



E-HEALTH WORKSHOP 16.6.2021
BUSINESS PROCESSES
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Content

- What we mean by business processes
- Modelling business processes, some examples
- What the *Guidelines and Standards for Integrated Health Facility Electronic Management Systems* provides for modelling business processes

- Useful sources e.g. <http://www.moh.go.tz/en/>
 - Guidelines and Standards for Integrated Health Facility Electronic Management Systems, 2016, by the Ministry of Health, Community Development, Gender, Elderly and Children
 - Digital Health Strategy 2019 – 2024 by the Ministry of Health, Community Development, Gender, Elderly and Children

Business processes

- A business process is a series of steps or tasks performed by a group of stakeholders to achieve a concrete goal. Each step in a business process denotes a task that is assigned to a participant.
- Processes are something that businesses go through every day in order to accomplish their mission. The better their processes, the more effective the business. Some businesses see their processes as a strategy for achieving competitive advantage.
- Key reasons to have well-defined business processes
 - Identify what tasks are important to your larger business goals
 - Improve efficiency
 - Streamline communication between people/functions/departments
 - Set approvals to ensure accountability and an optimum use of resources
 - Prevent chaos from creeping into your day-to-day operations
 - Standardize a set of procedures to complete tasks that really matter to your business

The 7 steps of the business process lifecycle

Step 1: Define your goals

What is the purpose of the process? Why was it created? How will you know if it is successful?

Step 2: Plan and map your process

What are the strategies needed to achieve the goals? This is the broad roadmap for the process.

Step 3: Set actions and assign stakeholders

Identify the individual tasks your teams and machines need to do in order to execute the plan.

Step 4: Test the process

Run the process on a small scale to see how it performs. Observe any gaps and make adjustments.

Step 5: Implement the process

Start running the process in a live environment. Properly communicate and train all stakeholders.

Step 6: Monitor the results

Review the process and analyze its patterns. Document the process history.

Step 7: Repeat

– If the process is able to achieve the goals set for it, replicate it for future processes.

Changes in environment and business, legislation

Potentialities, new technology

Requirements and needs, business now and in future

Principle level
WHY?

Strategies, visios, goals, business model...

Conceptual level
WHAT?

Architecture / requirements

Logical level
HOW?

Business processes
- Services
- Processes
- Roles and actors
- Interactions

Data architecture
- Concepts
- Data and data structure
- Data resources

IS architecture
- Information systems
- Applications
- Interfaces
- Interoperability

Technology architecture
- Facilities
- Resources

Physical level
WHICH WAY?

Development and Implementation

Enforcement
HOW TO
PROCEED?

Monitoring and evaluation

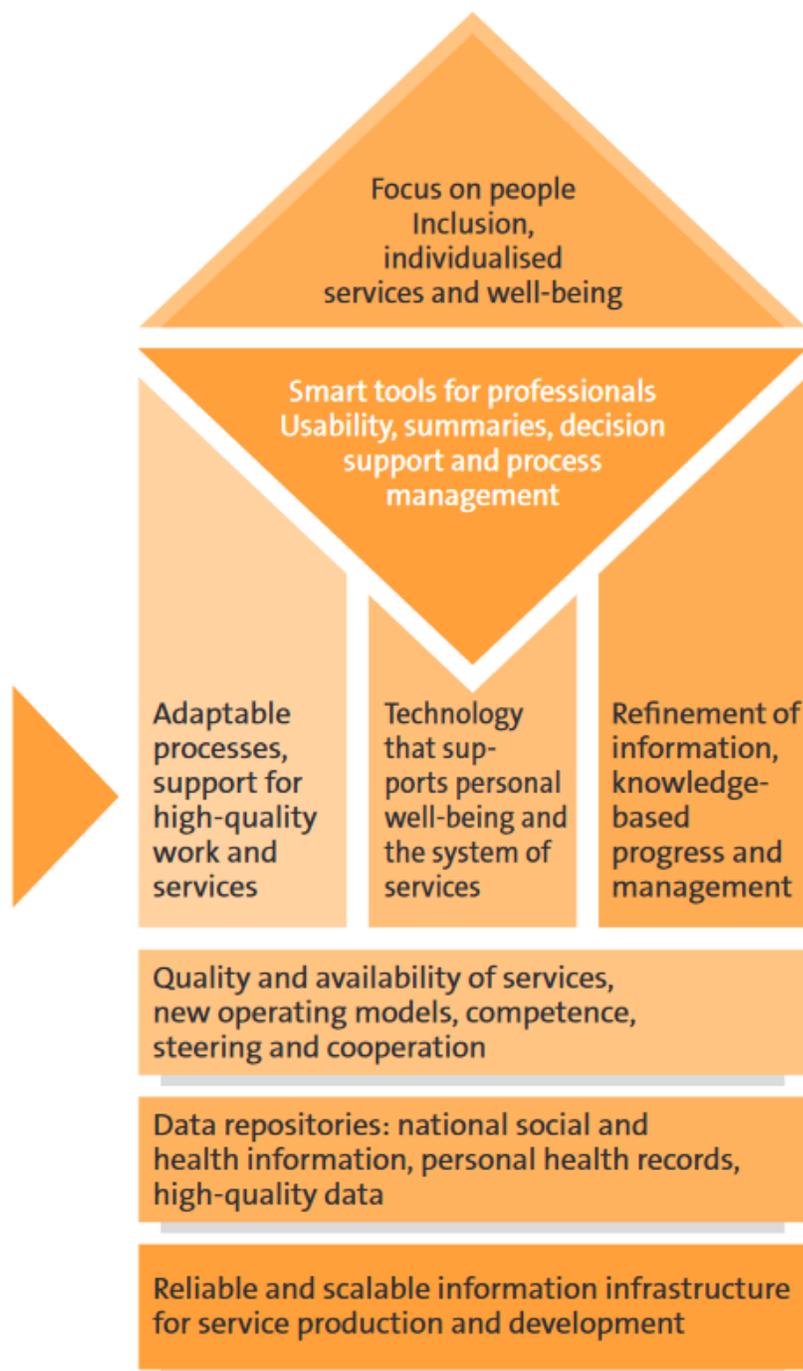
Summary of the Finnish eHealth and eSocial Strategy 2020 (Ministry of Social Affairs and Health 2015)

Opportunities

- Service innovation
- Holistic health and well-being
- Prevention
- Personalisation and segmentation of services
- Genetics
- Big data
- Open data
- Cross-sectoral cooperation
- Evidence on effectiveness

Enablers

- Steering and legislation
- Comprehensive planning
- Open interfaces and standards
- Mobile technology
- Service-oriented architecture
- Cloud services
- Ecosystems for development
- Security and data protection





**Example:
Oulu University Hospital**

Our new strategy, which is constantly being updated, strongly emphasizes:



Customer orientation



Securing operations within both changing society and social and healthcare legislation



Strengthening integration



Improving the professional competence of personnel and their sufficient knowledge capital



Exploring the potential of new technologies and the possibilities they bring

The strategy 2020 ▶ drives our financial as well as operational planning, development and management. The goal of this strategy is to ensure that the entire population of the region and in northern Finland will receive equal and high-quality services. For example, all six hospitals that provide emergency services in northern Finland must be communicable with each other. In addition, the organization must be communicable with the community.

Example:
Oulu University Hospital

Our values

> Human dignity

We treat everyone fairly and equally

> Responsibility

We develop a public service that functions responsibly at all levels of our organization and for the needs of our society

> Justice

We work together and appreciate one another

> Renewability, transparency

We operate innovatively and transparently

Our vision and strategic goals

We are an innovative, developing and efficient service producer, as well as a highly valued employer. We ensure this by continuing to develop our organization, modernizing our facilities and service processes, as well as by collaborating with our owners, the university, and other stakeholders.

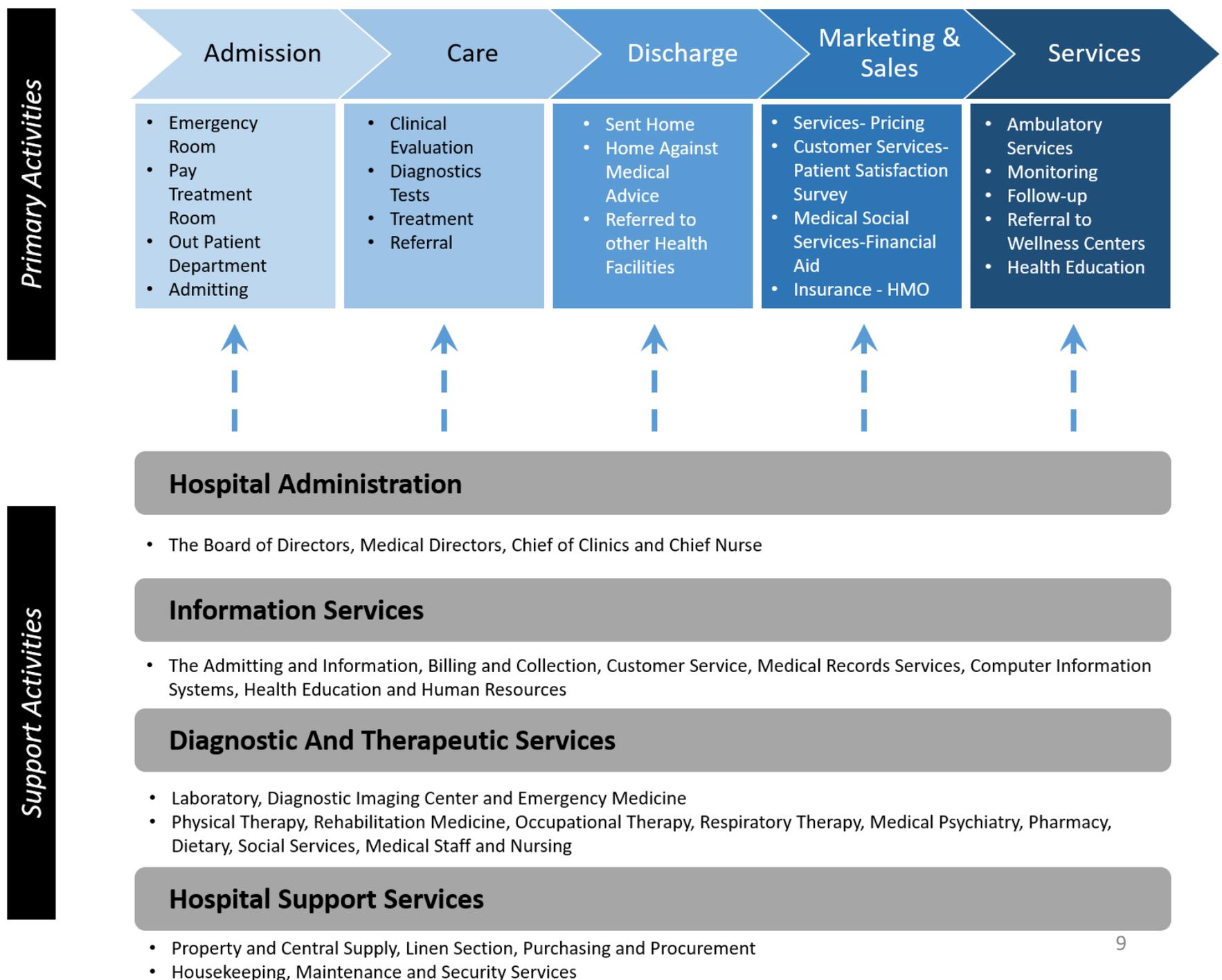
We implement our services in seamless cooperation with municipalities and other organizations providing social and health services in our area.

Our operations are efficient, productive and based on a balanced economy.

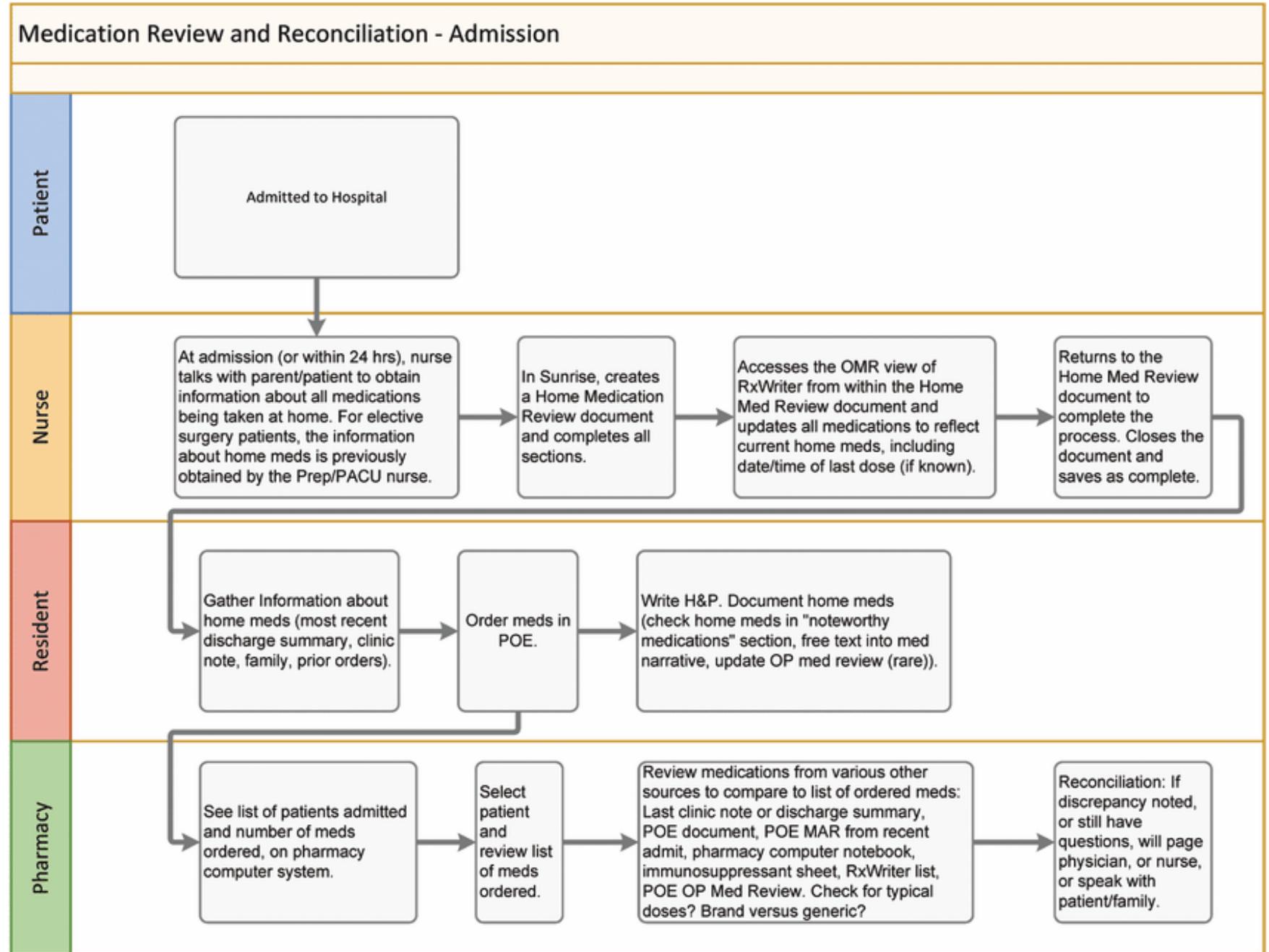
We offer effective and patient-oriented services in a timely manner.

We are a major actor of northern society.

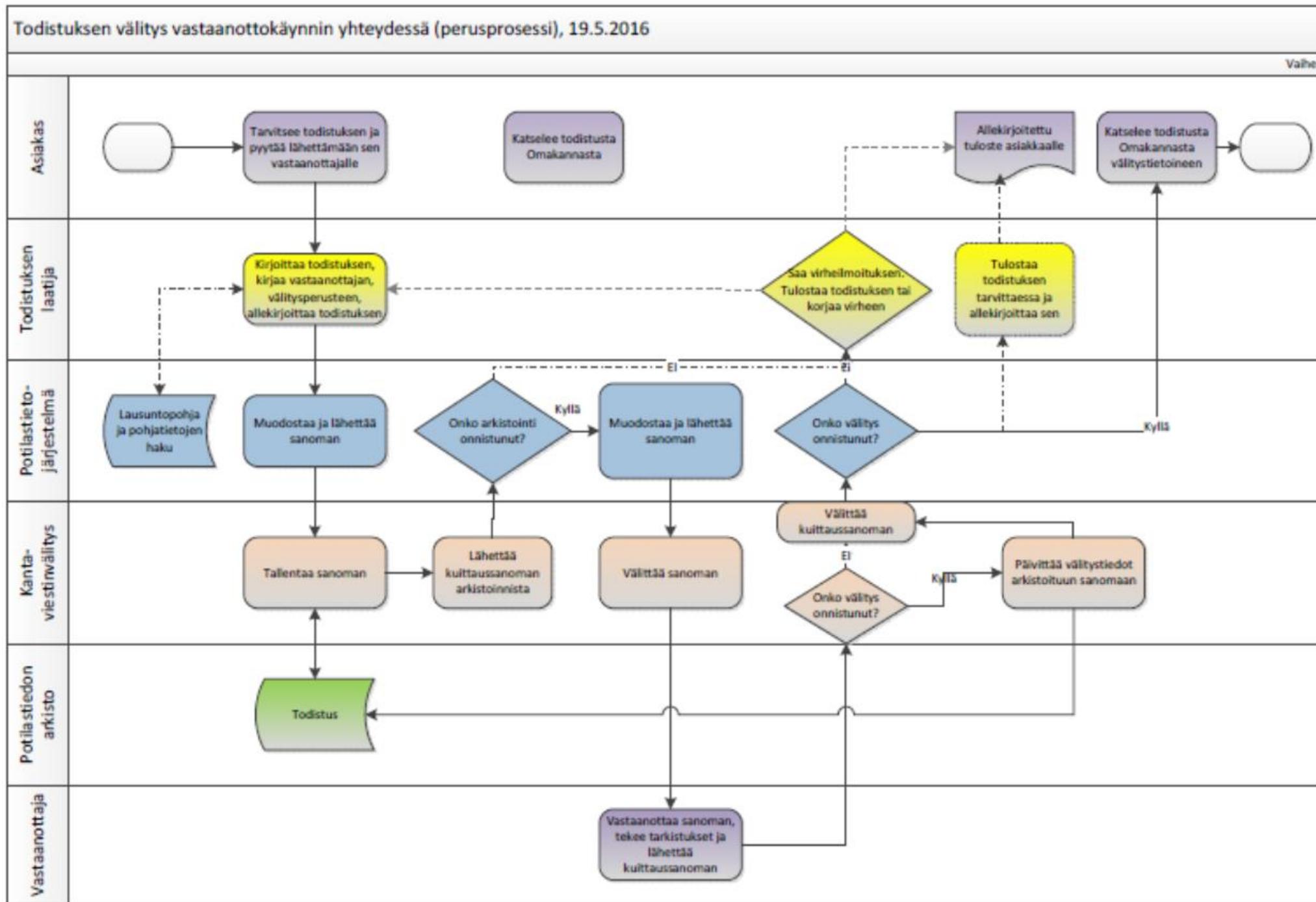
Example of modelling primary activities and support activities



Example of the swim lane process map



Certificate transmission at the reception



Client

Professional

Patient information system

Transmission service

Patient data repository

Recipient

Some definitions by the Tanzanian Digital Health Strategy

- **Enterprise architecture** is a blueprint for organisational change defined in models that describe (in both business and technology terms) how the entity operates today and how it intends to operate in the future. It also includes a plan for transitioning to this future state.
- **System integration** is the process of aggregating the components of a system or subsystems into one, so that the resulting system can deliver the overarching functionality.
- **System interoperability** is the ability of different information technology systems to communicate with one another and exchange data.

The structure of the Guidelines and Standards for Integrated Health Facility Electronic Management Systems

Processes

Core business processes

Support business processes

Back office processes

Functional requirements

Non-Functional requirements

General constraints and risks

Standards and information exchange

Infrastructure and Human Resource requirements

Planning

Deployment

Implementing

Maintenance and support

Closure and sign-off

Monitoring and evaluation

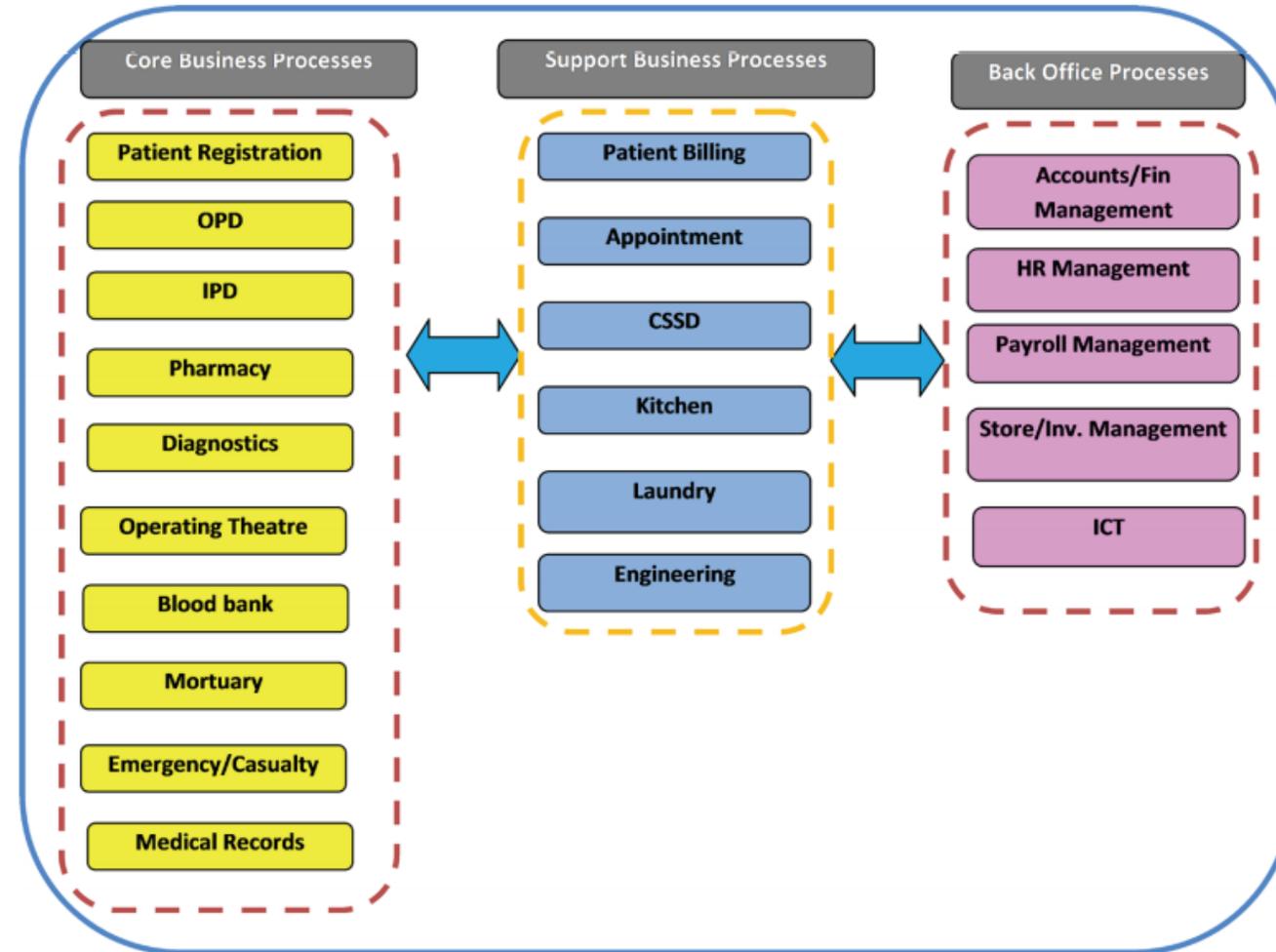
Strategic vision and mission in Tanzania by the Digital Health Strategy

Vision

Better health outcomes through a digitally enabled health system.

Mission

To accelerate the transformation of the Tanzanian health care system through innovative, data-driven, client-centric, efficient, effective, and integrated digital health solutions.



Health facility Business Processes Framework by the guidelines

Objective: To provide guidelines and procedures for business process analysis and improvement in order to help health facilities rethink and improve their business processes

Figure presents an overview of the Health facility business processes framework, which includes business processes classified as core processes, support processes and back office processes. The framework presents a high level representation of how a typical Health facility operates

General Standard Guidelines

- SG1. Health facilities shall perform business process analysis and improvement based on the national guidelines and standards
- SG2. The business process analysis and improvement should be done alongside with iHFeMS* system requirement specifications (SRS) gathering exercise.
- SG3. The SRS shall be developed by the health facility owner and should comply with minimum requirements provided in chapter 3 (Guidelines: Requirements).
- SG4. The SRS shall include both functional requirements and non-functional requirements and shall be approved by the Health facility steering committee

*integrated Health Facility Electronic Management System implements the re-engineered Health facility business processes in order to make Health facility become effective and efficient

Vision of the iHFeMS Initiative

- Streamline the medical / administration work flow
- Provide seamless integration between functions for smooth patient movement within various services
- Improve availability of medicines and other medical supplies
- Enable patient tracking to increase productivity of inpatient allocation
- Ensure instant patient billing
- Provide real-time management and accounting report
- Provide effective administration and general control

Requirements

- **Functional requirements** capture the **intended behavior** of the iHFeMS expressed as services, tasks or functions the system is required to perform
 - **Objective:** To provide the minimum iHFeMS functional requirements to be followed by health facilities during implementation of a new iHFeMS or improvement of an existing system
- **Non-functional requirements** define the **overall qualities or attributes of the resulting system** that place restrictions or conditions on the system being developed, the development process, and specify external constraints that the system must meet. The non-functional requirements usually impact many parts of the system, and they may be related to one or many features e.g. How long can the system be down and how easy should it be to restart it, or if data becomes corrupt how does a user fix it and which users can do so?
- For example system requirements and security requirements
 - **Objective:** To ensure that the iHFeMS adhere to a minimum set of non-functional attributes for improved clinical and administrative service provision at the health facility

Standards and Information Exchange

- It is required that the iHFeMS be able to **share and exchange information with other systems** in the health sector. This is important because of several reasons; increased efficiency through decreasing entry of duplicate data, decreased errors in medical information through the same mechanism, increased availability of health information promoting better decision making and improved continuity of patient care. **The integration and information sharing between health systems requires systems to be interoperable.** The interoperability is achieved through standardization process that requires the creation, acceptance and implementation of clinical data standards to ensure that data in one system are available and meaningful in another system
- **Objectives:** To identify the minimum set of standards required for implementing iHFeMS. The standards have been drawn from international standards.
- Examples:
 - iHFeMS shall support Data exchange (or messaging) standards
 - iHFeMS shall support coding standards
 - iHFeMS shall support interoperability standards

Infrastructure and Human Resource Requirements

- Deployment and implementation of the iHFeMS requires **adequate and reliable computing infrastructure** and **human resource** necessary to provide both technical and manage the operation of the iHFeMS from inception to operations.
- Examples:
 - Computing Infrastructure Requirements
 - Human Resource Requirements

Computing Infrastructure Requirements

- Hosting environment (data center or sever room)
- Network infrastructure shall be in place to support iHFeMS
- There shall be computer workstations/terminals for end users

Human Resource Requirements

- System Analyst
- System/Network Administrator
- ICT technician
- Data/Medical Record Clerks

Implementing the iHFeMS



- Meeting the above-mentioned requirements alone does not guarantee successful implementation and use of the iHFeMS in a Health facility. Therefore Guidelines provides a set of guidelines to ensure successful implementation and use of the iHFeMS.

Exercise

- Define your business processes and goals
 - Core business processes
 - Support business processes
 - Back office processes
 - What are the main functional requirements and goals