**Guidance for Specification of our work products**

# Specification of an Organizational Subsystem (pädevusala vaade)

… consists of two big parts:

* Requirements (only textual) (tekstilised nõuded / vajadused)
* Models (graphical: UML diagrams with explaining texts) (UML diagrammid + diagrammide kirjeldused)

The Requirements (nõuded / vajadused) part consists of the following partitions:

* **Definition of the Business Actor** (according to the answer to the 1-st question of the questionary; pädevusala skoop)
* **Objectives (pädevusala eesmärgid) of the Business Actor** (according to the answers to the 2-nd (and/or 6-th) question of the questionary)
  + Start with Mission Statement
  + End with (high-level, stable, strategic) measurable objectives
* **Responsibilities (pädevusala vastutused) of the Business Actor** (according to the answers to the question 3.1 of the questionary)
  + Responsibility is a service provided by the Business Actor to some other Business Actor(s) (vastutus on teenus, mida antud pädevusala pakub teistele pädevusaladele)
  + If possible, use activity names (that include verbs) for Responibilities (võimalusel kasuta vastutuse nimetuse sees tegusõna e. verbi)
* **Needs (pädevusala nõuded/ vajadused) of the Business Actor** (according to the answers to the question 3.2 of the questionary)
  + Need is defined here as a service needed by the Business Actor and provided by another Business Actor (need nõuded mida antud pädevusala vajab ja mida teised pädevusalad pakuvad)
  + If possible, use activity names (that include verbs) for Needs (võimalusel kasuta nõude nimetuse sees tegusõna e. verbi)
* **Internal Processes of the Business Actor** (processes in the answer to the 3-rd question of the questionary, that can’t be interpreted as Responsibilities nor Needs of the Business Actor; pädevusala protsessid mis pole vastutused ega vajadused)
* **Objects (pädevusala põhiobjektid) related to the Business Actor** (according to the answers to the 4-th question of the questionary)
* **Events (pädevusalal toimuvad sündmused) of the Business Actor** (according to the answers to the 5-th question of the questionary)
  + That start the activities listed before as Responsibilities and Needs of the Business Actor
* **Relations to other Business Actors**
  + **Customers of our Business Actor** (who need its Responsibilities; pädevusala pakutavad teenused teistele pädevusaladele)
  + **Suppliers of our Business Actor** (who are responsible for satisfying its Needs; teenused mida teised pädevusalad pakuvad antud pädevusalale)
* **Main Information Requirements (pädevusala peamised infovajadused) or Queries of the Business Actor**
  + List of main queries over all activities of the Business Actor (põhilised päringud)
  + If the name of the Query is not sufficient for understanding, then explain the content of the Query by writing some text.
  + We use the list for evaluation of quality of the models and descriptions of the Informational Subsystems (Registries)

The UML Models part consists of the following partitions:

* **Functional Goal Models (Use Case Diagrams)**
  + Diagrams
    - On the level of mission statement (optional)





* + - On the level of main activities (optional)



* + - Responsibiities: serving ohter actors (compulsary)





* + - Requirements of serving by others (compulsary)



* + Textual Descriptions of Functional Goals
* **Quality Goal Models (Special Class Diagrams)**
  + Diagrams
  + Textual Descriptions of Quality Goals
* **Visual Business Dictionaries (Class Diagrams)**
  + One Diagram



Maintenance Department receives messages about Failures of Equippment used in MedLaboratory.

Maintenance Department repares the Equippment, sends Report to Management Department and gets (some kind of) Feedback from the Management Department.

* + Definition of Concepts used in the Diagram

**SUGGESTED ADDITION: Architectural class diagram (for your Organizational Subsystem’s dependencies on Functional Subsystems and Registries (very important) and other Organizational Subsystems (not so important))**

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# Specification of a Functional Subsystem

… consists of two big parts:

* Requirements (only textual)
* Models (graphical: UML diagrams with explaining texts)

The Requirements part consists of the following partitions:

* **Background** (general definition of this subsystem by few sentences; focus on the central Business Process of the subsystem)(taust - funktsionaalse allsüsteemi üldine kirjeldus; rõhk on antud allsüsteemi kõige kesksema äriprotsessi peal)
* **Objectives**  (list of concrete objectives for this subsystem) (antud funktsionaalse allsüsteemi eesmärkide loetelu)
* **Responsibilities** (list of business responsibilities (of concrete Business Actors) that are implemented or supported in this subsystem) (antud funktsionaalse allsüsteemi poolt realiseeritud või toetatud ärivastutuste loetelu)
* **Usage by Business Actors** (relations with Organizational view)
  + Supplier(s) (of Responsibilities as business services) - Who (Business Actor(s)) owns the central Business Process(es) of the subsystem? Teenuse pakkuja / vastutaja – kes ta on?
  + Customers (of Responsibilities as business services) - Who (Business Actors) need/use the values created by the central Business Process(es) of this subsystem? Teenuse kasutaja / klient – kes nad on?
* **Requirements (FURPS nõuded)**
  + Functional Requirements – What must the software of this subsystem do (in addition to fulfilling above mentioned Responsibilities)?
  + Non-functional requirements – What qualities (responding times, user interfaces look like, etc.) must the software of this subsystem have?
  + In the case of real-life project, please give the origin (person name or document name) of each requirement. (nõude nõudja või allikas)
* **Objects**
  + List of main objects (nouns) derived from Objectives, Responsibilities and Requirements. Põhiliste objektide („põhiline objekt“ ei ole täpselt sama, mis „põhiobjekt“) loetelu, mis on tuletatud eesmärkidest, vastutustest ja nõuetest.
* **Processes** (structured/hierarchical list of Functional Goals that you’ll draw on the ain use case diagram of this subsystem )
  + What is the central Business Process (or main Functional Goal) for this subystem? Milline on selle funktsionaalse allsüsteemi keskne äriprotsess (või keskne teenus / funktsionaalne eesmärk e. nõue)?
  + What are the direct sub-processes (or sub-goals) of the central Business Process (or main Functional Goal)? Mis on keskse äriprotsessi (teenuse / funktsionaalse nõude) otsesed alamprotsessid?
  + What are the important processes or functional goals you want to include into the central Business Process from other/related functional subsystems? Milliseid teiste funktsionaalsete allsüsteemide äriprotsesse (teenuseid / funktsionaalseid nõudeid) soovite kaasata antud funktsionaalse allsüsteemi keskse äriprotsessi juurde?
  + What Quality Goals are important in relation to each mentioned Functional Goal? Millised on olulised kvaliteedi nõuded / eesmärgid iga konkreetse teenuse / funktsionaalse nõude juures?
* **Events** (between subsystems) (allsüsteemide vahelised sündmused)
  + Events created in other subsystems that start processes implemented in the current subsystem (teistes allsüsteemides toimunud sündmused, mis käivitavad mõne protsessi antud funktsionaalses allsüsteemis)
  + Events created in the current subsystem, that start processes implemented in other subsystems.
* **Usage of Registries**
  + From what Registries and what information is used or created or changed by the processes implemented in the current subsystem?
  + If you create a conceptual class diagram for the sbsystem, then the usage of registries can be seen in this diagram.
* **Relationships with ohter Functional Subsystems** 
  + Look at the definitions of Events (above)
  + Which subsystems’ services or responsibilities and what services/responsibilities are supported by services of the current subsystem? (subsystem, service, support)
  + Which subsystems’ services or responsibilities and what services/responsibilities are needed by services of the current subsystem?
  + The nformation of relationships with other subsystems will be seen on the use case diagrams of the subsystem.

The UML Models part consists of the following partitions:

* **Use Case Diagram**
  + That describes structure of Functional Goals or processes for this subsystem
  + and is focused on the main Functional Goal or central Business Process of the subsystem
  + relates the Functional Goals with important Quality Goals



* + Textual Descriptions of elements used in the diagram
* Class Diagram for Quality Goals of this subsystem, and dependencies between the goals.



* + Textual descriptions of the Quality Goals.
* **Activity Diagrams for workflows of Business Processes or Functional Goals**
  + That are created as sub-diagrams of concrete use cases that represent Functional Goals.
  + Describe cooperation between two or more Business Actors (importance for the Big Picture) by using swimlines for actors.
  + Include objects and object flows that describe writing information into registries.



* Conceptual Class Diagram for the subsystem (optional)
  + Must be useful for understanding processes of this subsystem
  + And different from conceptual class diagrams of related registries.



* + Textual interpretation of the diagram.

Business Architect is responsible for the Business Architecture that includes (consists of) Organizational Subsystems, Functional Subsystems, and Informational Subsystems.

Business Analysts are responsible for concrete Organizational Subsystems, Business Designers are responsible for concrete Functional Subsystems and Informational Subsystems.

* + Definitions of concepts or classes used in the diagramm.

# Specification of an Informational Subsystem (Registry)

… consists of two big parts:

* Requirements (only textual). Nõuded
* Models (graphical: UML diagrams with explaining texts)

The Requirements part consists of the following partitions:

* **Background** (general definition of this Registry by few sentences; focus on the central Business Object of the registry)
* **Objectives**  (list of concrete objectives for this registry)
* **Usage by Business Actors** (relations with Organizational view)
  + Who (Business Actor) owns the central Business Object of the Registry?
  + Who (Business Actors) use and/or modify data of this Registry?
* **Usage by Functional Subsystems or Processes** (relations with Functional view)
  + How (through which Fuctional Subsystems and processes) the data of this registry is used and/or Update/changed?
* **Information Requirements**
  + Information requirements or queries (from Organizationalview, but reorgaisnized into proper registries according to central Business Objects)
* **Relationships with ohter registries** 
  + With which registries (of the same system or organization) this registry has common objects? (registry, common object)
  + With which registries or data repositories of other systems or organizations this registry Exchange data?

The UML Models part consists of the following partitions:

* **Conceptual Class Diagram** 
  + Useally in one class diagramm
  + That is focused on the main Business Object of the registry
  + And adds needes classifiers, sub-objects, history of events/states/changes, relationships with objects from ohter registries…



* + Textual Descriptions of Objects/Classes used in the diagramm

In a MedLab, an Analysis is performed on a concrete Equipment. An Equipment is situated on a Workplace (which integrates several Equipments). Several Tests can be performed on an Equipment, and a Test can be performed on several Equipments…

* **State Diagram for the central Business Object of the registry**
  + That describes the lyfecycle of the business object
  + And is created as a sub-diagram of the business object class



* + Textual description of the states and transitions (arrows) used in this diagramm, if needed.

**Goals and tasks for participants of our common work (2012: MedLaboratory and Hospital, 2013: EHIF)**

* + **Work products** (starting from end)
    - Models (UML) of Subsystems that you „own“
      * Do you know all (Organizational, Functional, Informational) Subsystems that you „own“?
      * Please create initial versions as quickly as possible (in Rational Rose or Argo UML)
      * Please report problems in our diary, if you have any problems
    - Textual descriptions (Requirements) of Subsystems that you „own“
      * Please create initial versions as quickly as possible
      * Please report problems in our diary, if you have any problems
    - Some useful intermediate results/products that improve answers to the questionary (optional): „free hand schema of activities that follows the mission statement of Business Actor“ (for example)
    - Answers to the questionary (only students who play the role of Business Analyst; Business Designers start with textual descriptions and UML models of Registries and Functional Subsystems „owned“ by them; Business Designers must help Business Analysts who report problems in our diary)
  + **Tasks** (the same, but read in opposite direction, beginning with answering the questionary and ending with final products or results)