Specifying Workflow Requirements for Holistic Care

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Presentation Themes

- Holistic Care Workflow Specification
- Our Approach
- The Case Study
- Concluding Remarks

Holistic Care Workflow Specification

- Currently, many countries are faced with the need to improve health and social care functioning and, especially, with regard to meeting comprehensive care needs required by such people as the elderly and those with multiple illnesses

Holistic Care Workflow Specification

- Health and social care resources need to be used more efficiently and efforts should be devoted towards enabling effective coordination and collaboration among health and social care organizations

Holistic Care Workflow Specification

- To this end, a holistic approach is required that takes a horizontal, process-oriented view of health and social care delivery whose activities are integrated to form cross-organizational health and social care processes

Holistic Care Workflow Specification

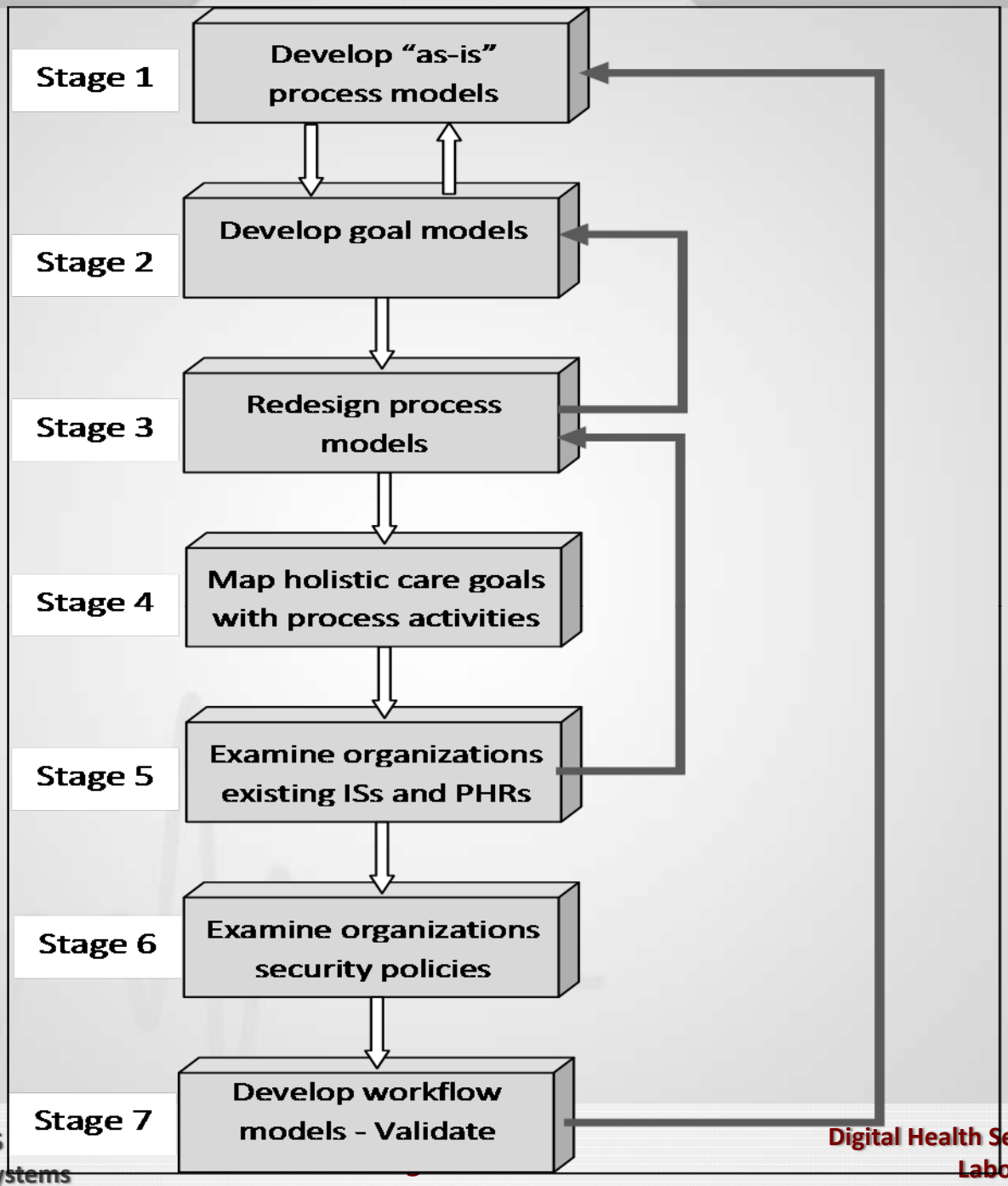
- Inter-organizational health and social care processes should be interfaced with the organizations' existing and diverse record systems where patient health and social care information is stored in order to enable access to patient information by authorized, cooperating individuals and the patient

Holistic Care Workflow Specification

- What is required, prior to systems development is to elicit process support requirements especially since those processes usually span different organizations with different socio-cultural constraints and diverse information systems and since process activities are executed by many individuals with different skills and background knowledge

Our Approach

- Our approach uses business process modeling (BPM) as a means for organizing discussion, debate and argument among users from both organizational domains so that to provide insights that enable early identification of possibilities and limitations of alternative holistic care process designs and that are used to elicit process support requirements


Stage 1
Develop "as-is" process models
Stage 2
Develop goal models
Stage 3
Redesign process models
Stage 4
Map holistic care goals with process activities
Stage 5
Examine organizations existing ISs and PHRs
Stage 6
Examine organizations security policies
Stage 7
Develop workflow models - Validate

Our Approach

- Stage 1 is concerned with developing process models at several levels of resolution in order to represent the interactions among health and social care organizations under review ("as is" models)

Our Approach

- Stage 2 is concerned with developing a hierarchical goal model to represent holistic care goals as specified through iterations with users

Our Approach

- Stage 3 is concerned with redesigning the models of existing processes ("as is" models) through iterations with the users in order to achieve the holistic care goals identified in Stage 2

Our Approach

- Stage 4 focuses on mapping the holistic care goals to the processes or process activities of the redesigned process models

Our Approach

- Stage 5 seeks to examine the existing, diverse ISs of health and social care organizations in order to evaluate which application functionality can be exposed as services and linked with process activities and the new services that should be developed

Our Approach

- Stage 6 seeks to examine participating health and social care organizations' security policies and elicit workflow-based security requirements with regard to process activity executions and patient information accesses

Our Approach

- Stage 7 focuses on defining workflow models corresponding to the redesigned process models and on validating these models through iteration with the users

The Case Study

- In order to specify process-support requirements for holistic care processes the proposed approach was implemented to specify process support requirements for redesigning and automating emergency healthcare processes so that to create and empower collaboration and coordination among participating health and social care organizations and improve patient outcomes

The Case Study

- The emergency healthcare process under review is concerned with emergency medical cases requiring both medical and social care and consists of pre-hospital and in-hospital care sub-processes performed by:
  - Emergency Medical Service (EMS) agencies, and
  - Hospital emergency departments (EDs), accordingly

The Case Study

- In Stage 1 the process models were developed at different levels of resolution to represent the current state of the cross-organizational emergency care process
- In Stage 2 a goal model was created to represent the holistic care goals in the context of emergency care as resulted through iterations with users

The Case Study

- In Stage 3 the redesigned emergency healthcare process models were developed
- In Stage 4 the redesigned process models were mapped to the holistic care goals identified in Stage 2

The Case Study

- After a number of iterations of Stages 3 and 4 of the proposed approach all the high level goals were finally met by the redesigned process activities

The Case Study

- In Stage 5 existing application functionality was exported as services and used as process activities implementations. Also, new services were created to retrieve/transform/store patient information in the Holistic Care Record (HCR) central repository

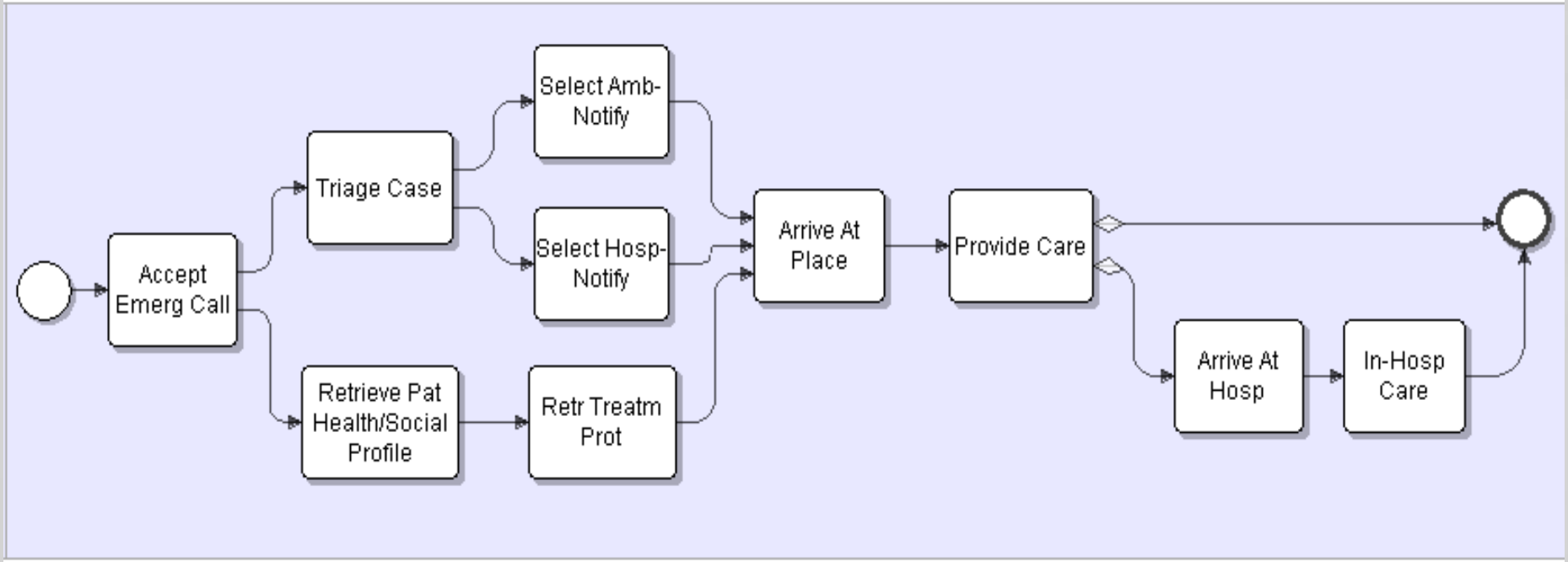
The Case Study

- In Stage 6 it was decided to use the existing security policies of EMS agencies and hospitals for controlling accesses to locally store patient data and to develop a global workflow-based security policy in order to control:
  - process activities executions, and
  - accesses to patient data existing at HCR repository

The Case Study

- Finally, in Stage 7 the workflow models were developed from the redesigned process models and were validated through iterations with the users based on process simulation and service prototypes

The Case Study



Concluding Remarks

- The approach promotes active user participation with the objectives:
  - to provide guidance for controlling a dynamic and diverse domain, such as that of health and social care with multiple interacting processes and diverse information systems

Concluding Remarks

- The approach promotes active user participation with the objectives:
  - to elicit process support of redesigned, holistic care processes and
  - to interface process activities with a centralized patient-managed HCR system

Thank you
for your attention!