

Multi-organization Workflow IHE XDW profile

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ITI Infrastructure - Progress

- **Improve Documentation of XD* Profiles in IHE TF**
Reformatting the documentation so that it is more readable and understandable around the XD* family of profiles. **MUST** not change any normative meaning.
- **Document Access for mHealth – Profile**
Identifying the constrained environment that is most prevalent on mobile devices (phones, tablets, etc). An interface (SOA like) that an organization can offer to their users that is more attractive to mHealth developers and drive for Apps that might be more reusable across organizations.
- **Patient Encounter Tracking Query – Profile**
Address the need to have a system where actors that know where a patient is can support others to find the patient. Profile proposal looks to leverage the PAM profile. Needs a PAM knowledgeable editor by end December.

ITI Infrastructure - Progress

- **Completion of the De-Identification Cookbook**
Instructions to other IHE domains on how to create profiles that use anonymization and pseudonymization tools.
- **Critical and Important Results – White paper**
Notify someone when something critical or important is uncovered. Discover who should be told about this information and how should they be told.
- **Configuration Management for Small Devices – White Paper**
Explore the area of configuration management in a very broad way. Could point at common solutions from general IT (like LDAP, DHCP, DNS) for some problems that are not healthcare specific, while identifying gaps that are specific to Healthcare. These gaps could then be proposed as work items next year.

XDW developed by IT Infrastructure

- **New Supplement Issued in September 2011**
- **Connectathon Testing planned for Bern May 2012**
- **Active maintenance by ITI Technical Committee**
- **Other IHE Domains and eHealth projects building upon XDW**

XDW - Introduction

The Cross-Enterprise Document Workflow (XDW) profile enables participants in a multi-organizational environment to manage and track the tasks related to patient-centric workflows as they coordinate their activities:

- No central controller
- No central scheduler
- Decisions are made by the “edges” (providers, doctors, nurses, etc)
- XDW coordinates these activities

Approved for Trail Implementation in September 2011

XDW - Necessity

Necessity:

- Many regional and national projects aim at digitizing clinical processes (paperless) and enhancing care coordination.
- All expect to manage workflows beyond a single organization:
 - For example: eReferral workflows
 - Flexible nature and processes for these workflows
 - Clinical, economic, social and organizational impact

XDW Framework

Framework:

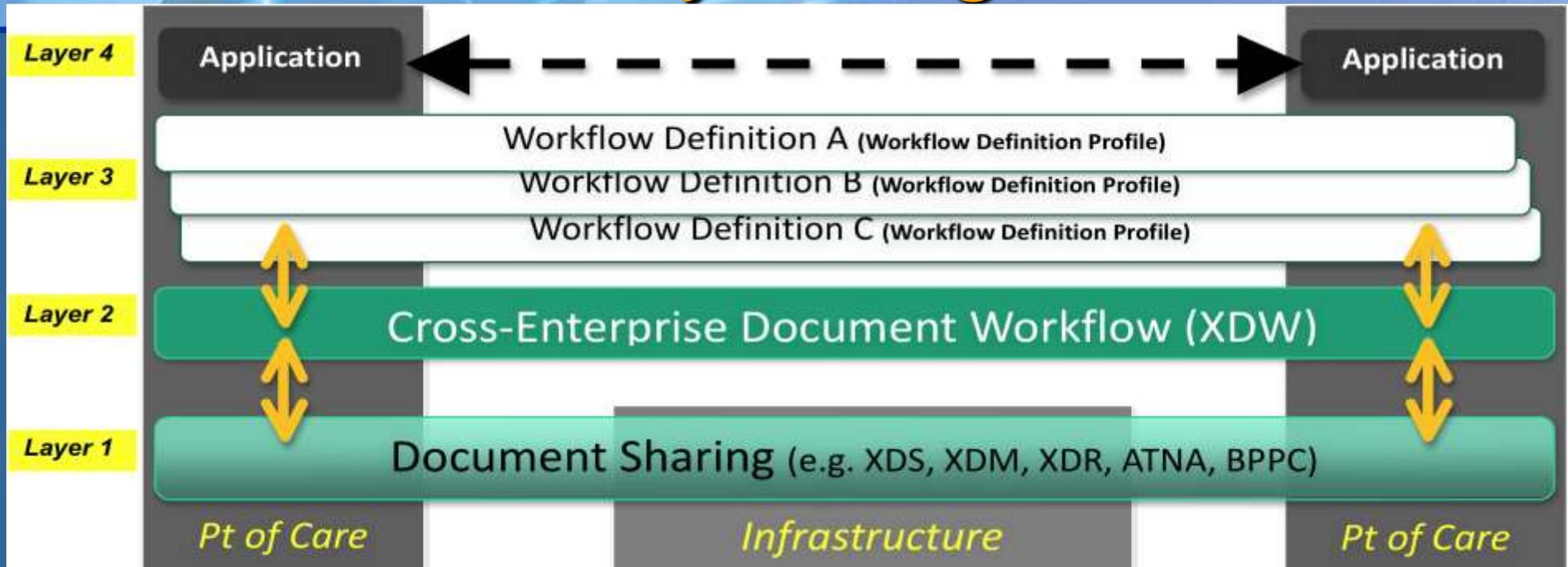
- ◆ XDW is an interoperability framework operating in a document sharing context (e.g. based on the XDS profile) which support the management of clinical process
- ◆ XDW is a workflow-generic profile which needs to be specialized by specific Workflow Definitions (IHE specified Profiles or project specific) to address specific clinical processes
- ◆ Increases the consistency across workflows, and enables the easy deployment of interoperable workflow management applications where **workflow-specific customization is minimized**
- ◆ Facilitates the integration of multi-organizational workflows with the variety of existing workflow management systems used within the participating organizations (peer-to-peer)

XDW Key Design Elements

Key XDW design elements:

- ◆ A common, workflow-independent approach to interoperability
- ◆ Enables the support of a wide range a specific workflow “content”
- ◆ Designed to adapt to the complexity of health services delivery
- ◆ A means to associate documents to a broad range of workflows
- ◆ Easy to deploy:
 - ◆ no addt'l centralized infrastructure
 - ◆ Scales to regions & nations.
- ◆ Builds upon the secured sharing of health documents provided by other IHE profiles (e.g. XDS, ATNA, BPPC, etc.)

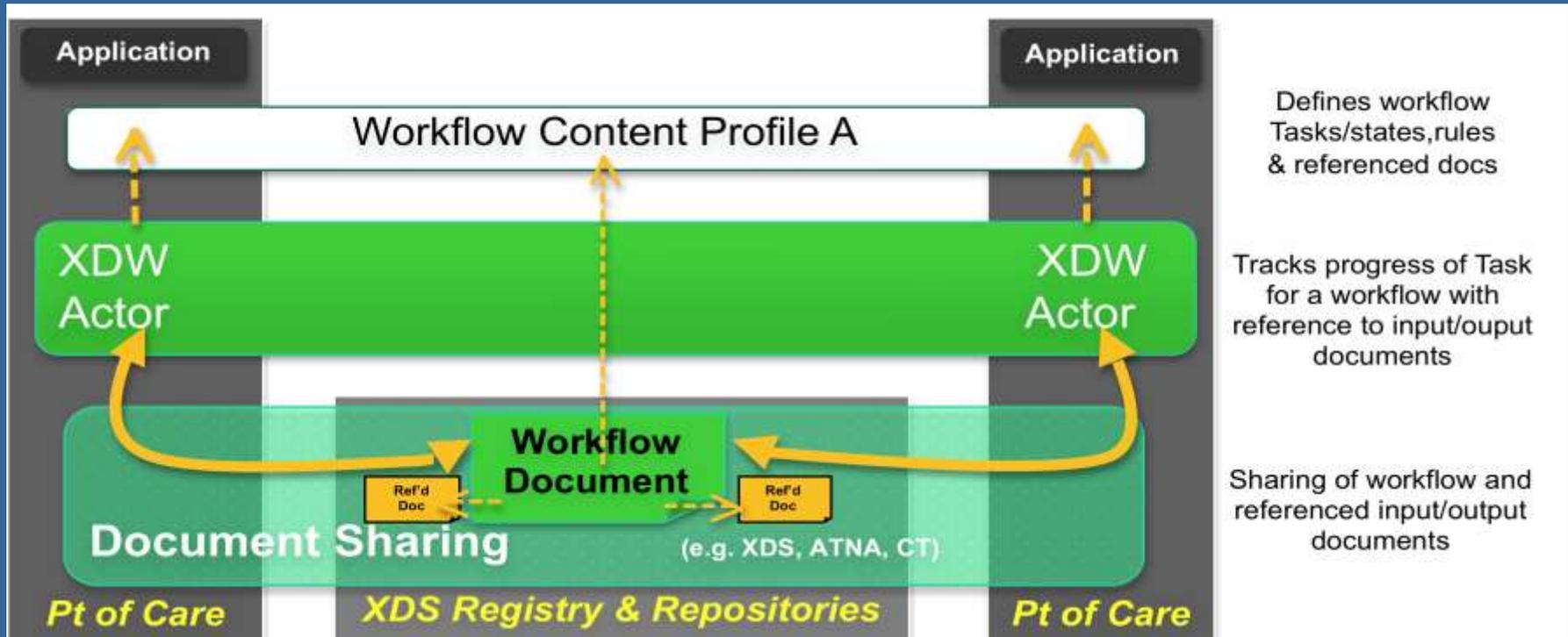
XDW - Key Design Elements



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XDW - Key Elements



Workflow Document in XDW:

- Specified by XDW is generic across specific workflow content (OASIS Human Task)
- Manages workflow specific status with relationship to input/output documents
- Tracking the current/past steps of the workflow and engaged health care entities
- Workflow driven/enforced by the XDW actors, infrastructure provides transparency

Structure of the task in the XDW Workflow Document

Workflow Document Structure:

◆ Overall workflow context

◆ Task level Information

Task describes an activity that is planned or has been accomplished. Attributes of the task:

- Type
- Owner
- Current Status (created, in-progress, completed, etc.)
- References to documents used for input or produced as output
- The **Task Event History** tracks the past **Task Events**, up to the present state

Structure of the Workflow Document

Workflow Document
Information:
documentID
title
patient
author/custodian
time: date/time/UTC
workflow definition URN
workflow ID
workflow state (active/closed)

TaskList

Task 1
Date/time
State
Input
Output

Task Event history

Task

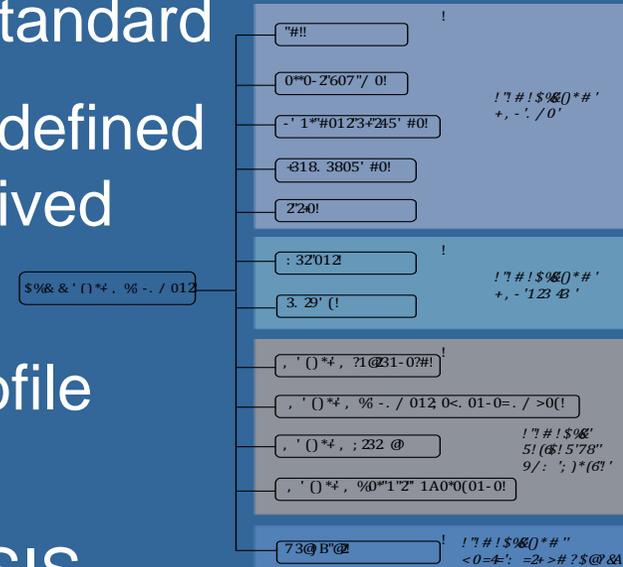
Task n

Task Event history

Structure of the Workflow Document

The XDW Workflow Document has 4 parts:

- **Part 1:** elements derived from HL7 CDA standard
- **Part 2:** two elements, patient and author, defined in the XDWSchema with the structure derived from HL7 R-MIM standard
- **Part 3:** elements defined by IHE XDW Profile
- **Part 4:** the element <TaskList> in which is defined by elements derived from the OASIS WS-HumanTask standard.



XDW Flow and Interactions in an XDS scenario

Content
Creator



1. Sources post
workflow document
and referenced
document to the XDS
Infrastructure

Content
Consumer



5. Consumers search
about patient's
workflows

6. Consumers retrieve
selected documents
from the XDS
Infrastructure

XDS
Infrastructure



2. Consumers search
about patient's
workflows

3. Consumers retrieve
selected documents
from the XDS
Infrastructure

4. Sources update the
workflow document
and post possible new
referenced documents

Content
Consumer

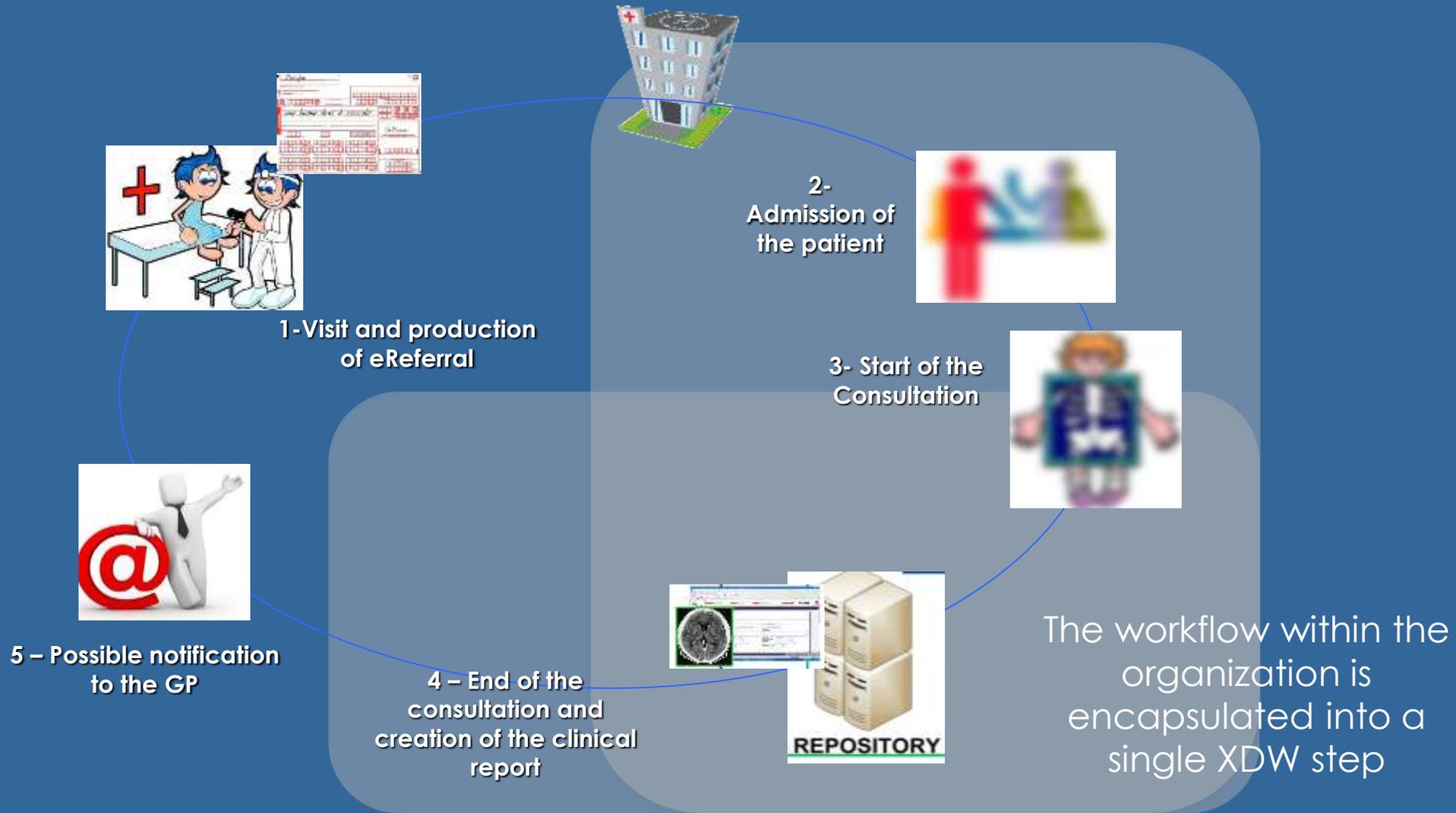


Content
Updater



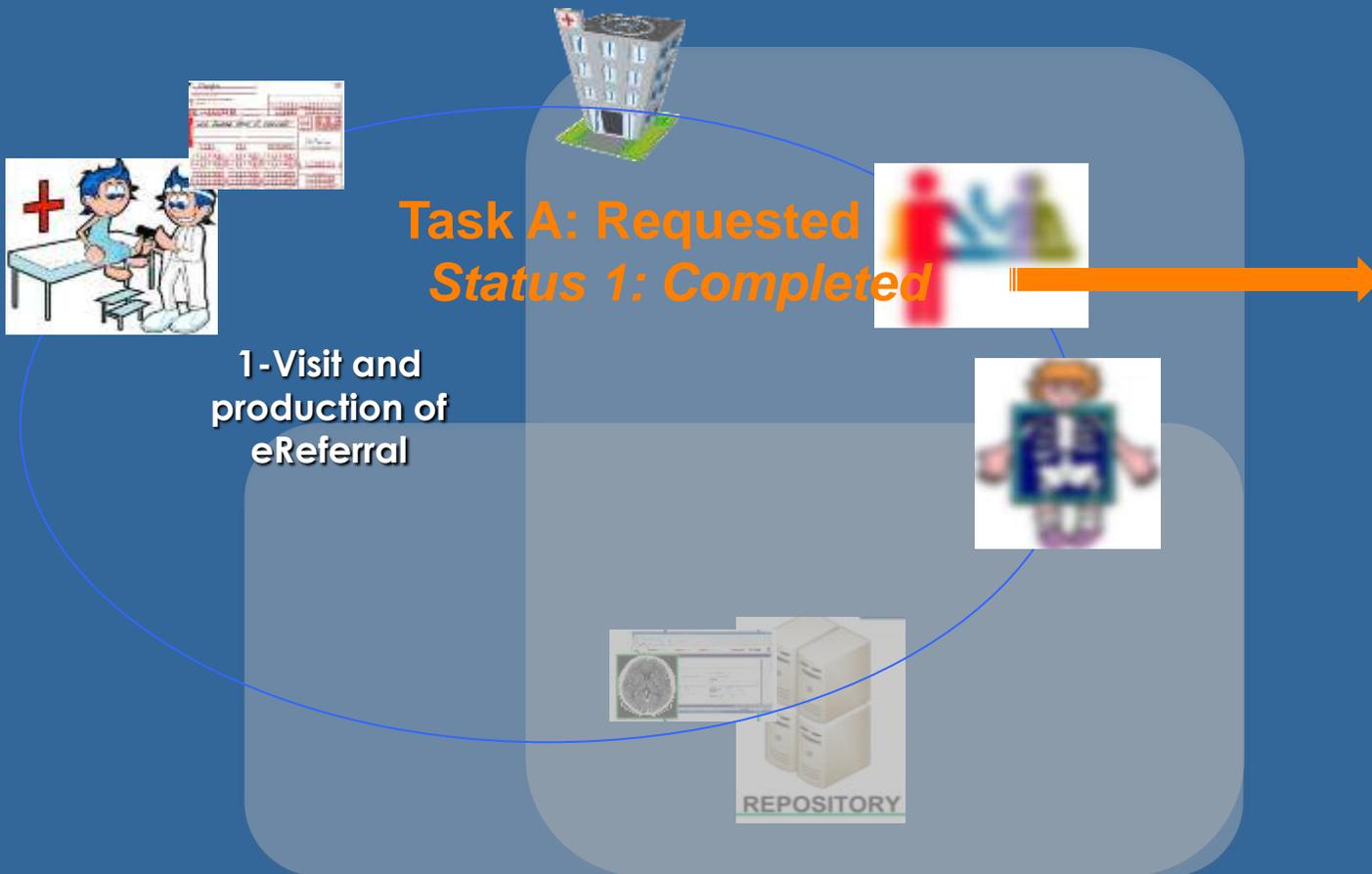
XDW Process Flow

workflow definition



XDW Process Flow

first task of the process



Workflow Document

task: REQUESTED
Status: COMPLETED
Author: Mr.Rossi
Time: date/time/utc

Inputs:
-> Lab Report

Outputs:
-> eReferralDoc1

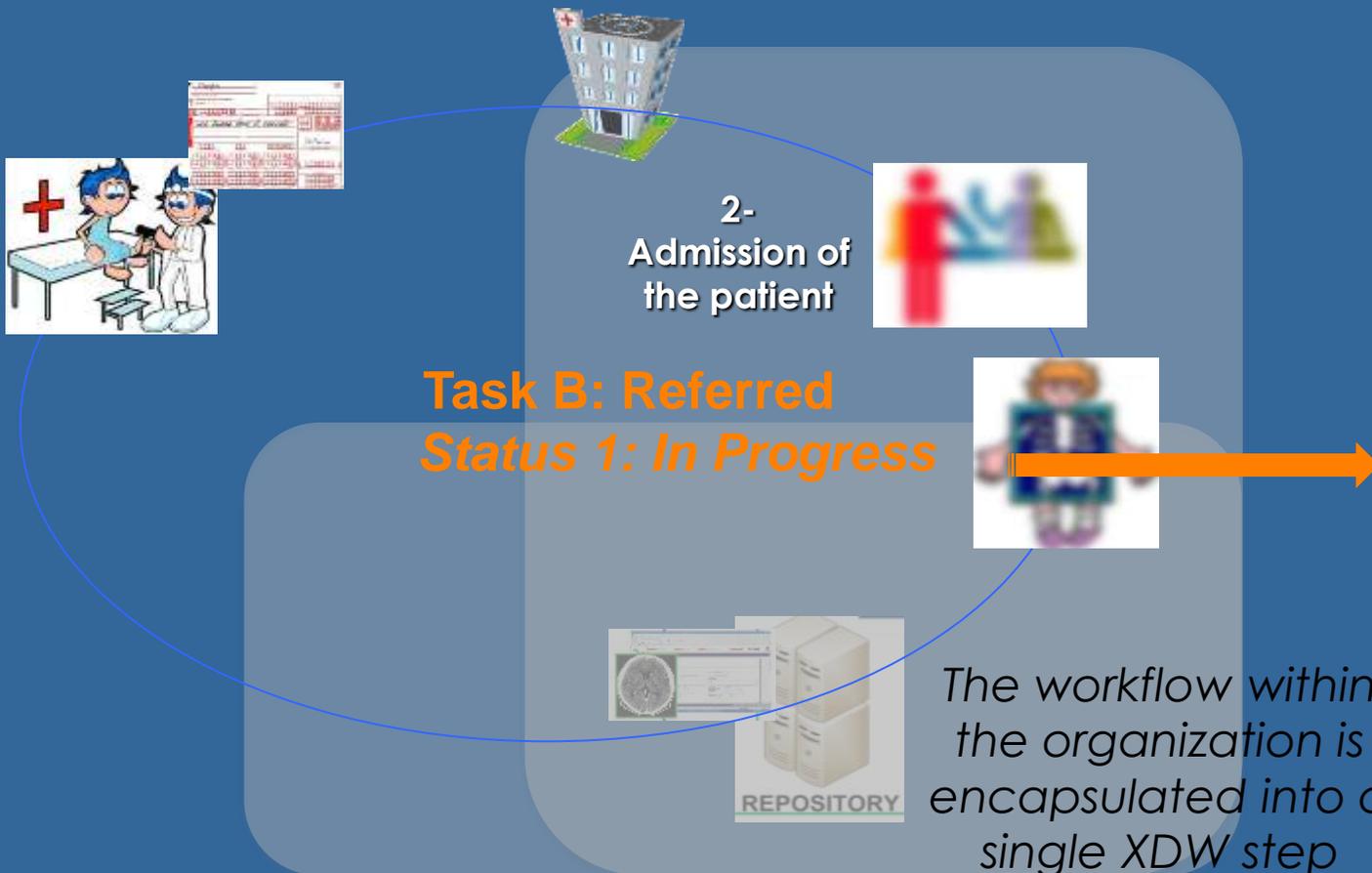
taskEventHistory

TaskEvent: 1
Status: COMPLETED
Inputs:
-> Lab Report

Outputs:
-> eReferralDoc1

XDW Process Flow

second task of the process, first status



Workflow Document

REQUESTED

task: REFERRED
Status: INPROGRESS
Author: Mr.Brum
Time: date/time/utc

Inputs:
-> eReferralDoc1

Outputs:
->

taskEventHistory

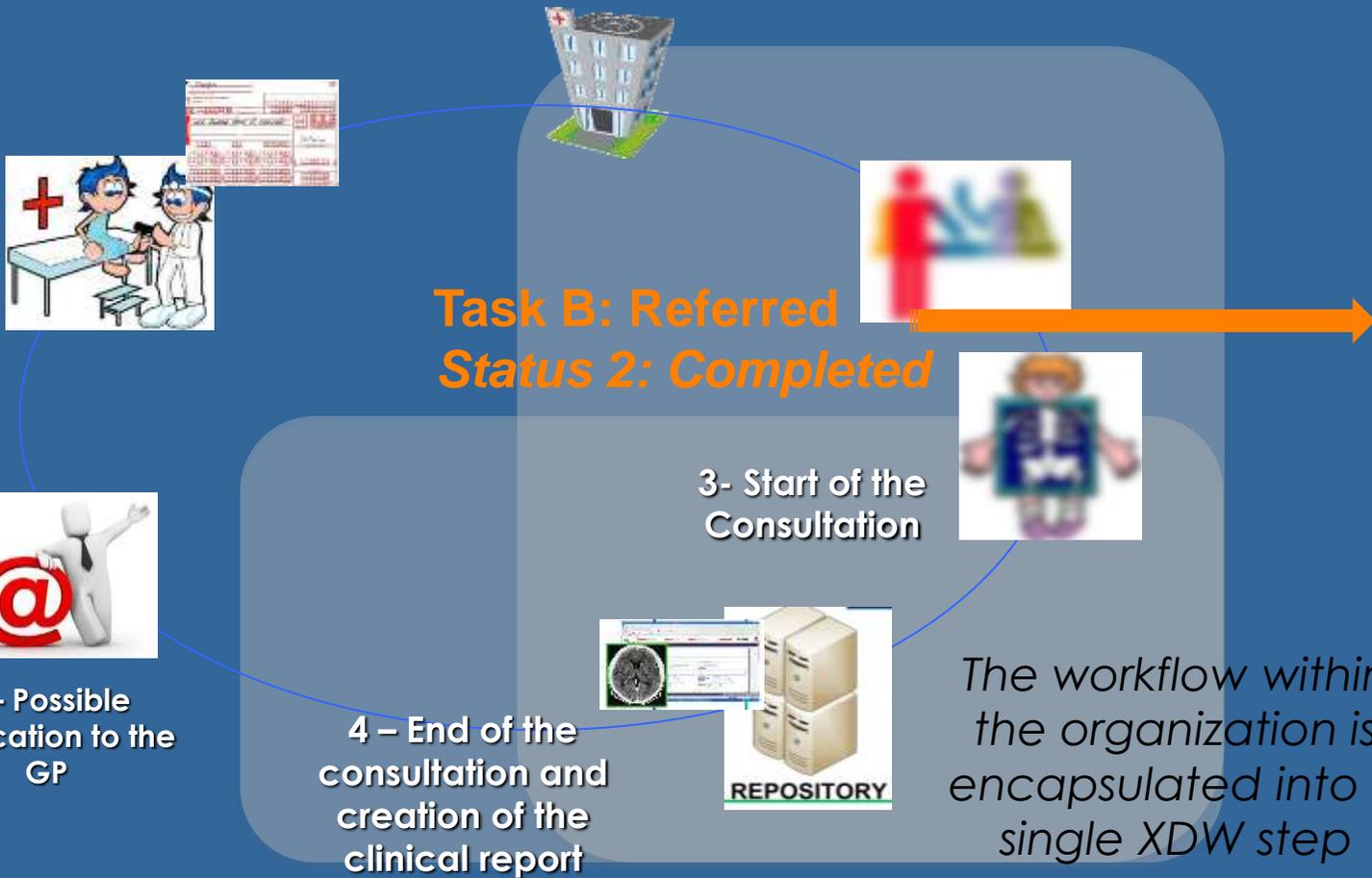
TaskEvent: 1
Status:
INPROGRESS

Inputs:
-> eReferralDoc1

Outputs:
->

XDW Process Flow

second task of the process, second status



Workflow Document	
REQUESTED	
task: REFERRED Status: COMPLETED Author: Mr.Brum Time: date/time/utc	
Inputs: -> eReferralDoc1	
Outputs: -> ClinicalRepDoc2	
taskEventHistory	
TaskEvent: 1	
TaskEvent: 2 Status: COMPLETED	
Inputs: -> eReferralDoc1	
Outputs: -> ClinicalRepDoc3	

XDW profile and Workflow Definition profile

- ◆ Cross Enterprise Document Workflow is:
 - a framework to manage workflows
 - a platform upon which a wide range of specific workflows can be defined **with minimal specification and implementation efforts**
 - workflow independent
 - applicable on different document sharing infrastructures
- ◆ Workflow Definition Profile is:
 - the definition of a specific clinical process
 - a set of rules and task definition which characterize the process
 - the definition of the actors involved in the process and their roles

Use Case: an example of eReferral workflow(2)

A

B

C

Workflow Description

XDW

*Evolution
of shared
Workflow
Document*

Selected Standards & Systems

- ◆ XDW Supplement introduces a **new content framework profile** for a workflow management document
 - OASIS Human Task for task structure and encoding
 - HL7 CDA for provider description
 - HL7 R-MIM for patient and author description
- ◆ **No new transaction** are introduced. Leverages existing ITI IHE Profiles:
 - XDS.b, DSUB, XDR, XDM, BPPC, ATNA
- ◆ **No XDS Metadata extension**, but specific rules about XDS Metadata content for the registry entry associated to the XDW Workflow Document

XDW Security/Privacy

- ◆ XDW relies on the security controls in the underlining transport (e.g. XDS)
- ◆ In order to adhere to the principle of least privilege organizations want to prevent clinical documents from being replaced by other organizations, while allowing XDW Workflow Documents to be replaced (**exception based on classCode**)
- ◆ When a Workflow Description Profile is created a **risk assessment** following the Security Cookbook may result in additional security considerations beyond those for the usual clinical report

XDW references

- ◆ Primary Content
 - XDW Supplement

- ◆ Underlying technical framework content
 - ITI XDS.b profile

XDW profile –program

XDW activity

- ◆ **PCC Domain:** creation of the “Workflow Definition Whitepaper”, in which it is defined the guide lines and the structure to write a Workflow Definition Profile

Example of XDW Definition Profiles

◆ PCC Domain

- XBeR-WD Cross Enterprise Basic eReferral Workflow Definition Profile
- XTHM-WD Cross Enterprise TeleHomeMonitoring Workflow Definition Profile
- XTB-WD Cross Enterprise Tumor Board Workflow Definition Profile

◆ Radiology Domain

- XSM Cross Enterprise Screening Mammography Workflow Definition Profile (White Paper)

Discussion

The objective of this profile is:

- ◆ The standardization of the workflows' management transactions and the associated workflow tracking structure linked with clinical events
- ◆ The creation of a **document structure** able to respond to the present and possibly to extend to future requirements
- ◆ This profile proposal benefits many domains. So it increases the consistency of **workflow interoperability** and the skill to solve the requests of the various care areas. It will avoid that different competing solutions are developed in the different IHE domains.

Discussion

The value statement of this profile is:

- Provides a platform upon which a wide range of specific workflows can be defined **with minimal specification and implementation efforts** (e.g., Medical Referrals Workflow, Prescriptions Workflow, Home Care Workflow).
- Increases the consistency of workflow interoperability, and enables the development of interoperable workflow management applications where **workflow-specific customization is minimized**
- Facilitates the integration of multi-organizational workflows with the variety of existing workflow management systems used within the participating organizations (peer-to-peer)