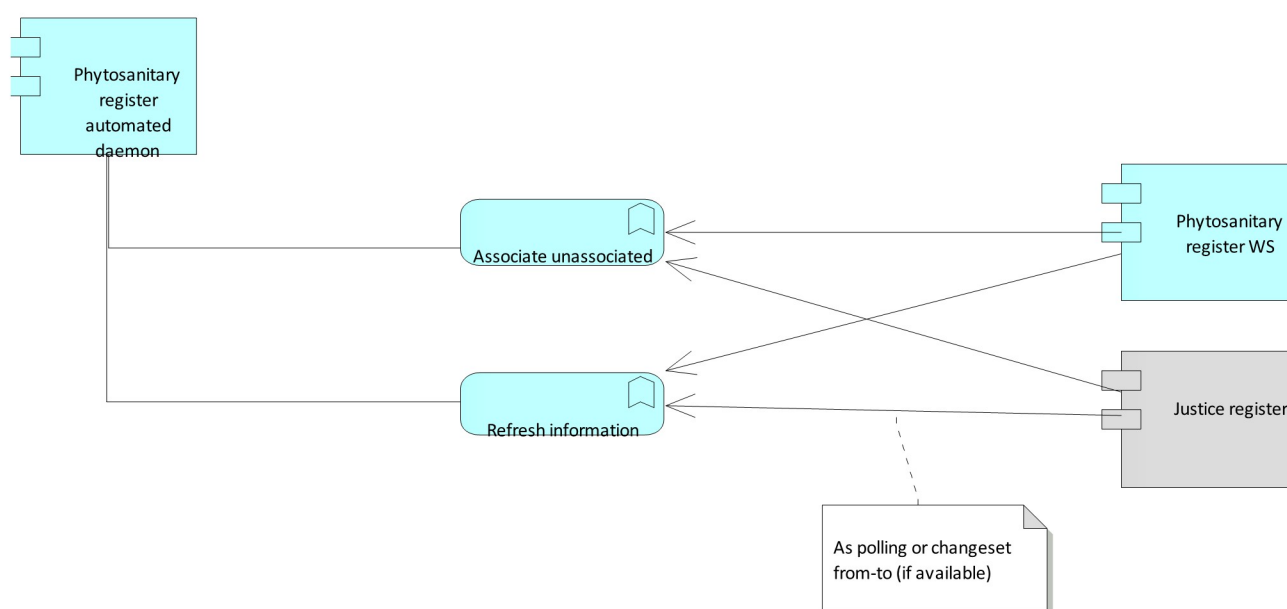
Person registration (::«ArchiMate_ApplicationFunction») 	Shall be able to identify duplicate person based on: <ul style="list-style-type: none"> any [ID+IDtype] Name+state code+Form(+validity) Seat address (warning only)
Justice register (::«ArchiMate_ApplicationComponent») 	https://enreg.reestri.gov.ge/main.php?m=new_index&state=search
Phytosanitary register GUI (::«ArchiMate_ApplicationComponent») 	The Graphical user interface used for the users to display, access and manipulate the data records of the register.

6.2 Functional drafts - WSs



Person registration (::«ArchiMate_ApplicationFunction») 	Shall be able to identify duplicate person based on: <ul style="list-style-type: none"> any [ID+IDtype] Name+state code+Form(+validity) Seat address (warning only)
Justice register (::«ArchiMate_ApplicationComponent ») 	https://enreg.reestri.gov.ge/main.php?m=new_index&state=search

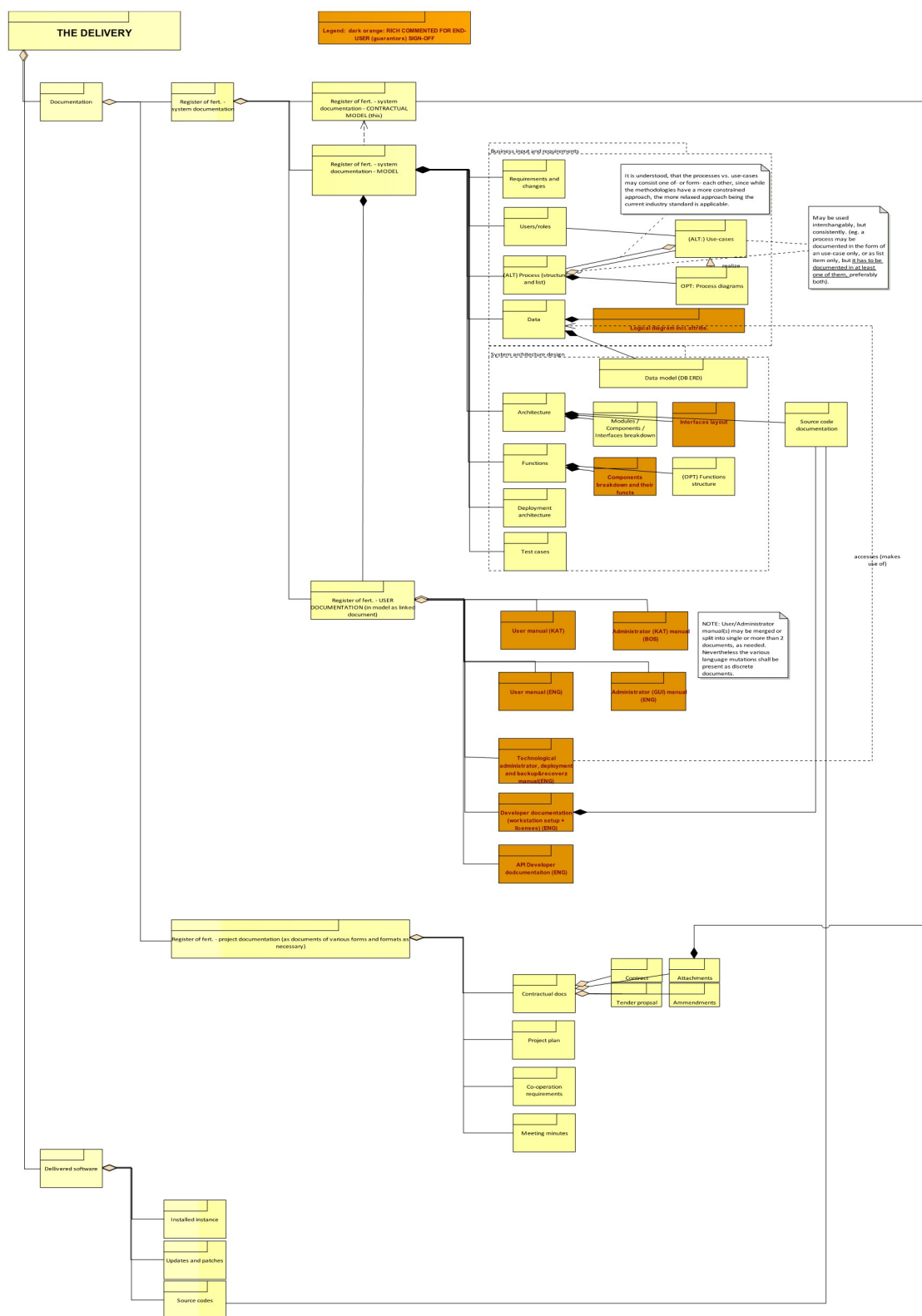
6.3 Functional drafts – automated



Justice register (::«ArchiMate_ApplicationComponent ») 	https://enreg.reestri.gov.ge/main.php?m=new_index&state=search
---	---

7. System to-be - tender requirements - Delivery content (incl. metamodel)

7.1 Documentation structure



(ALT) Process (structure and list)	<p>Containing:</p> <ul style="list-style-type: none"> Mandatory: Processes (actions/activities ... formal name depending on notation used) being supported by the SW and their respective relations (Composition/Aggregation) <p>LOD:</p> <ul style="list-style-type: none"> Up to the level of assignable user rights (assignable functions) to the respective roles in the administration. Note: Should be linkable to "Components breakdown and their functs") <p>Notation:</p> <ul style="list-style-type: none"> ArchiMate any ver - Business layer / Application layer; UML any ver: Activity diagram; Structured lists
(ALT:) Use-cases	<p>Containing:</p> <ul style="list-style-type: none"> Mandatory: User roles Mandatory: Use-cases performed by the respective roles Optional: Use-case structure ("include" etc.) <p>LOD:</p> <ul style="list-style-type: none"> Up to the level of assignable user rights (assignable functions) to the respective roles in the administration. Note: Should be linkable to "Components breakdown and their functs") <p>Notation:</p> <ul style="list-style-type: none"> pref.: UML any ver. - Use-case diagram also possible: ArchiMate any ver. Buisness/Application layer; Structured list.
(OPT) Functions structure	<p>The structure of functions interacting with each other and/or accessing other services.</p> <p>Containing:</p> <ul style="list-style-type: none"> Mandatory: Application Components/Services/Functions and their structure and interactions Opt.: Any other Application layer objects (concepts) <p>LOD:</p> <ul style="list-style-type: none"> no specific prefs. <p>Notation:</p> <ul style="list-style-type: none"> ArchiMate any ver. Application ev. Technology layer
Administrator (GUI) manual (ENG)	Use-case by use-case description of administrator actions and the ways of performing thereof (HOW-TOs) or the very same based on the modules and functionality tree of the software.
Administrator (KAT) manual (BOS)	Use-case by use-case description of administrator actions and the ways of performing thereof (HOW-TOs) or the very same based on the modules and functionality tree of the software.
API Developer dodcumentaiton (ENG)	(no specific requirements)
Components breakdown and their functs	<p>Links of functions to their respective application modules/parts.</p> <p>Containing:</p> <ul style="list-style-type: none"> Mandatory: Application modules (structure) and their respective functions Opt.: Any other Application / Technology level objects (elements/concepts) <p>LOD:</p> <ul style="list-style-type: none"> no pref, should be linkable to either "Use-cases" or "Process (structure and list)" <p>Notation:</p> <ul style="list-style-type: none"> pref.: ArchiMate any ver. - Application layer <p>RICH COMMENTED FOR END-USER (guarantors) SIGN-OFF, may be joined into one document / model with Interfaces layout.</p>
Co-operation requirements	Containing required role, its description and schedule as per PC001
Data	<p>IMPORTANT NOTE: With no prejudice to tool and notation used, however any data model featuring relations and having attributes noted within the class/entity objects (such as but not limited to: class diagram, tables and columns, RDBMs generated documentation</p>

	etc.) HAS TO meet following requirement: The relation lines have to start/end (being anchored) on the line of attribute of primary or foreign key being used in that relation.
Data model (DB ERD)	<p>Containing:</p> <ul style="list-style-type: none"> Objects/views/procs, their attributes, constraints and relations, all with description of their meaning <p>LOD:</p> <ul style="list-style-type: none"> 1:1 to technological (SQL-level view) representation in the RDBMS used. <p>Notation:</p> <ul style="list-style-type: none"> no pref. <p>IMPORTANT NOTE: With no prejudice to tool and notation used, however any data model featuring relations and having attributes noted within the class/entity objects (such as but not limited to: class diagram, tables and columns, RDBMS generated documentation etc.) HAS TO meet following requirement: The relation lines have to start/end (being anchored) on the line of attribute of primary or foreign key being used in that relation.</p>
Deployment architecture	<p>Containing:</p> <ul style="list-style-type: none"> Architecture components representable as artefacts, e.g. packages deployable on nodes; nodes and infrastructure describing a technologically configurable environment, including network architecture + ports used between components. <p>LOD:</p> <ul style="list-style-type: none"> To be usable for administrators/deployment team and infrastructure opponency <p>Notation:</p> <ul style="list-style-type: none"> pref.: ArchiMate any ver. - Technology layer
Developer documentation (workstation setup + licenses) (ENG)	<ul style="list-style-type: none"> Development prerequisites needed for the code to be run (including 3rd party tools installers where possible or necessary from the point of view of the licensing terms) incl. processes and means of keeping track of changes and patching changes made during the warranty period. Development environment setup guide (may include virtual machines images, services mock-ups etc., however these do not substitute the step-by-step guide) License numbers / registration data for components that should require such a number or registration. May contain also a cloneable virtual image of a developer workstation
Functions	The functionality of the respective modules/components of the system (ArchiMate - app layer (preferred) OR UML Component)
Interfaces layout	<p>Interfaces layout of GUI, WSs, APIS...</p> <p>For webservices:</p> <ul style="list-style-type: none"> Methods list their I/Os attributes exceptions. <p>For GUI:</p> <ul style="list-style-type: none"> rich textual description of the functionalities, can be also provided in the form of the User / Administrator manual. Schemas up to the detail of data attributes (depicted as input fields labels and list/table headers) and functionalities, featuring at least one example representing also the graphical layout (template) for each type of functionality. <p>RICH COMMENTED FOR END-USER (guarantors) SIGN-OFF, may be joined with Components breakdown in one document/model.</p>
Legend: dark orange: RICH COMMENTED FOR END-USER (guarantors) SIGN-OFF	<p>Any of the dark orange elements denotes a deliverable where:</p> <ul style="list-style-type: none"> in case of a model rich textual description should be provided, enabling to deliver the information to end-user even when he or she is not familiar with the notation (eg. typically: the diagram description should state the very same information as depicted on the diagram including not only the various objects/elements but the description should convey also the information represented by the various relations between the objects)

	<ul style="list-style-type: none"> in case of textual documents these are to be written for non-professional end-users (in case of manuals) or non-developer/programmer users (in case of document for technological administrators) or (in case of developer/programmer documents) in a friendly and easy-to-understand way.
Logical diagram incl. attribs.	<p>Containing:</p> <ul style="list-style-type: none"> A full list of data entities existing throughout the entire system and their relations, including full list of their attributes (logical perspective, not physical) (UML class diagram). Optionally: data entities may be additionally represented multiple times with specification of variants of each used for persistence, data flow within the I/O of various interfaces etc. (for example: while a person may have the set of 20 attributes, this data entity may be represented not only as "general one" having 20 attributes, but also as a data entity of some say WS or GUI, where only 10 of the attributes are used). <p>LOD:</p> <ul style="list-style-type: none"> Data entities on logical level up to their atomic attributes, where the word "atomic" means "representable as some electronically recognized data type" <p>Notation:</p> <ul style="list-style-type: none"> pref.: UML any ver. Class diagram RICH COMMENTED FOR END-USER (guarantors) SIGN-OFF any other - Crowfoot, Coad/Yourdon, generic ERD, tables/lists... <p>IMPORTANT NOTE: With no prejudice to tool and notation used, however any data model featuring relations and having attributes noted within the class/entity objects (such as but not limited to: class diagram, tables and columns, RDBMs generated documentation etc.) HAS TO meet following requirement: The relation lines have to start/end (being anchored) on the line of attribute of primary or foreign key being used in that relation.</p>
Modules / Components / Interfaces breakdown	<p>Architecture of modules/components of the system and their relations</p> <p>Containing:</p> <ul style="list-style-type: none"> Mandatory: Components Mandatory: Composition/aggregation links Optionally: Services etc., realization/assignment and other links. <p>LOD:</p> <ul style="list-style-type: none"> Application parts(modules) up to discrete I/O sets (screens, templates, controls, reports...) See PO006 <p>Notation:</p> <ul style="list-style-type: none"> pref.: ArchiMate any ver. - Application layer alt.: UML any ver - Component diagram
OPT: Process diagrams	<p>Containing:</p> <ul style="list-style-type: none"> The processes descriptions/flows, branching, data flows <p>LOD:</p> <ul style="list-style-type: none"> no specific requirements <p>Notation:</p> <ul style="list-style-type: none"> No specific requirements, try to avoid ArchiMate business layer, rather UML Activity/Sequence/Sync diagrams or BPMN.
Requirements and changes	<p>Containing:</p> <ul style="list-style-type: none"> Mandatory: Requirements, issues and the changed/added requirements with "trace" relations in between them. <p>LOD:</p> <ul style="list-style-type: none"> All requirements/issues/changes independently on their respective LOD,

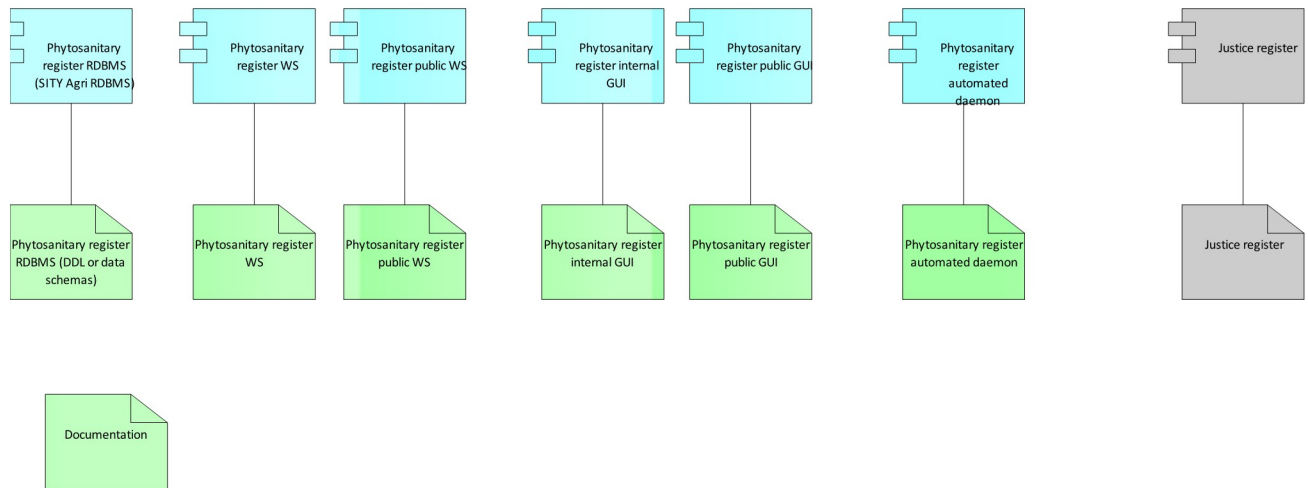
	<p>Notation:</p> <ul style="list-style-type: none"> SEA Requirements model
Source code documentation	<p>Source codes files / configuration projects and resources structure overview and description</p> <p>Containing:</p> <ul style="list-style-type: none"> The source code files + meta data (project files for IDE etc.) including comments any kind of structured overview of the files groups and their link to respective modules (architecture modules - LOD 1. in PO006) + their inner logical program design structure (classes, object model)
Technological administrator, deployment and backup&recoverz manual(ENG)	<p>Deployment and technological architecture manual, including</p> <ol style="list-style-type: none"> full step-by-step manual for installation of the application (including basic schemas of application layout and setup possibilities, if applicable), the documentation of all the configurable variables in any configuration repositories (such as but not limited to: the Microsoft Windows registry, any text/xml/csv/tabbed/json and similar files, the database, configuration repositories of any kind in any proprietary software including the RDBMS being used, templates/reports and the available variables for the report templates configuration; if a 3rd party software is used, then the documentation may be covered by the documentation of the 3rd party software itself, however an addendum has to be made about how the configuration influences the delivered software). Network architecture and ports used between the components (may use the "Deployment architecture" diagram) Backup & recovery plan containing: <ul style="list-style-type: none"> Analysis of data assets (may be part of data models) Architecture of backup solution(s) being employed Data assets <--> backup solution(s) (which asset is backed up by what solution and with what frequency, type of backup etc.) Steps to check the backups being done correctly (per type of backup solution) or (should this require manual operation) the manual for performing these steps. Steps to recover each data asset (per type of backup solution)
Test cases	<ul style="list-style-type: none"> All tests/test cases have to reference either a requirement specified already in this Contract/Tender documents or a requirement provided during the analysis. One requirement may result in multiple tests, and one test may cover multiple requirements, if necessary (eg. the level-of-detail should provide at least such a detail, that each test-case belongs to each function/requirement or small groups there of). (Note: this does not apply, if necessary, for the "global" (non-functional) requirements, which may be tested either <ol style="list-style-type: none"> within another test case (but this has to be stated as a requirement being tested by the test) separately within an acceptance test or within a test without a scenario: a mere "statement" test, such as "according to chapter XYZ in the documentation the application has 3 tires" or "(...) the system has a software application with functionalities covering each of the 3 modules") Each test has to provide a step-by-step manual for performing the relevant test, including all input values and expected outputs. If a test may fork into multiple variants based on the data input, all possible inputs (or at least their groups – classes of values) have to be tested. Each test case (especially in the printed version being used as annex for the acceptance M2) has to provide free space, where the result and final resolution (passed/failed with objections/failed) can be noted. The test cases are to be described in English language (except the labels/buttons/software I/O texts and data I/O). The first testing will be done by the contractor, but the test scenarios will be accessible and the second times run by the PHPA or departments or UKZUZ as selected during the acceptance procedure.



	The above mentioned does not intend to influence nor it may not replace any internal testing procedures of the contractor.
User manual (ENG)	Use-case by use-case description of actions and the ways of performing thereof (HOW-TOs) or the very same based on the modules and functionality tree of the software.
User manual (KAT)	Use-case by use-case description of actions and the ways of performing thereof (HOW-TOs) or the very same based on the modules and functionality tree of the software.
Users/roles	<p>Structure of the organization affected and the resulting software roles.</p> <p>Containing:</p> <ul style="list-style-type: none">• Mandatory: Independently on independently on their LOD, entire list of roles (and their permitted functionalities - see Use-cases/Processes) must be present <p>LOD:</p> <ul style="list-style-type: none">• Up to roles (and their assignable functions - see Use-cases/Processes) that shall be set up in the software. <p>Notation:</p> <ul style="list-style-type: none">• pref.: ArchiMate any ver. Business layer• also possible: UML - Use-case any ver.; Structured list.

8. System to-be - tender requirements - Deployment drafts

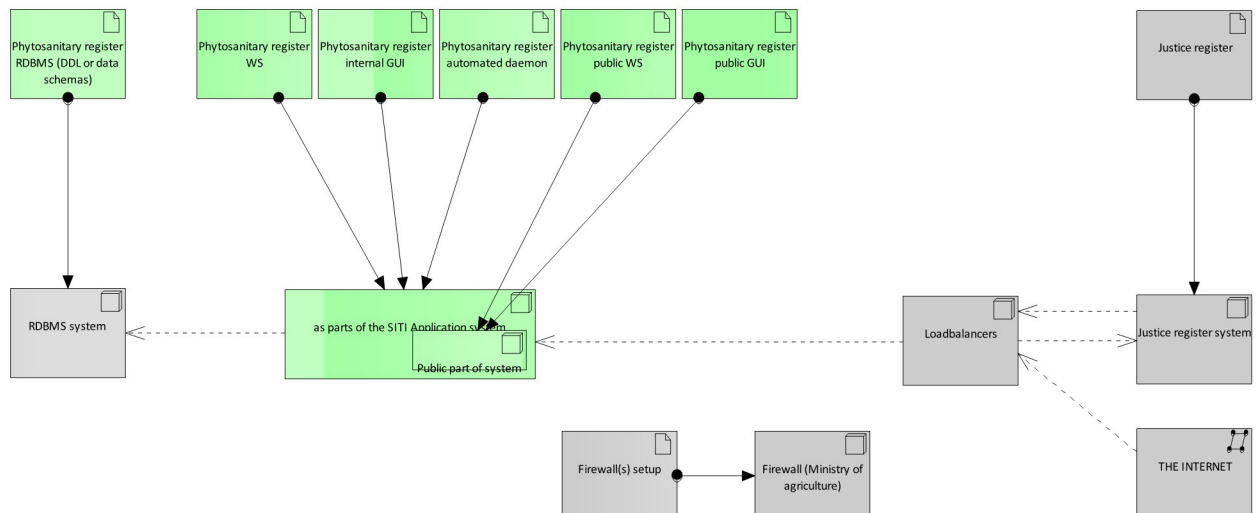
8.1 Component to Artefact transition



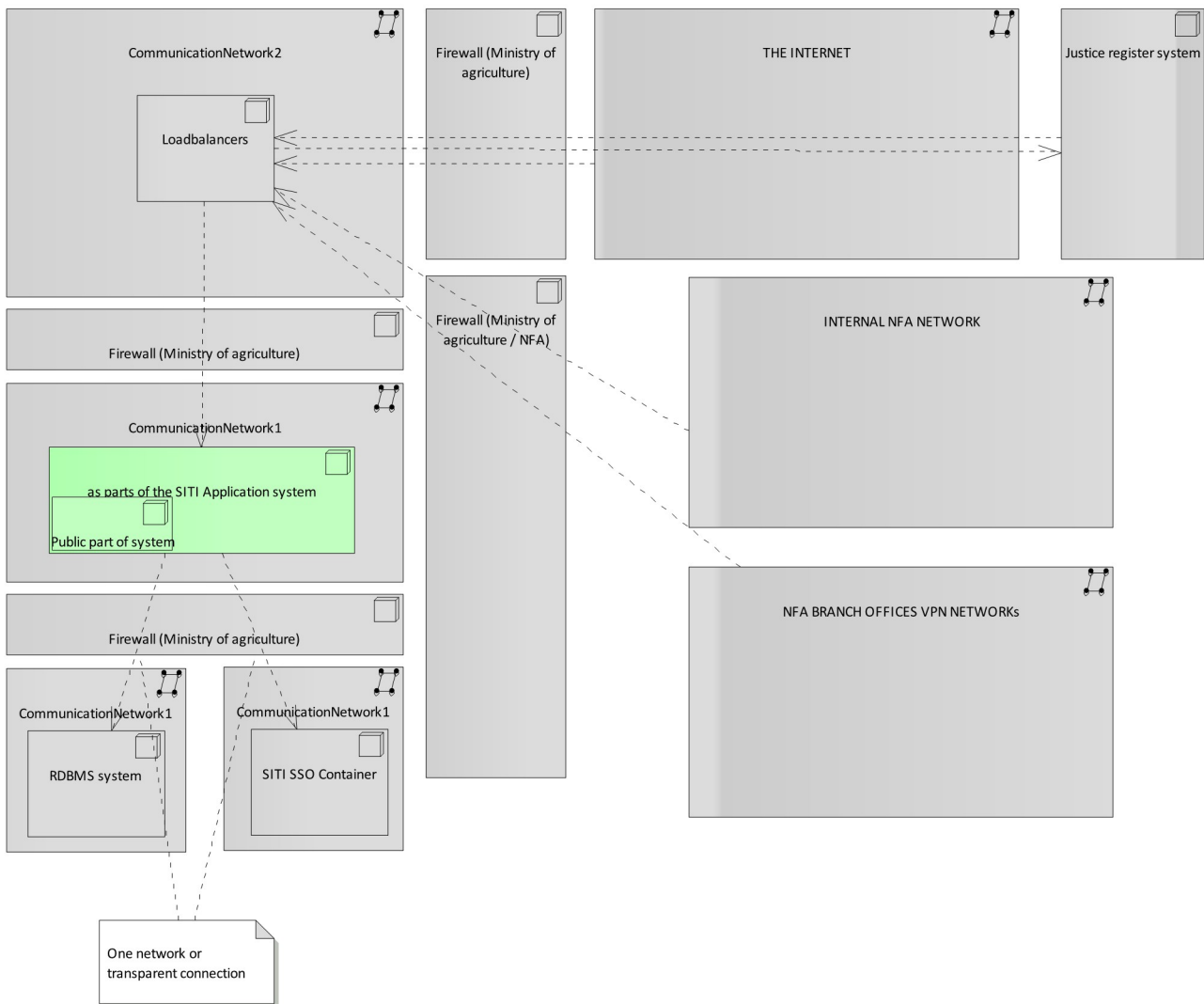
Justice register
 (::«ArchiMate_ApplicationComponent
 »)

https://enreg.reestri.gov.ge/main.php?m=new_index&state=search

8.2 Deployment draft



8.3 Deployment draft - devices/network required architecture



(gray = not part of the delivery, green = parts of the delivery)