




Health Care Process Modelling: How to develop semantic interoperability in health care? The steps before IT implementation

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How to achieve clinical semantic interoperability?

The steps before IT implementation

- The overall aim with IT should be to support the production of services to the main customers
- These services are produced in the core processes of health and social care
- Interoperability must include and focus on the content and context of the core processes
- To achieve that; Do we need a common description and shared understanding of what we aim to support??
- If yes – how to do it?

Why a common description of the core processes?

- Base for
 - Interoperability
 - Concept models
 - Information models of meaning and use
 - Specialisations of generic concepts for different contexts
- Needed for extended use of e-health/EHR when it comes to
 - Core process management
 - Quality management systems
 - Continuous improvements

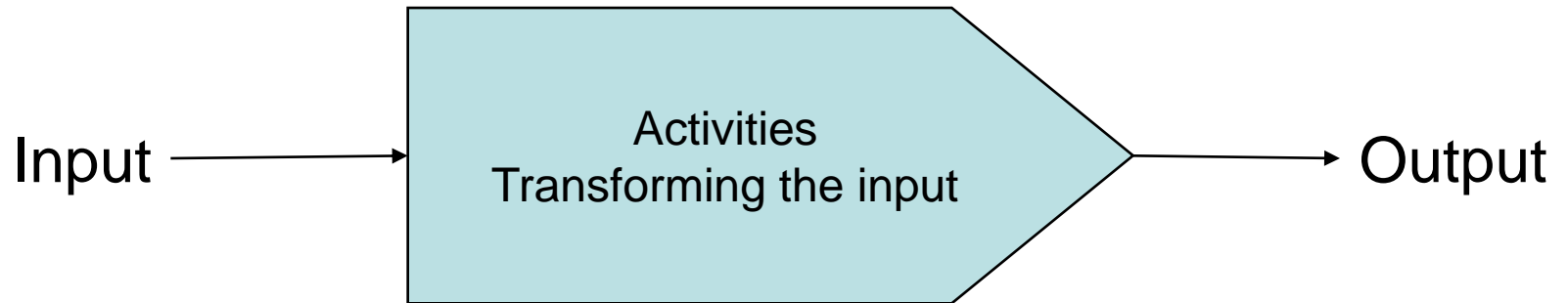


Disposition

- Processes in general
- Health care processes
- Clinical processes
- Models and model architecture
- The Swedish approach
- Break out session/use case - the generic process model in the Swedish National information structure project

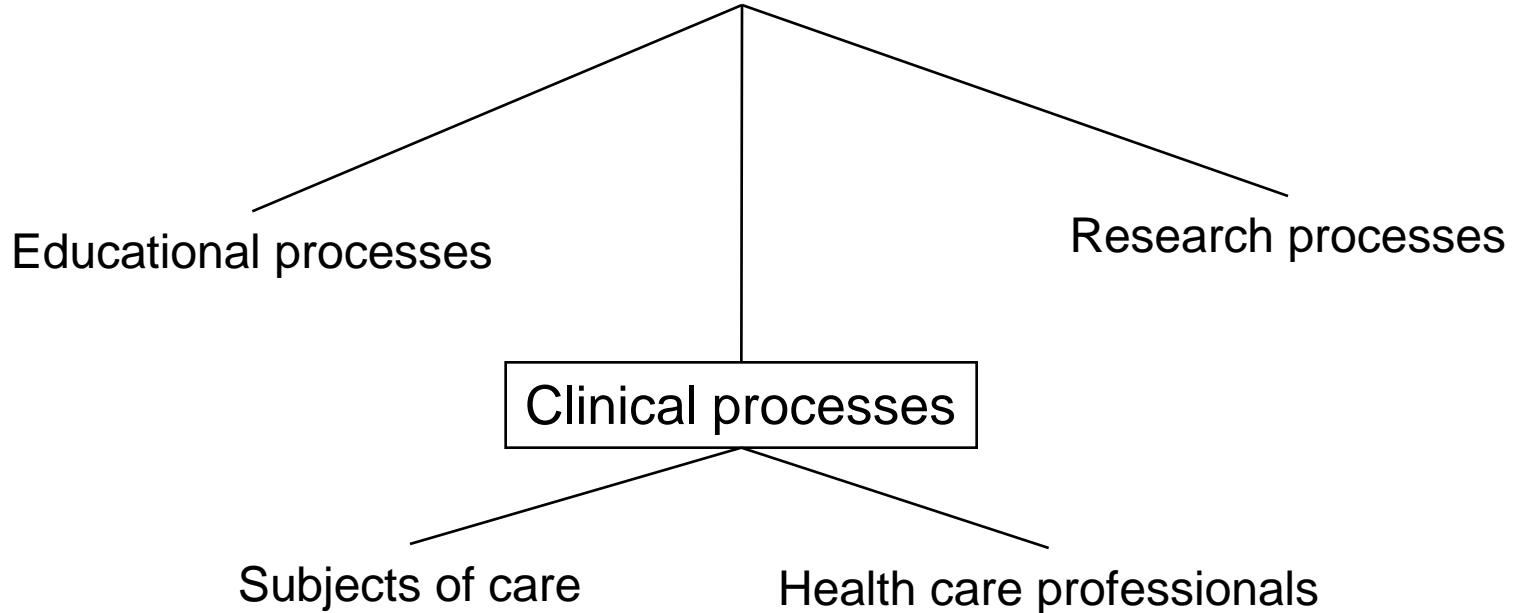
Processes in general

Activities adding value to an object



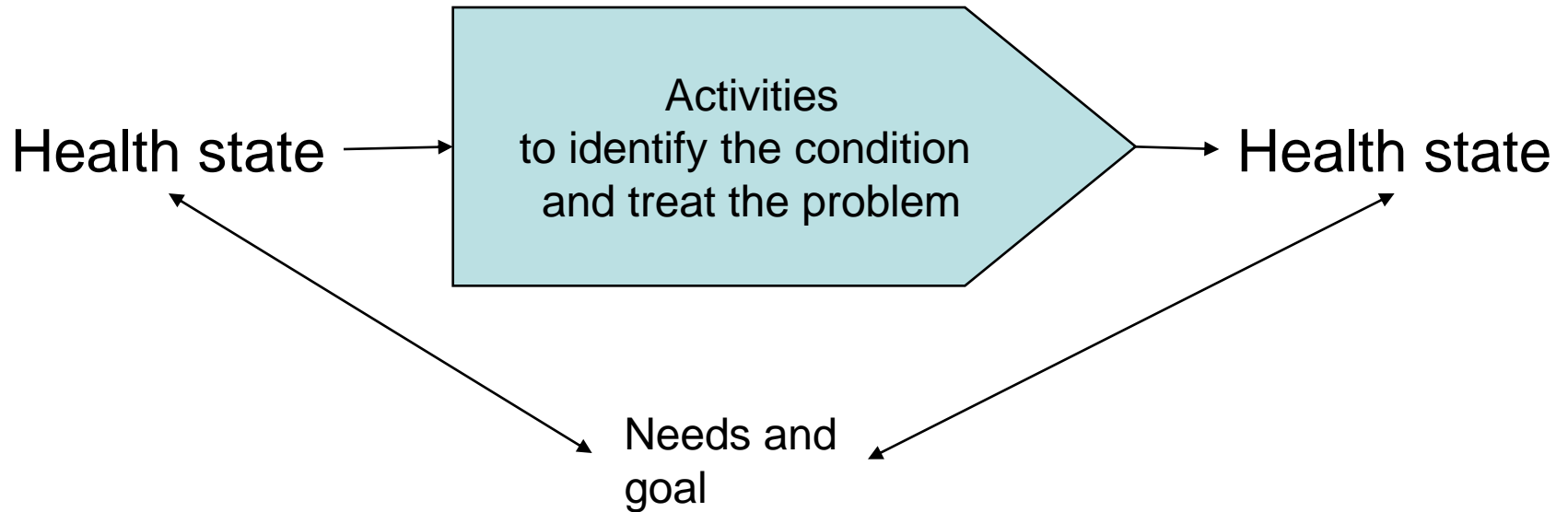
Processes in health care organisations

Core processes in health care organisations



Clinical processes

Health care activities adding value to the health state of a subject of care



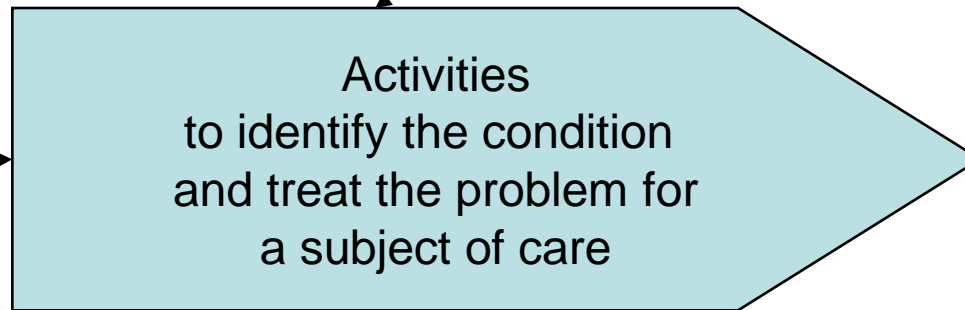
Clinical processes

Leadership/management and support processes

Leadership/management

Business plan, Policy, Objectives, Basic values, Restrictions, Quality management system etc

Health state →



→ Health state

Support

Personnel, material, knowledge support (e.g. guidelines) etc



Generic models of process and concepts

- Descriptions of the real operations (dynamic models)
- Theoretical constructions
- High level of abstraction
- Often primarily difficult for clinicians to see the relevance of
- Necessary (?) as a ground for information models, development of e-health/EHR and quality management
- Theory before practice!!

Process models

- A process model is a description of;
 - the value adding to an input and
 - the type of activities performed to add that value
- Different methods/languages/notations are used to describe
- A well defined and precise language is needed to create unambiguous models – experts
- In health care the value adding can be described as conditions and the activities out from their different aims
- A process model is not a flow model with fixed sequences and does not include actors/responsibilities
- Flow-, concept- and information models should be based on an explicit process model

Why clinical process models?

- Identifies and describes the important concepts of the reality: context and content
 - Value adding and health conditions
 - Types of activities that can contribute to value adding
- Information models and information systems not based on explicit process models risk to miss the targets of
 - supporting the core processes
 - achieve unambiguous interoperability
- Process oriented clinical quality management systems and clinical process management are dependent on process oriented information systems
- “Clinical oriented” is not enough – should be “clinical process oriented”.



Model architecture; process-, flow-, concept- and information models

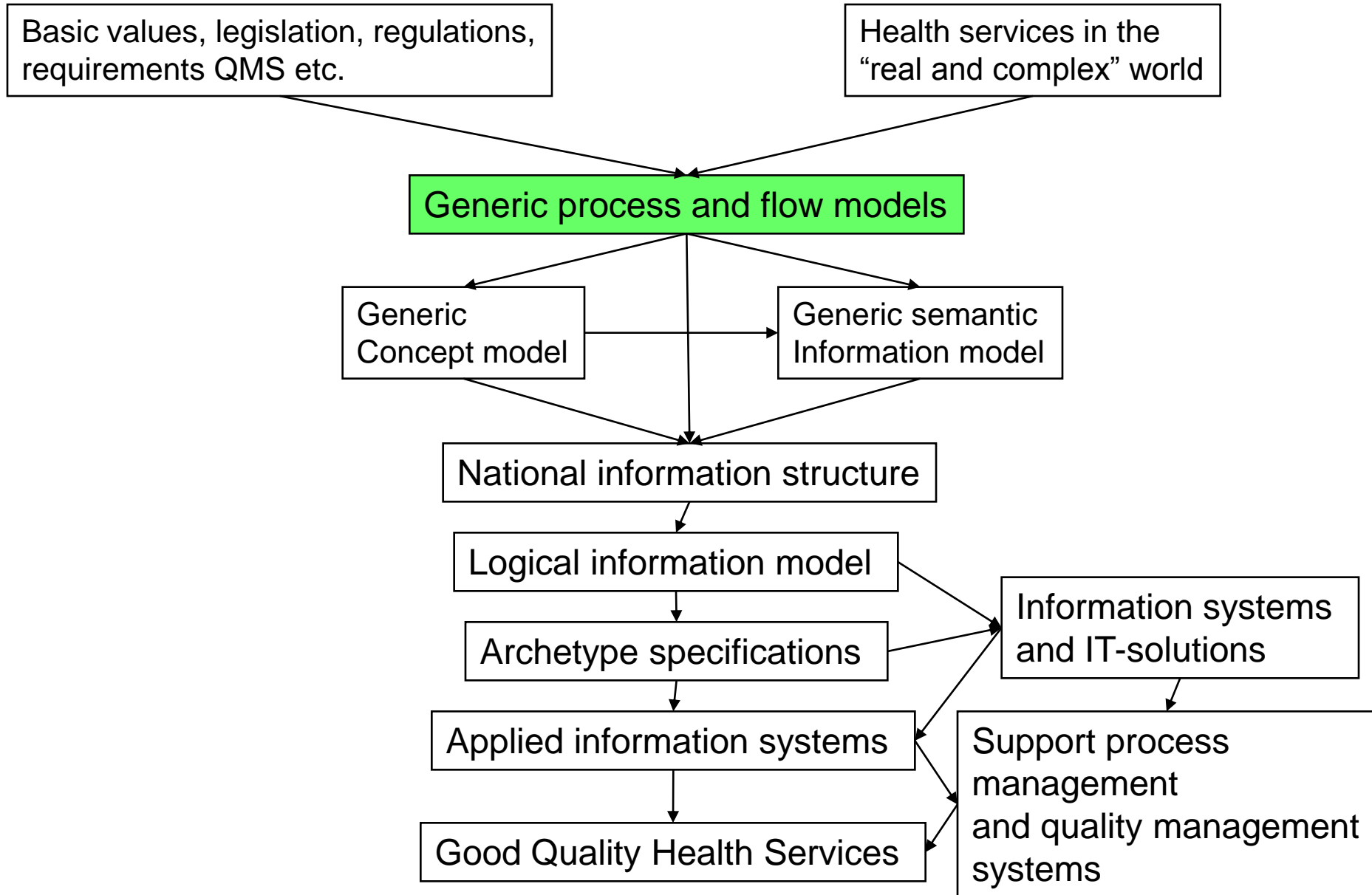
- Process – values added and activities
- Flow – time sequences, actors and cooperation
- Concept – definitions of and relations between concepts in process and flow models
- Information – classes and characteristics (attributes) for information regarding the concepts in the concept model

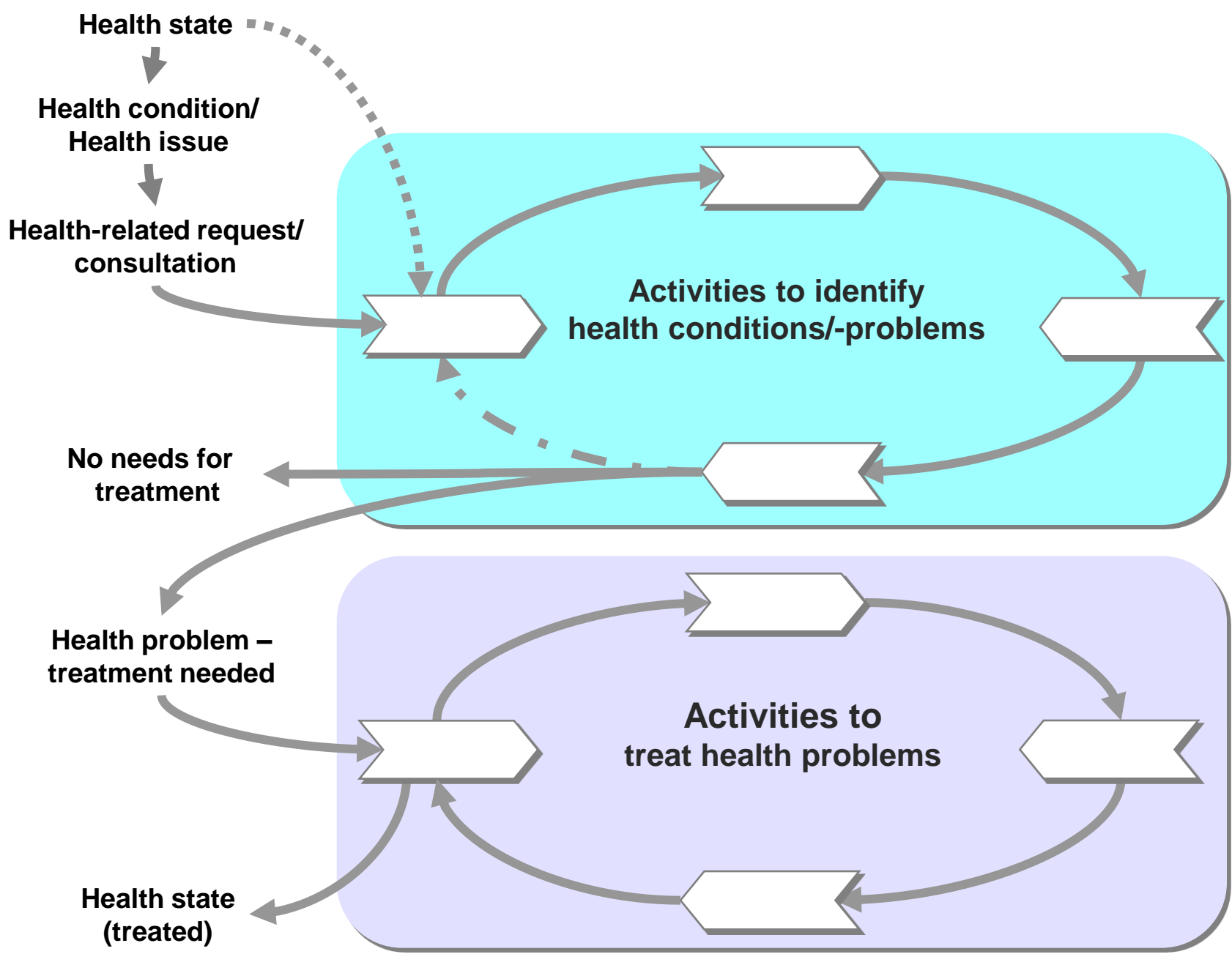


Health care process-, flow-, concept- and information models

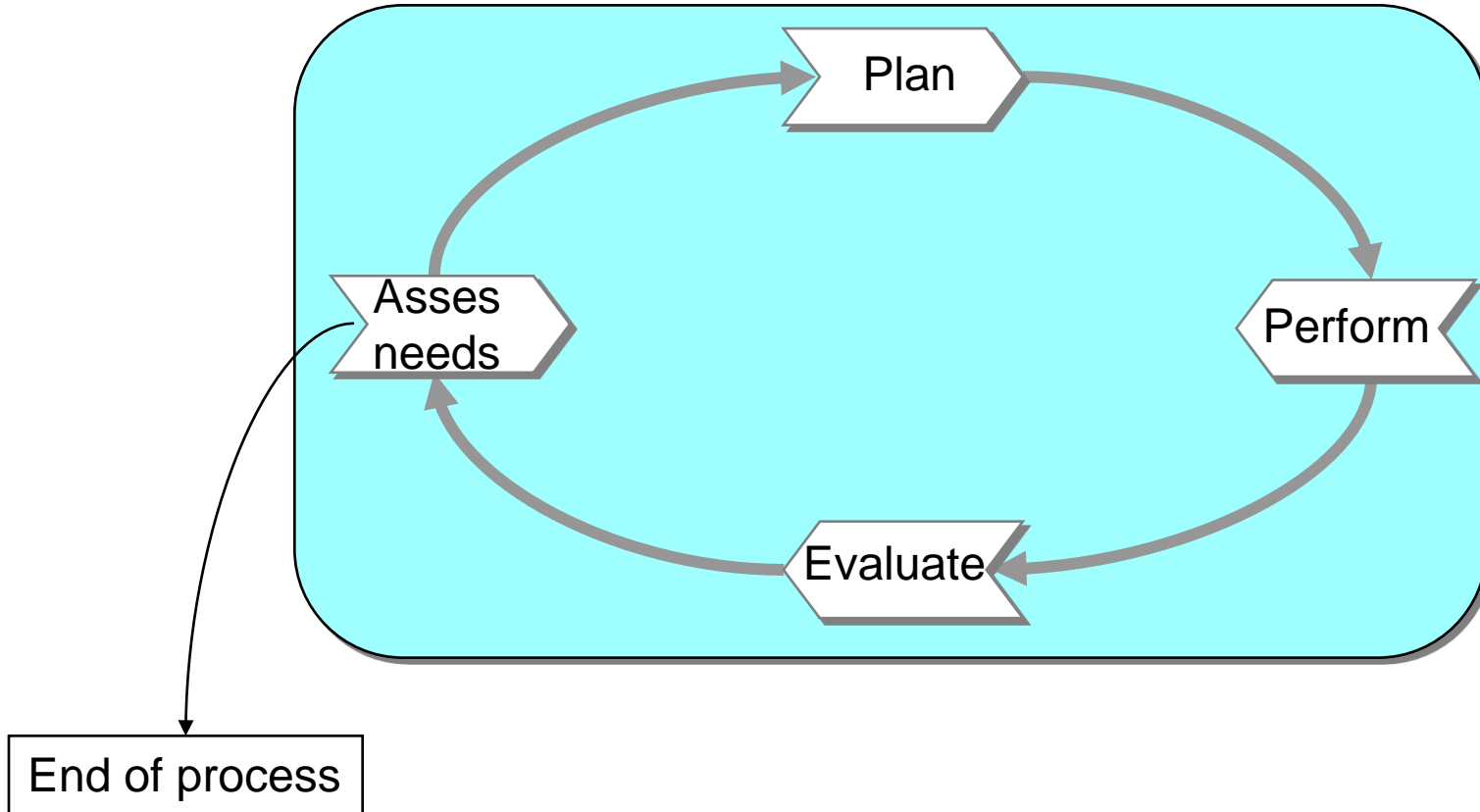
- All are needed to build sustainable, effective and comprehensive information systems for
 - Leadership/management
 - Performance/operation
 - Supportto the clinical processes

The Swedish approach

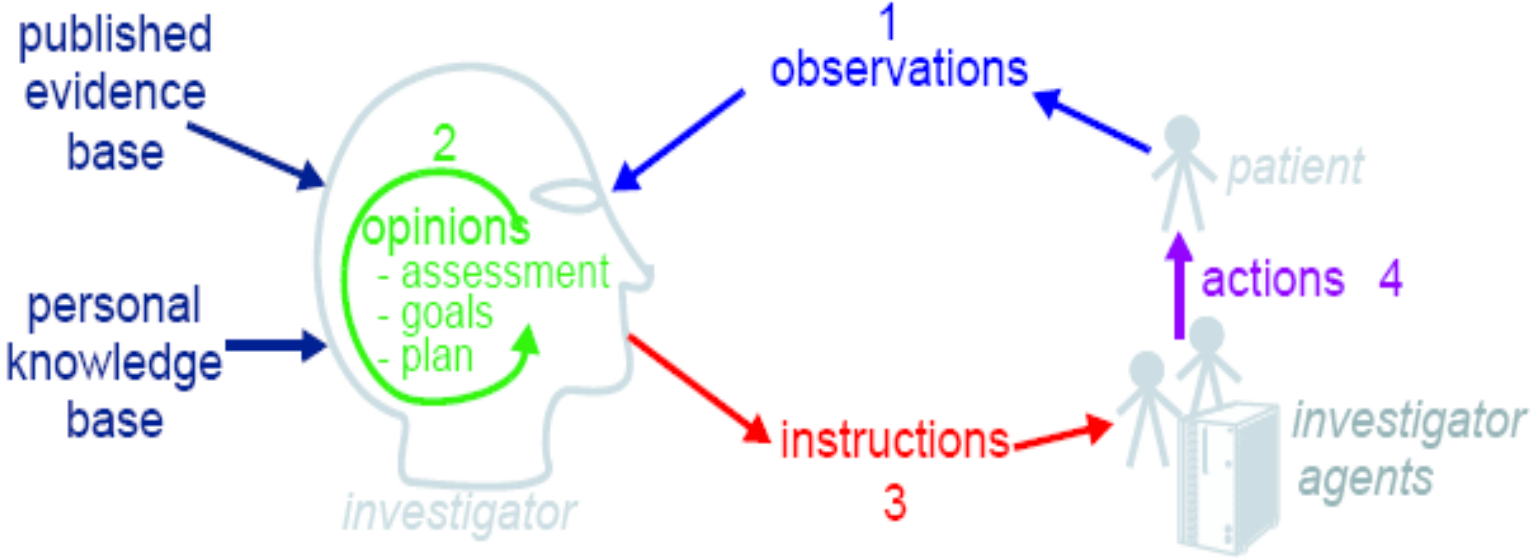




Types of activities for the two main aims

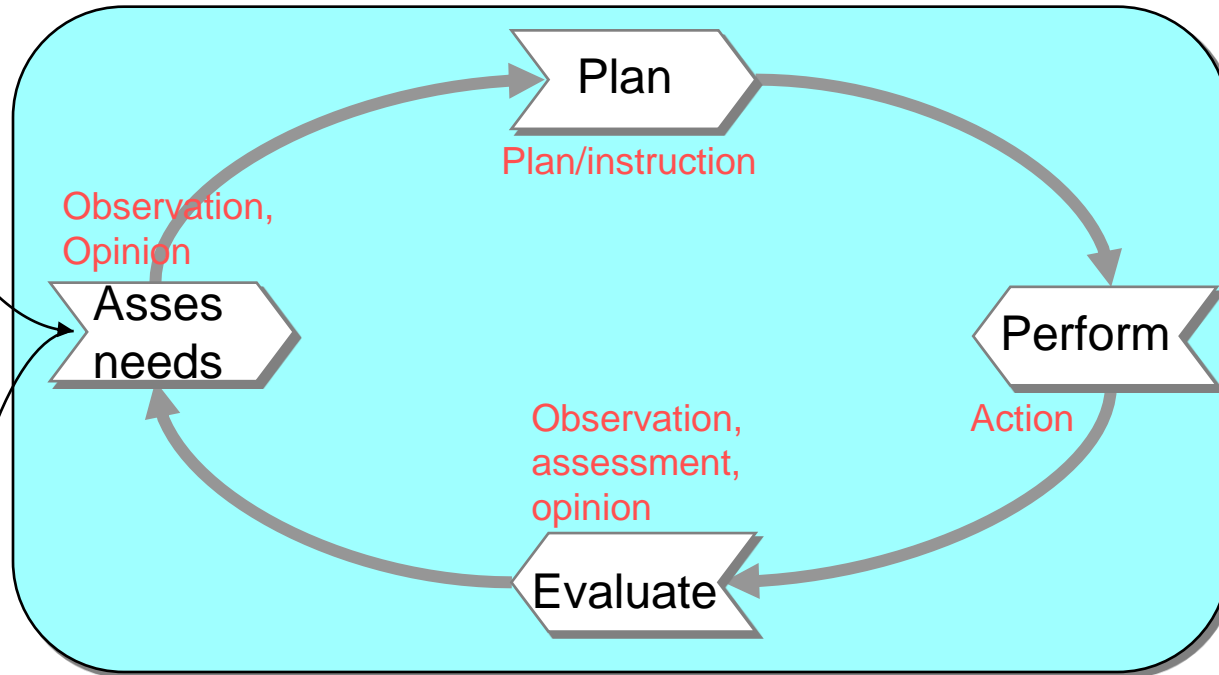


Open EHR; clinical problem solving



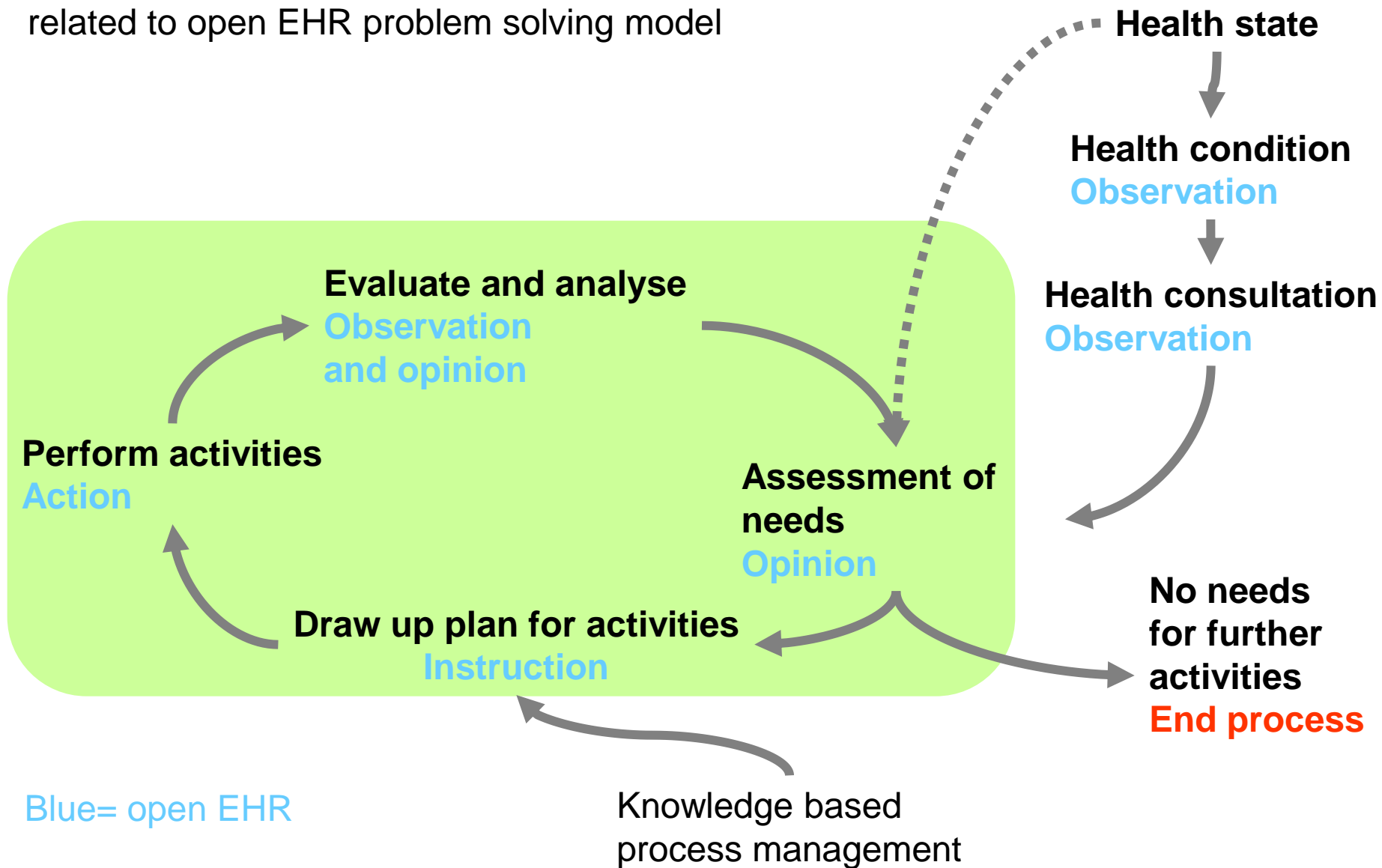
Open EHR and the Swedish generic process model

Health condition
Observation



End of process

Swedish generic process pattern for the two main aims related to open EHR problem solving model





Discussion points

- The role of clinical process model for development of
 - Information models
 - Information structures
 - Interoperability between information systems
 - Clinical process management and improvements
 - Leadership and quality management systems?