

# Integrating the Healthcare Enterprise



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## **IHE Radiology (RAD) White Paper**

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### **Cross-Enterprise Screening Mammography Workflow Definition**

**Revision 1.0**

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## Foreword

30 Integrating the Healthcare Enterprise (IHE) is an international initiative to promote the use of standards to achieve interoperability among Health Information Technology (HIT) systems and effective use of electronic health records (EHRs). IHE provides a forum for care providers, HIT experts and other stakeholders in several clinical and operational domains to reach consensus on standards-based solutions to critical interoperability issues.

35 The primary output of IHE is system implementation guides, called IHE Profiles. IHE publishes each profile through a well-defined process of public review and trial implementation and gathers profiles that have reached final text status into an IHE Technical Frameworks.

For more information regarding IHE in general, see [www.ihe.net](http://www.ihe.net).

Information about the IHE Radiology domain can be found at:  
<http://www.ihe.net/Domains/index.cfm>

40 Information about the structure of IHE Technical Frameworks and Supplements can be found at:  
<http://www.ihe.net/About/process.cfm> and <http://www.ihe.net/profiles/index.cfm>.

The current version of the IHE Radiology Technical Framework can be found at:  
[http://www.ihe.net/Technical\\_Framework/index.cfm](http://www.ihe.net/Technical_Framework/index.cfm).

45 Special thanks to Antje Schroeder for the support and to Elizabeth Stark, Cezary Klimczak (Ontario, Canada) and Joël Chabriais (France) for bringing their country's breast screening program information.

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130 **1 Introduction**

This White Paper arises from the necessity to manage the process of breast screening in Radiology area and provides a more general approach which allows to integrate the Radiology mammography exam in a complex scenario and to manage the breast screening workflow.

135 The value statements of the Cross-Enterprise Screening Mammography are the standardization of the workflow's management process as well as the associated workflow tracking structure linked with the clinical process of the breast screening and the creation of an instrument able to respond at the present needs and possibly to extend to future requirements.

140 This White Paper is based on Radiology profiles to manage the workflow at each side participating in the Cross Enterprise Screening Mammography workflow and on the ITI Cross-Enterprise Workflow Document Profile (XDW) to coordinate tasks between different participating sites. XDW profile allows to track and manage all the tasks concerning the screening process (multi-blind reading evaluation,...). It also extends future requirements as well as XDS profile provides the multi enterprise exchange of useful clinical document and DICOM study related information.

145 **1.1 Purpose of the Cross-Enterprise Screening Mammography Workflow Definition White Paper**

150 Cross Enterprise Screening Mammography Workflow increases the consistency of workflow interoperability. Furthermore, it provides a means to solve the requests of the various care areas providing a standard solution to manage this clinical process and avoiding the different competing solutions that are developed for the different areas.

**1.2 Intended Audience**

The intended audience of the IHE RAD Cross-Enterprise Screening Mammography Workflow Definition White Paper is:

- Manufacturer marketing departments
- 155 • IT departments of healthcare institutions
- Technical staff of vendors participating in the IHE initiative
- Experts involved in the screening programs and standards development
- Those interested in integrating healthcare information systems and workflows

160 **1.3 Comment Process**

In order to match and to provide a reliable representation on most of mammography screening programs, comments and country based elements on each different service may be submitted to [fvanzo@consorzioarsenal.it](mailto:fvanzo@consorzioarsenal.it).

## 1.4 Open and Closed Issues

- 165 The Open Issues related to this White Paper are mostly the same that arise from the XDW profile, MAWF profile, SWF profile. At the first level the open issue is related to the Cross-Community Access Profile (XCA) management of the screening process. Today the XDW profile is approved in trial implementation for the management of processes inside a community. It is the work for the next year to extend XDW to XCA. So in this sense for now all actors
- 170 involved in the screening process shall be part of different enterprise but in the same community. For the other open issues refer to the specific profiles involved.

- In this White Paper three breast screening programs have been described with their workflows and path features. In order to cover most of the common practices worldwide, further breast screening program from other national/regional/private approaches can be provided, discussed
- 175 and they might be included in the next version of this White Paper. For further information, to discuss and share other breast screening programs, please contact the XSM-WD team by sending an email to [fvanzo@consorzioarsenal.it](mailto:fvanzo@consorzioarsenal.it).

## 2 Cross-Enterprise Screening Mammography Workflow Definition (XSM-WD) – General Use Cases

180 The Cross-Enterprise Screening Mammography Workflow Definition White Paper provides a complete management of a Screening service program connecting the RAD domain and the ITI domain. The RAD domain has defines site specific workflows and the XDW profile from ITI domain enhances the same workflow’s interoperability and allows to share and update all events of the screening process between different enterprises.

185 The White Paper describes the orchestration of the screening workflow in order to allow the workflow participants to share a common understanding of the specific tasks, the dependencies between these tasks and a number of rules to effectively manage the workflow execution and leads the interoperability between different information systems.

### 2.1 Screening Mammography – Italian Use Case

190 This use case is based on the Italian screening program for breast cancer which basically represents one of the most diffuse approaches to mammography screening flows. Each step can be coordinated through the XDW profile, which can address the workflow management between a central information system (CS), the Hospital Information Systems and actors in charge to update the Workflow Document for each task.

#### 195 2.1.1 Process Model

The process is composed as follows:

At first, the CS generates a list of all women in the risk range of age based on the anagraphical systems (primary target age group) past exams. The CS checks the list, schedules all the appointments for the different enterprises, matching also addresses and range of different  
200 locations criteria.

At this time the first step in the workflow process for a patient is the invitation for the exam: the CS composes and sends out the recruiting (or invitation) letters containing place of the facility, date and time of the visit and additional information describing the screening process and providing answers to common questions and concerns women have about mammography.  
205 Invitation letter represents the output of the Workflow Document as shown in the Figure 2.1.1-1. Every day the CS compiles the list of scheduled appointments and sends it to the different enterprises.

- The second task in the workflow is the visit [Task 2a in the Figure 2.1.1-1]. Each recruited woman (subject), who visits the hospital, is admitted and all previous examinations and the recruiting letter are collected as input of this second task in the  
210 Workflow Document.
- If a woman misses her scheduled appointment, the entire path ends with a “No admission” document, which is the Workflow Document’s final output in this case and a

215 notification is sent to the CS which can reschedule the exam [Task 2b in the Figure 2.1.1-1]

The visit takes place and KOS Document (from the Imaging Document Source actor in the XDS-I.b, in the context of Mammography Acquisition Workflow and Mammography Image Profiles) as well as the Screening Form are available and they represent the output documents of this task. Once the CS is aware of the completion of exams, it compiles the worklist and sends it to the radiologist.

220 Every exam must have a double evaluation. At this point of the process, two radiologists perform a “double blind” reading of the exam and each creates a report with the result (positive or negative). In the blind reading technique the second reader is not aware of the first reader’s report. This methodology has been adopted to avoid the situations where the first’s reader positive report might influence and favor a positive report by the second radiologist.

225 These two evaluation tasks [Task 3 and 4 in the Figure 2.1.1-1] shall have as input the KOS Document, in order to retrieve the images, and the Screening Form and as output the two reports.

The fifth task in the process is the evaluation by the CS of the two reports:

- 230 • If both reports are negative the CS sends a letter including the negative result to the patient and the process ends [Task 6a in the Figure 2.1.1-1].
- If both reports are positive the CS will compose an “Alert” letter including instructions and the second level of the screening process starts [Task 6b in the Figure 2.1.1-1].
- 235 • If the two results are discordant (one positive, one negative) the CS schedules a third blind reading in another worklist. In this case we have another “Evaluation” task [Task 6c in the Figure 2.1.1-1].

The CS analyzes the new result and produces the ResponseReport [Task 7 in the Figure 2.1.1-1]:

- If the third report is negative the CS sends a letter with the negative result to the patient and the use case ends [Task 8 in the Figure 2.1.1-1].
- 240 • If the third report is positive the CS composes an “Alert” letter including instructions and the second level of the screening process starts. [Task 9 in the Figure 2.1.1-1].

All main input and output items for each task are clarified in the Figure 2.1.1-1.

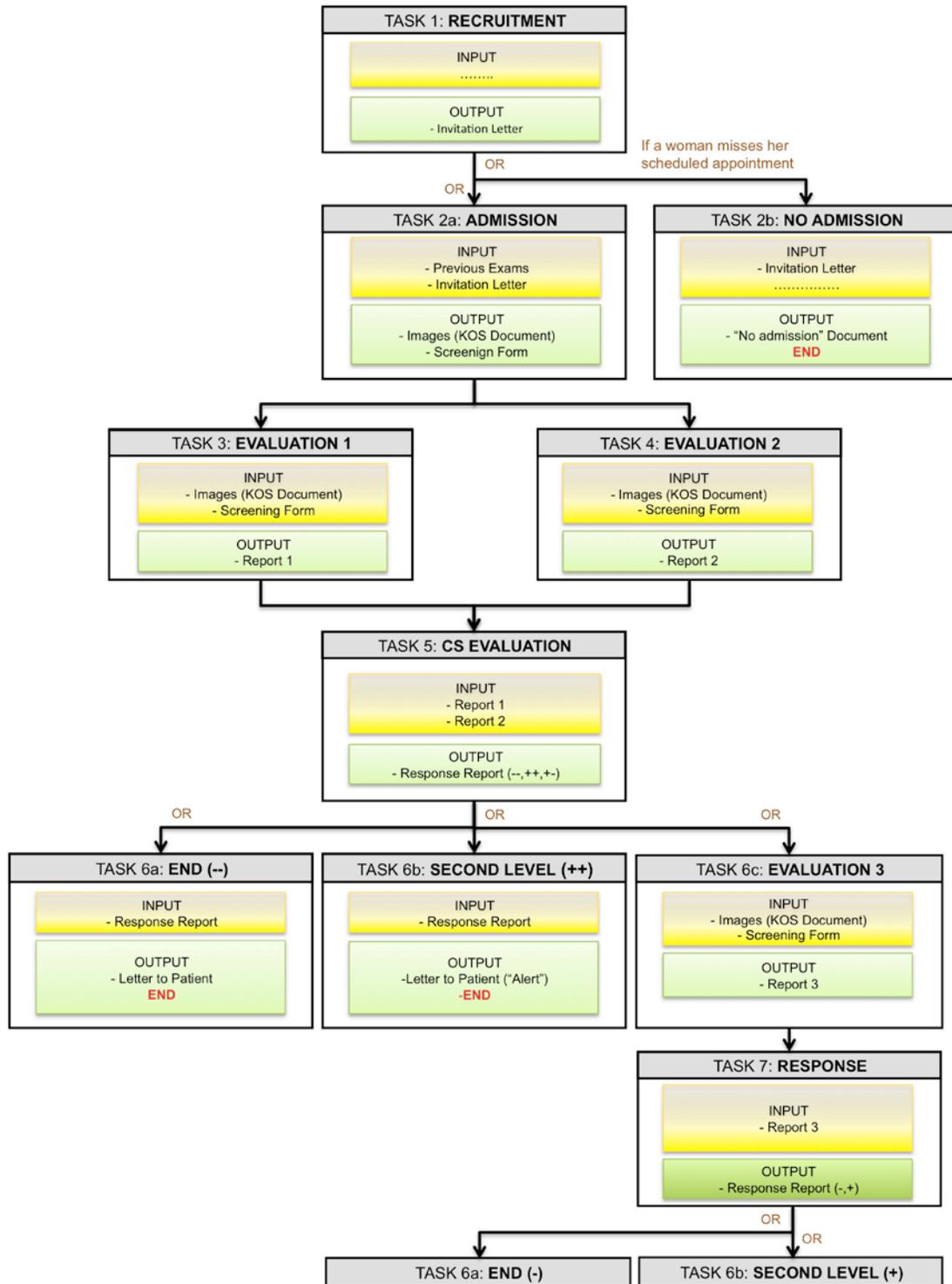


Figure 2.1.1-1: Screening Mammography – Tasks

## 2.2 Screening Mammography – French Use Case

245 This use case is based on the French Screening Program. To understand the organization of  
screening mammography program it is necessary to know the French administrative organization  
which has several levels:

- Nationwide level;
- 250 • Region level, similar to States in the US, Province in Canada, Lander in Germany (21  
regions);
- Department level, old structure set during French Revolution at the end of 18<sup>th</sup> century  
(Each region contains several Department: there are 101 Departments in France);
- Canton level (not yet utilized except for election);
- City level.

255 By the law, the screening program is organized at Department level. Each Department has a non-  
profit organization in charge of management of the breast cancer, colon cancer and uterus cancer  
screening programs: the “Organisme de Gestion du Dépistage” (OGD). If some departments  
have a very low population it is possible to merge their organization. For example, in Auvergne  
260 region there are 4 Departments: the Allier Department has a sufficient amount of population and  
it has its own screening organization. The other three Departments have a smaller population and  
for this reason are grouped and managed by a common OGD.

### 2.2.1 Process Model

In the Breast screening program, a mammogram is proposed to each woman between 50 and 74  
years old each two years. The invitation for the mammogram is sent by the OGD (Organisme de  
265 Gestion du Dépistage).

Basic examination includes:

- Physical examination by the radiologist
- CC (Cranio Caudal) and MLO (Medio Lateral-Oblique) view on each Breast
- Any additional view, the radiologist deems necessary
- 270 • If the radiologist thinks it is necessary he can perform an additional ultrasound  
examination
- At the end of examination the radiologist completes a screening interpretation form

All BI-RADS (Breast Imaging Reporting and Data System) 1 and 2 examinations are sent to the  
OGD for second reading: each physical folder shall include all mammography films, ultrasound  
275 images if done, a written report and the completed screening interpretation form.

All BI-RADS 3, 4 or 5 examinations are managed directly by the radiologist for appropriate  
action. The radiologist sends the screening interpretation form, a copy of the report and a copy of  
the significant views (on film) to the OGD, for information and management by the OGD.

280 Second reading is organized in the office of the OGD, only on film currently and if necessary a third reading can be done (in case of important differences between first and second reading).

After second reading:

- If there is no difference between first and second reading, the mammogram with report and a letter are sent to the woman and a letter sent to the clinician indicates on the screening interpretation form.
- 285 • If there is a difference, a letter is sent to the radiologist with a request for additional views or examination (ultrasound, MRI, biopsy...) and the mammogram with the report. Furthermore a letter to the patient is sent. The radiologist will organize the recall for the women. When all the results of the additional examinations are available he informs the OGD and the referring physician of the patient as well as her gynecologist if she has one.

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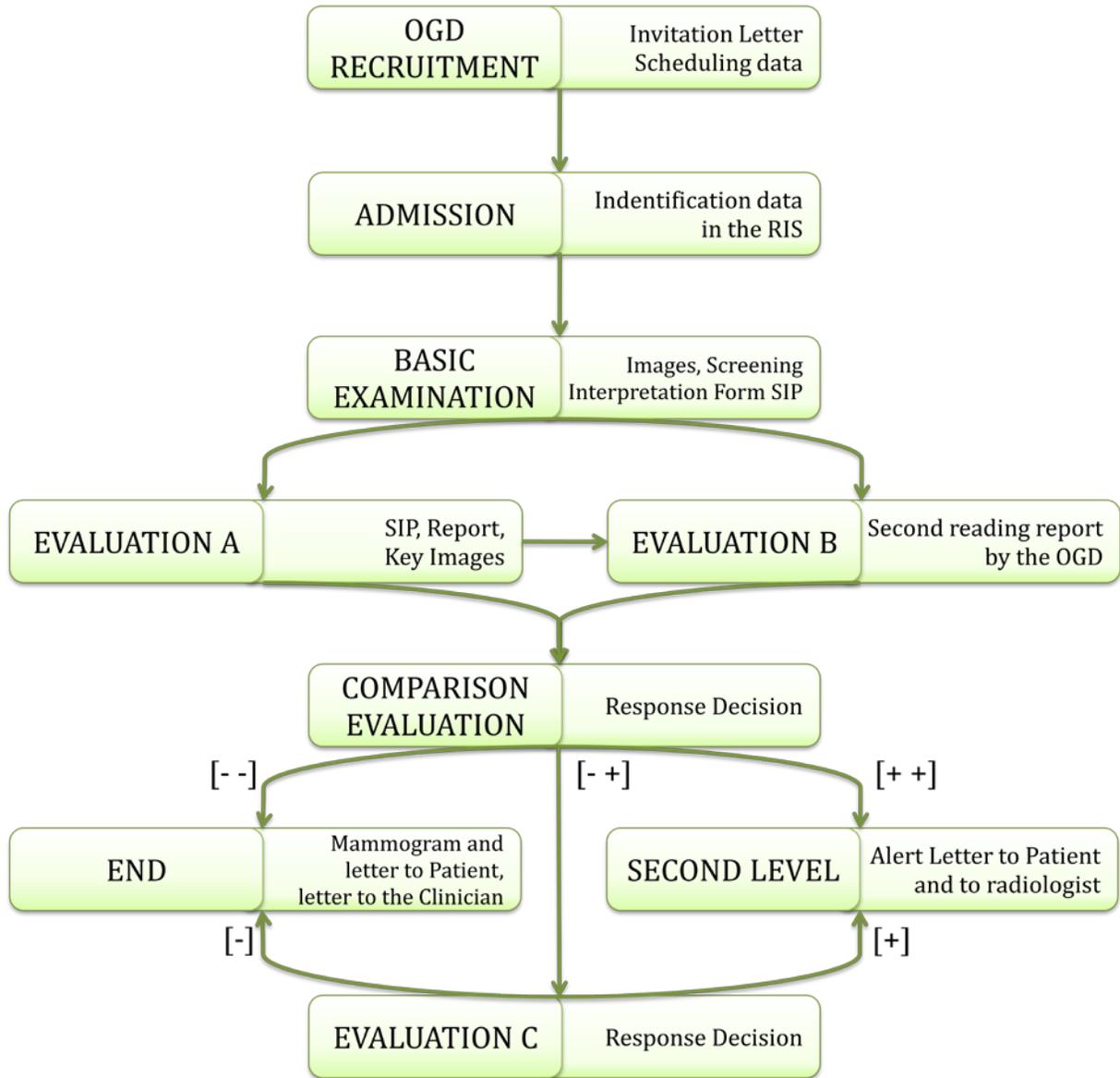


Figure 2.2.1-1: Screening Mammography – Tasks

295 **2.3 Screening Mammography – Ontario Use Case**

This use case is based on the Ontario Breast Screening Program (OBSP) which is a multi-level organizational model according to the following participants.

*Central Office:*

- OBSP Central Office - administers central OBSP database, formulates and conducts recruitment effort at the provincial level;

300

- CS - central OBSP database, known within the OBSP as ICMS (Integrated Client Management System).

*Regional Centre:*

- 305
- Regional Centre - formulates and conducts recruitment effort at the regional level; works to ensure Screening Facilities are working at a reasonable capacity; collects Quality Control records, retake rates, etc.; manages relationships with GPs (General Practitioners).

*Screening Facility:*

- 310
- Screening Facility - performs screening examinations, collects data related to these and transmits to CS at OBSP Central Office;
  - Screening Facility Administrative Staff - welcomes subject, records demographic information, sends out letters to subjects and GPs as required, transcribes and sends exam-related information to CS at OBSP Central Office; refers subject for assessment as required (if done at OBSP-Affiliated Assessment Centre);
- 315
- Terminal to CS - resides at Screening Facility. Used by Screening Facility Administrative Staff to send data to CS;
  - PACS - resides at Screening Facility. Used for storage of all images acquired locally;
  - RIS - resides at Screening Facility. May in some cases be integrated with PACS, however, management of RIS and PACS is at the discretion of the Screening Facility and may differ at each Screening Facility;
- 320
- Nurse Examiner - conducts physical examination and records results;
  - Mammographic Technologist - acquires standard images, plus optionally any extras deemed advisable for this subject;
  - Radiologist - reads mammographic exam and produces report containing results of reading and recommendations (e.g., send subject for assessment, recommend annual screening instead of biennial, return in two years, etc.).
- 325

*Elsewhere:*

- 330
- General Practitioner (GP) - may refer subject to OBSP (if GP is participating in this initiative); receives radiologist's report and refers subject for further assessment as required (if done at external Assessment Centre);
  - Subject - calls local OBSP screening facility and makes appointment (alternatively, this can be done through GP), attends screening appointment and any follow-up assessment required;
- 335
- Breast Assessment Centre - performs work-up (e.g., FNAB Fine Needle Aspiration Biopsy, core biopsy, U/S, etc.) of any abnormal cases and reports results back to GP

(usually) and subject (always), and optionally to OBSP Central Office (if consent has been given by subject).

### 2.3.1 Process Model

The OBSP is based on the following steps:

- 340       • The process starts with the Organized recruitment which involves sending reminder letters to women who have previously undergone screening within OBSP and are due for next visit. The list of people due to receive reminder letters is generated centrally by CS. (Letters are sent only after the woman has entered the program: a reminder letter is sent one month before the woman is due for her next appointment).
- 345       • Scheduling is performed by the Screening Facility when the subject calls to book an appointment. After the appointment has been made, CS is notified of the upcoming appointment, subject information, as well as any requests for priors that may be stored at another location. This communication occurs via a terminal that is connected to the CS and resides in each screening facility. (Worklist managed by the site; mechanism may differ at each Screening Facility)
- 350       • The exam starts with Normal case: physical exam by Nurse Examiner (in normal cases). In the high-risk case MRI and mammography are planned and scheduled for separate visits. Ideally, priors are available at the time of the exam so that Mammographic Technologist can refer to them before image acquisition -- however, they are not required until the time of reading. Clinical history is taken orally, either by Administrative Staff at the time of Admission, or by Nurse Examiner or Mammographic Technologist at the time of Exam.
- 355       • There is a Single read Reporting which is usually performed at the same facility as the image acquisition, but there are cases where this does not apply (notably: Moose Factory, whose images are read in Timmins, and the mobile van, which send images to Thunder Bay for reading). Screening Facility Administrative Staff is in charge of communicating the results to the subject via a letter to the GP, and then two weeks later, a letter directly to the subject.
- 360       • The letter to the GP must be sent out within two weeks. Results of any assessment that was performed are propagated back to the OBSP Central Office, if consent had been given by subject for this (>98% of subjects requiring assessment have given consent).
- 365       • If cancer is found, notification to the provincial cancer registry is managed by the Assessment Centre (diagnosis of cancer is not made definitively until further assessment has been performed. Further assessment is considered in Ontario to be a diagnostic function, as opposed to screening).
- 370

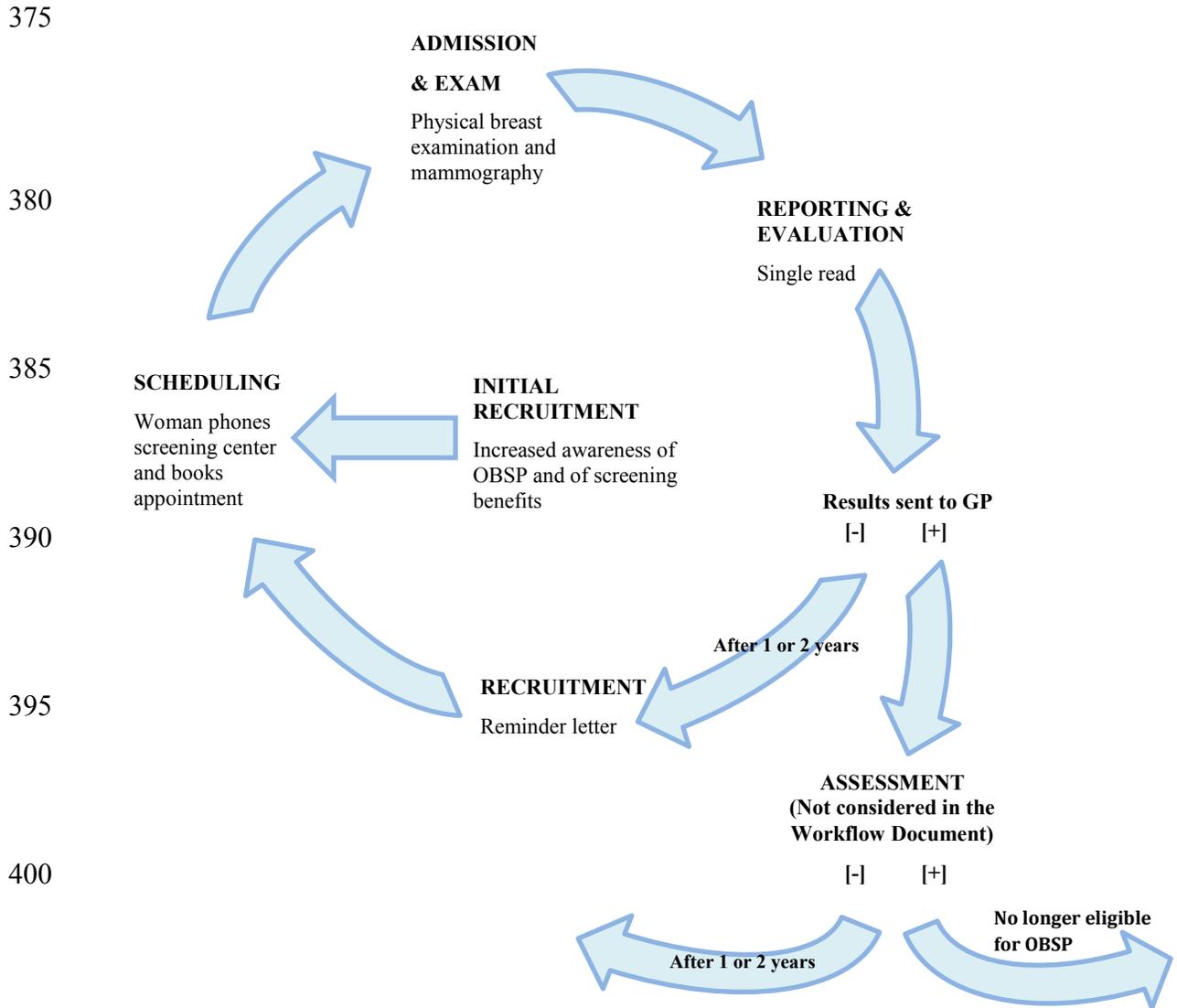


Figure 2.3.1-1: Screening Mammography – Tasks

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### 3 Cross-Enterprise Screening Mammography Workflow Definition (XSM-WD) – Technical Solution

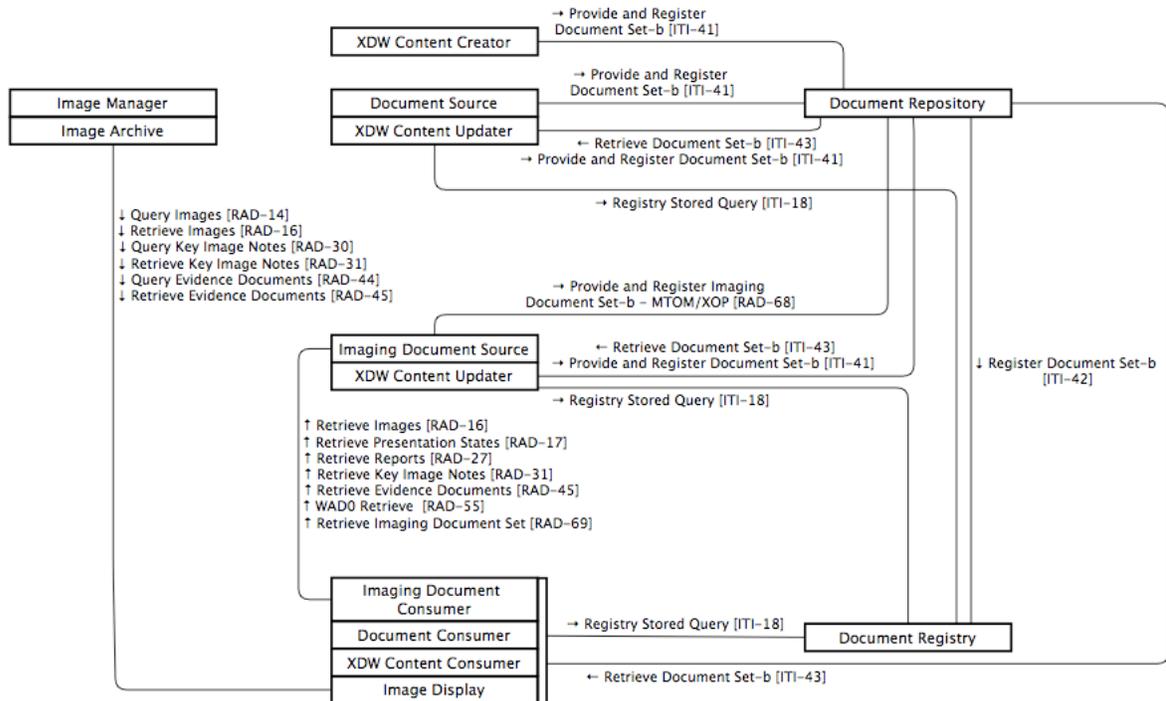
#### 3.1 Proposed Actors and Transactions

420 The Cross-Enterprise Screening Mammography Workflow Definition White Paper provides a complete management of a Screening service program connecting the RAD domain and the ITI domain. The RAD domain has defines site specific workflows and the XDW profile from ITI domain enhances the same workflow’s interoperability and allows to share and update all events of the screening process between different enterprises.

425 The White Paper describes the orchestration of the screening workflow in order to allow the workflow participants to share a common understanding of the specific tasks, the dependencies between these tasks and a number of rules to effectively manage the workflow execution and leads the interoperability between different information systems. All the details of the process are conveyed through the XDW Workflow Document.

##### 3.1.1 XSM-WD Actors and Transactions

430 Figure 3.1.1-1 diagrams the actors involved in the generic screening workflow and the transactions between actors including the unique grouped entity for the XDW profile.



**Figure 3.1.1-1: Cross-Enterprise Screening Mammography – Workflow Definition Diagram**

435 Table 3.1.1-1 lists the transactions potentially involved and considered for each actor in the Cross-Enterprise Screening Mammography White Paper even if basically the use case adopts mainly XDS transactions in the process. The transactions optionality is labeled “R” because they are required.

440 **Table 3.1.1-1: Cross-Enterprise Screening Mammography - Workflow Definition - Actors and Transactions**

Actors	Transactions	Optionality	Vol 2/3 Section or ITI
Content Consumer	Registry Stored Query [ITI-18]	R	ITI TF-2a:3.18
	Retrieve Document Set-b [ITI-43]	R	ITI TF-2b:3.43
Content Creator	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b:3.41
Content Updater	Registry Stored Query [ITI-18]	R	ITI TF-2a:3.18
	Retrieve Document Set-b [ITI-43]	R	ITI TF-2b:3.43
Document Consumer	Registry Stored Query [ITI-18]	R	ITI TF-2a:3.18
	Retrieve Document Set-b [ITI-43]	R	ITI TF-2b:3.43
Document Registry	Registry Stored Query [ITI-18]	R	ITI TF-2a:3.18
	Register Document Set-b [ITI-42]	R	ITI TF-2b:3.42
Document Repository	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b:3.41
	Register Document Set-b [ITI-42]	R	ITI TF-2b:3.42
	Retrieve Document Set-b [ITI-43]	R	ITI TF-2b:3.43
	Provide and Register Document Set-b MTOM/XOP [RAD-68]	R	4.68
Document Source	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b:3.41
Imaging Document Source	Provide and Register Imaging Document Set – MTOM/XOP [RAD-68]	R	4.68
	Retrieve Images [RAD-16]	R	4.16
	Retrieve Presentation States [RAD-17]	R	4.17
	Retrieve Reports [RAD-27]	R	4.27
	Retrieve Key Image Note [RAD-31]	R	4.31
	Retrieve Evidence Documents [RAD-45]	R	4.45
	WADO Retrieve [RAD-55]	R	4.55
	Retrieve Imaging Document Set [RAD-69]	R	4.69
Imaging Document Consumer	Retrieve Images [RAD-16]	O*	4.16
	Retrieve Presentation States [RAD-17]	O*	4.17
	Retrieve Reports [RAD-27]	O*	4.27

Actors	Transactions	Optionality	Vol 2/3 Section or ITI
	Retrieve Key Image Note [RAD-31]	O*	4.31
	Retrieve Evidence Documents [RAD-45]	O*	4.45
	WADO Retrieve [RAD-55]	O*	4.55
	Retrieve Imaging Document Set [RAD-69]	O*	4.69

O\*: At least one of the optional retrieve transactions is required.

445 **3.1.2 Cross-Enterprise Screening Mammography – Workflow Definition White Paper Options**

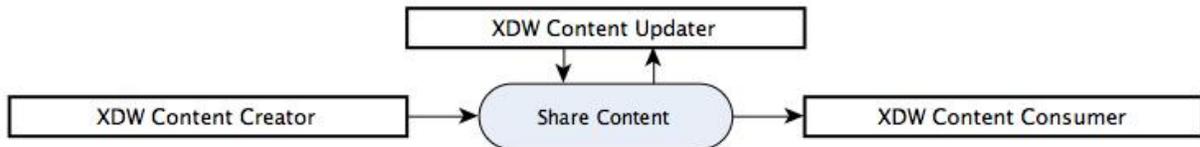
Options that may be selected for this White Paper are listed in the table 3.1.2-1 along with the Actors to which they apply. For further details please refer to the IT Infrastructure Technical Framework Supplement – Cross-Enterprise Document Workflow (XDW).

450 **Table 3.1.2-1: Cross-Enterprise Screening Mammography – Workflow Definition – Actors and Options**

Actor	Options	Vol & Section
Content Creator	<i>No options defined</i>	--
Content Consumer	<i>View Option</i>	ITI TF-1: 30.2.1
	<i>Document Import Option</i>	ITI TF-1: 30.2.2
Content Updater	<i>View Option</i>	ITI TF-1: 30.2.1
	<i>Document Import Option</i>	ITI TF-1: 30.2.2

**3.1.3 Screening Mammography Workflow**

In order to understand the workflow document context of its creation and updating, the following XDW Actor Diagram is assumed. It simplifies the Workflow Document processing.



455

**Figure 3.1.3-1: XDW Actor Diagram**

The transactions that occur between the three actors are necessary to compose and update the Workflow Document. They are providing the associated metadata as well as references to

460 external documents and may be useful for its other optional display capabilities, storage specific for the mammography screening service.

There are content and sequencing rules in this process that may be followed by using profiles as XDS, XDS-I.b, XDR and XDM, SWF, RWF, MAMMO.

465 Since the Screening Mammography workflow between participants in a multi-organization environment is managed by the XDW Workflow Document which depicts every task described for this clinical background taking into account each task respectively.

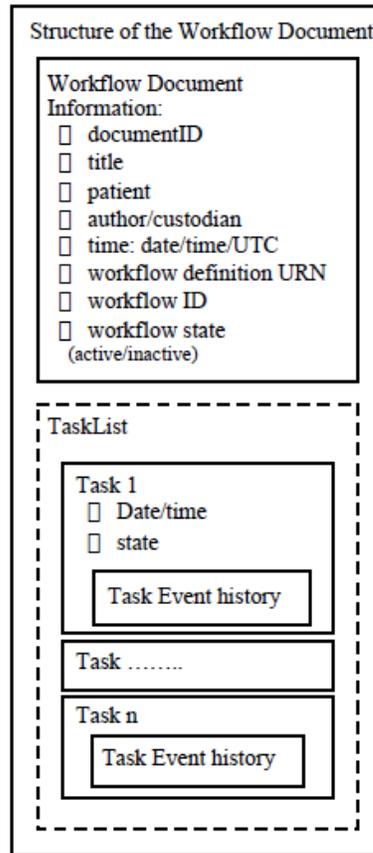
Each task is described by several attributes:

- the name, the code and the type of task
  - the owner of the task: a person or an organization assigned to the specific task
  - 470 • the current status of the task (one of the status value that are valid for this task): “created”, “ready”, “in progress”, “completed”, “failed”
  - the references to documents used for input or produced as output
  - the history of past Task Events (a record of a change of status, or other attribute which specifications rely on the OASIS Human Task standard) for this task, that document the progress of the task up to the present state
- 475

The first part of the square in the Figure 3.1.3-2 displays the general workflow information and the second part lists all the workflow tasks information up to that specific task considered as shown in the Figure 3.1.3-2. Each task is characterized by name, status, input, output and owner. The owner represents the author in the Workflow document information the moment this task occurs.

480

For further specifications and updates please refer to the IT Infrastructure Technical Framework Supplement – Cross-Enterprise Document Workflow (XDW).



**Figure 3.1.3-2: Workflow Document General Structure**

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The Content Updater has to bring the Workflow Document up to date for each mammography screening process task adding one (or more) new tasks, updating an existing task, record a past taskEvent and refresh the general Screening Mammography Workflow Document Information elements.

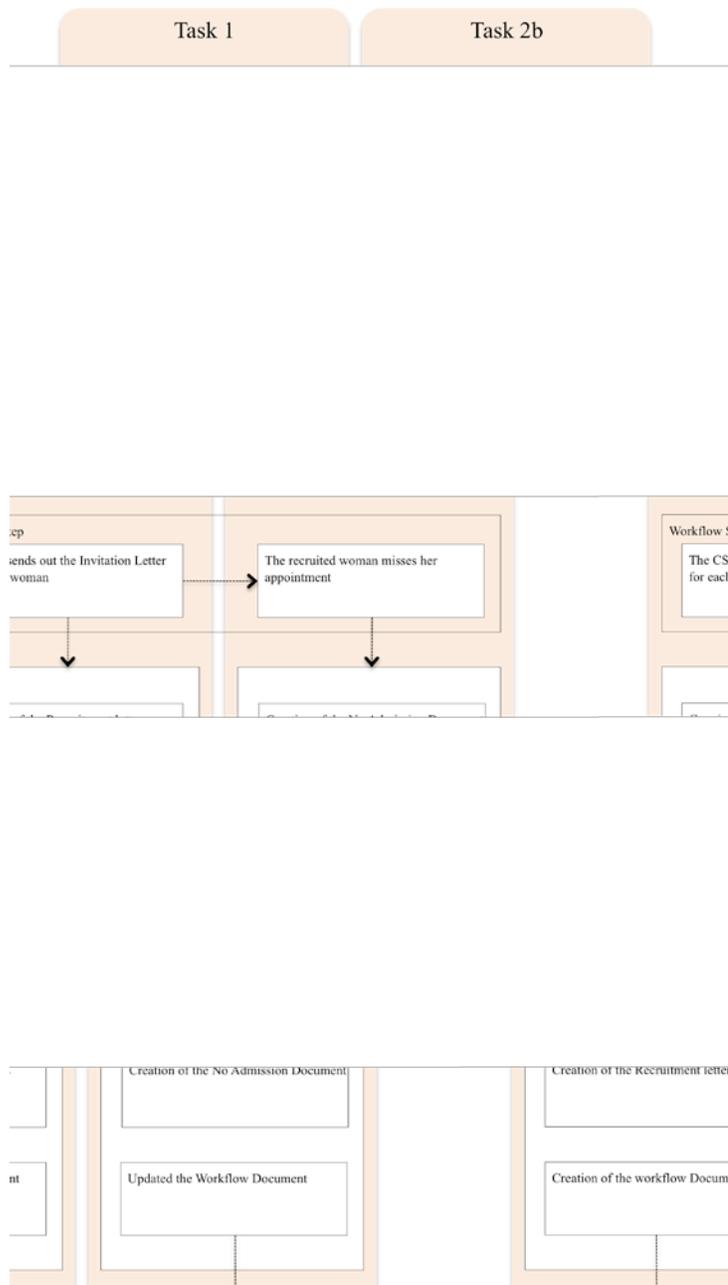
490

The high level of interaction between principal parties in the process has to match the screening features to go through every task and to ensure that the Workflow Document is timely updated according to the proposed structure.

In particular the XDW specific actors, illustrated in the Cross-Enterprise Screening Mammography Diagram, are only logical actors because they are respectively grouped with the Report Creator/Document Source and Report Reader/Document Consumer/Image Display.

495

The following example shows how the Italian use case process of updating the workflow document is performed. It was decided to use this use case because it is one of the most articulated and the other use cases can take advantage of it for the part of task that they require.



500

**Figure 3.1.3-3: Workflow Document Tasks: 1 – 2b**

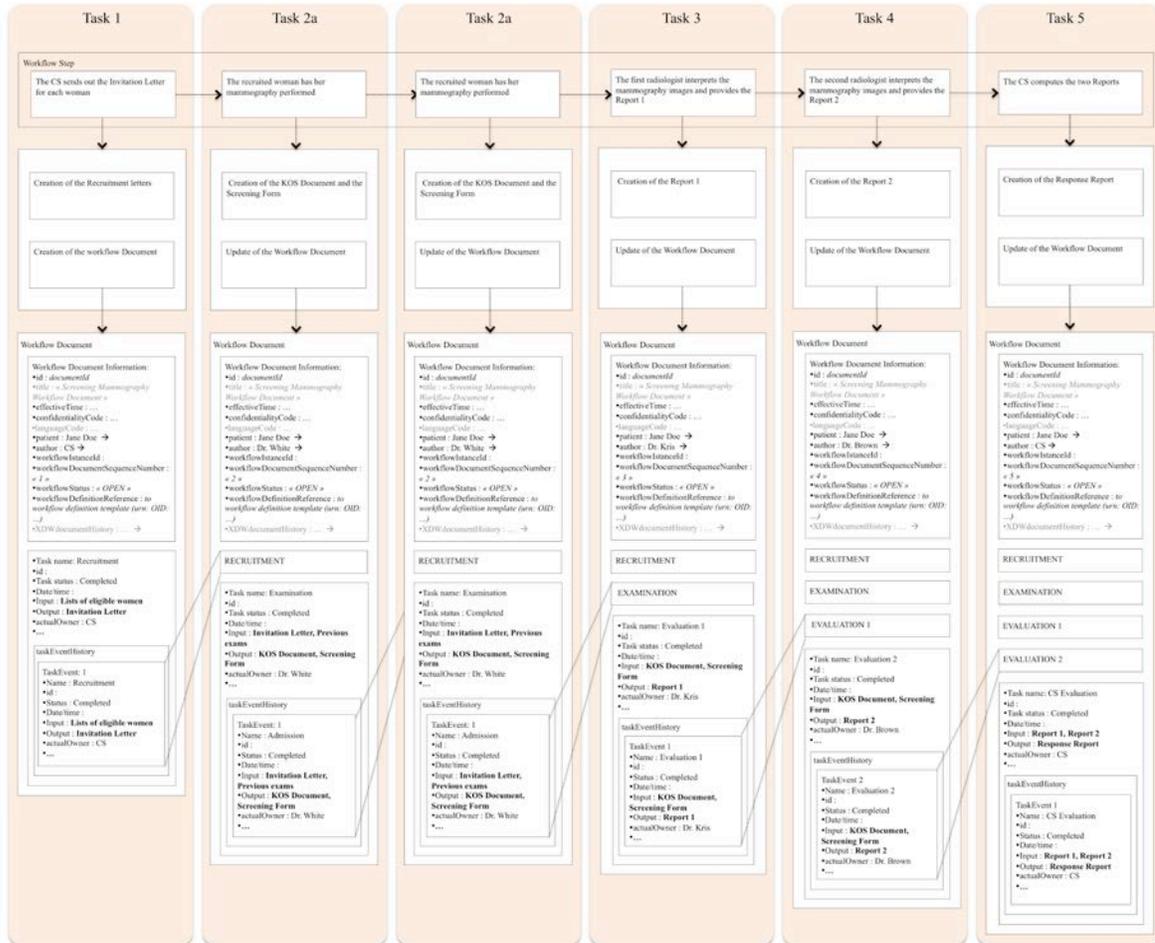
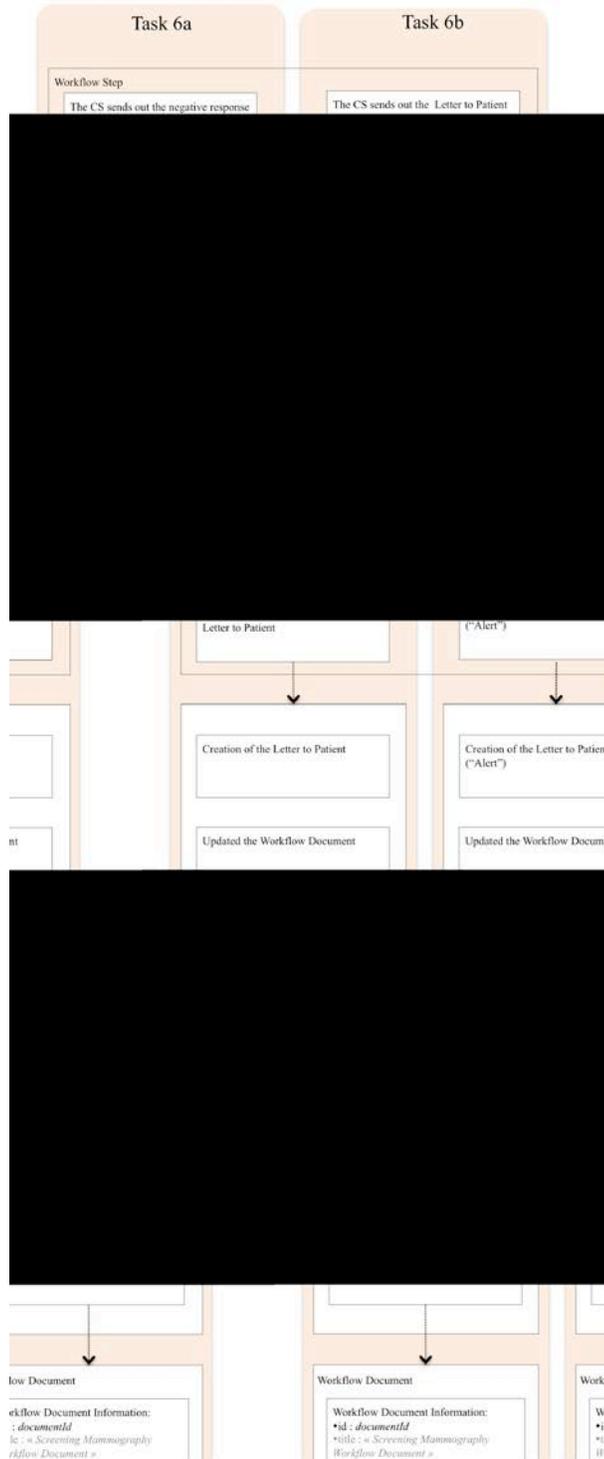


Figure 3.1.3-4: Workflow Document Tasks: 1 – 5



505

Figure 3.1.3-5: Workflow Document Tasks: 6a – 6b

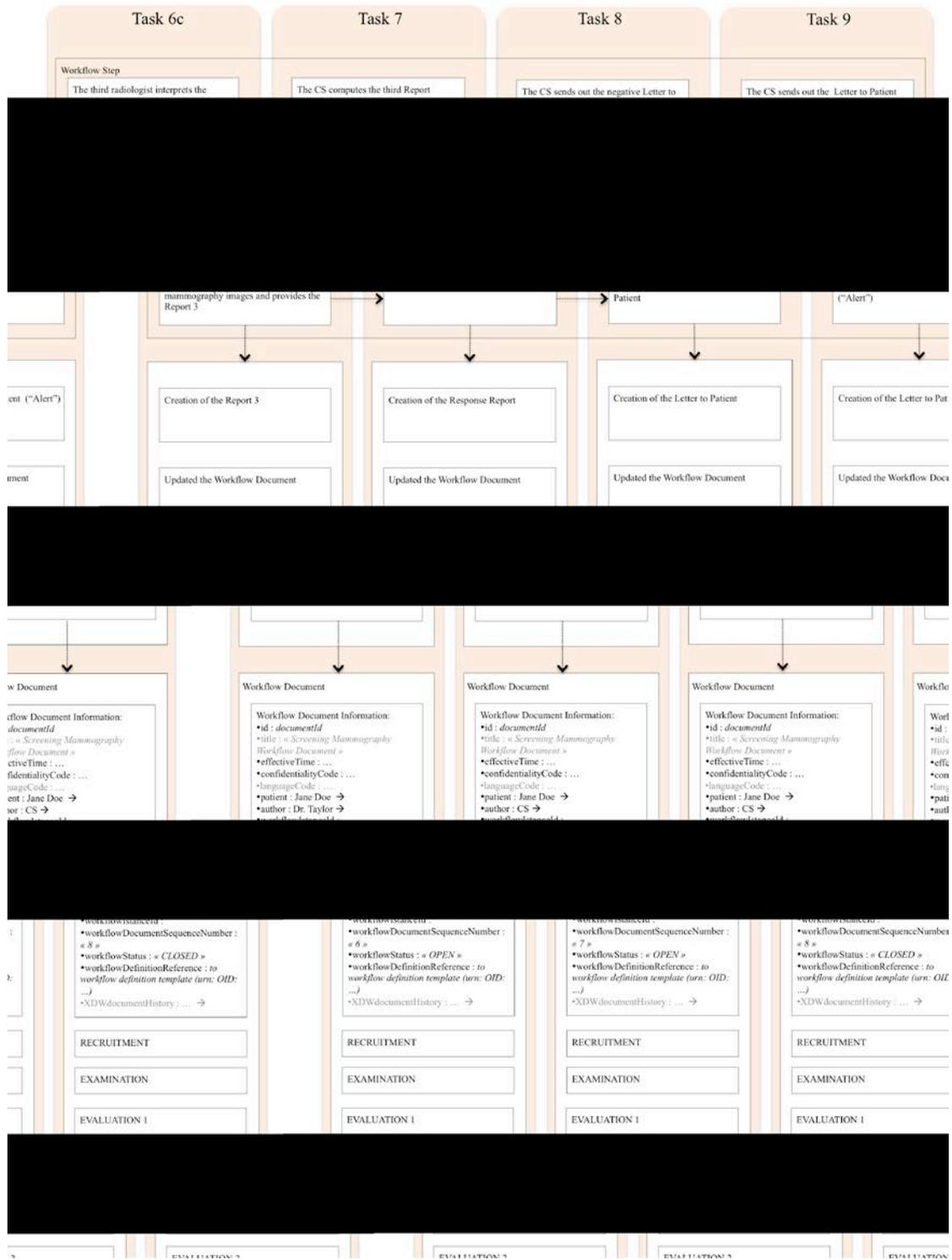


Figure 3.1.3-6: Workflow Document Tasks: 6c – 9

## 3.2 Detailed Process Flows

510 The following sections highlight the process flow which contributes to a better understanding of the management of Mammography Screening programs. Possible pathways, from the selection of the candidates in order to pre-schedule the appointments, to the actions to be taken based on the results are taken into account. The process flow schema displayed for each use case, indicate the basic process progress using mainly the XDS profile. Additionally the Document Metadata Subscription (DSUB) profile or the Notification of Document Availability (NAV) profile could be used to manage the notifications across the task sequence.

The use cases represent the Italian, the French and the Canadian (Ontario) Breast Screening Programs.

### 3.2.1 Italian Use Case

520 For each subject recruited by the CS a separate Workflow Document recording specific workflow information elements and attributes will be created.

The CS which is grouped with a XDW Content Creator shall:

- Generate the First Version of the XSM-WD Workflow Document with the Description information, the Recruitment task setting as “Completed” the task’s status including the Input/Output Document References
- Submit the Workflow Document to the Document Repository by using the XDS Provide and Register Document Set-b [ITI-41] which shall register its metadata in the Document Registry with the transaction Register Document Set-b [ITI-42]

530 From the Workflow Document point of view there are several pieces of information that need to be collected (please refer to the ITI XDW Profile Content Specification Sec. 5.4.3), for example:

Workflow Document Information:

- id : documentId
- title : « Screening Mammography Workflow Document »
- effectiveTime : ...
- confidentialityCode : ...
- languageCode : ...
- patient : Jane Doe
- author : CS
- workflowInstanceId : ...
- workflowDocumentSequenceNumber : « 1 »
- workflowStatus : « OPEN »
- workflowDefinitionReference : to workflow definition template (urn: OID:...)

- XDWdocumentHistory : ...

545 **Task 1: RECRUITMENT**

The Central Information System (CS) is responsible to start the screening process. In this task the CS shall send the Invitation Letters to the patients and create the first version of the Workflow Document for each appointment.

550 The workflowDocumentSequenceNumber starts from the value « 1 » and will be incremented by one for each update of the Workflow Document in the Screening Process evolution.

The workflowStatus « OPEN » means that the Workflow Document can be updated when the following task in the screening process takes place.

The author in most of the cases is the last task's actual Owner.

555 Initially, there will only be one taskEvent which is the unitary element including the description of a task, conveying basically the enrollment features of the screening:

taskData

- Name : Recruitment
- id: ...
- Status : Completed
- 560 • Date/time: ...
- Input: **Eligible woman information (documentId) - Optional**
- Output: **Invitation Letter (documentId)**
- actualOwner: CS
- ...

565 The input “Lists of eligible women” includes the selected patient “Jane Doe’s” data. The output of the task shall be used as input for the following task: in this case the Invitation Letter is included in the Workflow Document information and shall be used to obtain the patient data from the Order Filler that could be the Radiology Information System (RIS) or another departmental Information System which manages the scheduling of the new order for each  
570 screening mammography examination. The use case description will focus on Workflow Document changes and leaves the radiological workflow delineation to the Scheduled Workflow (SWF) which is assumed to be implemented in this context.

From this moment the Content Consumers/Updaters are grouped with each actor involved in the screening process. They are in charge to respectively retrieve/modify the Workflow Document.

575 At each task they will:

- Get the only “Approved” version of the Workflow Document: the Content Consumer queries the Document Registry with the transaction Registry Stored Query [ITI-18] and uses the recalled metadata to retrieve the Workflow Document by using the transaction Retrieve Document Set-b [ITI-43]
- 580 • Update XSM-WD Workflow Document Description elements
- Include the new task, added to the content of the latest Workflow Document version, with its own Input/Output Document References
- Save all changes in a new Workflow Document
- 585 • Submit the updated Workflow Document to the Document Repository by using the Provide and Register Document Set-b [ITI-41] transaction

The Document Repository forwards the new Workflow Document metadata to the Document Registry with the transaction Register Document Set-b [ITI-42].

#### **Task 2a: EXAMINATION**

- 590 From this point the Workflow Document is processed by the Content Updater grouped with the actor in charge of the modification which changes at least the fields “author” and “workflowDocumentSequenceNumber”. In the second section a further taskEvent element will be added to the Workflow Document and it is filled with its specific’s task data.

595 The Workflow Document will be updated by the Document Source (or another Actor in charge) according to the rules explained in the end of the previous task.

600 The patient arrives at the facility and is admitted. Her exam’s data are sent to the acquisition modality’s worklist, the technologist performs the mammography examinations and the mammographic modality (Imaging Document Source) produces the KOS Document (See specification in XDS-I.b Supplement: 4.68.4.1.2.1), and submits the document with the associated metadata to the Document Repository which registers the metadata in the Document Registry. The KOS Document and the Screening Form represent the Output in the Workflow Document for this task.

#### **Task 2b: NO ADMISSION**

- 605 If a woman misses the appointment the entire process and the workflowStatus will be set to “CLOSED” by the ADT (or the CS).

610 The Output will be the “No Admission Doc” or another legacy solution to track the missed appointment. The final author and owner is the ADT Operator (or the CS). Assuming that the ADT (or the CS) is grouped with a Content Consumer and a ContentUpdater it will update the Workflow Document according to the updating rules explained at the end of the Task 1.

### **Task 3: EVALUATION 1**

615 The first radiologist in charge to evaluate the mammography images is added as author and owner of this task. The doctor retrieves the images from the PACS using the attributes included in the KOS Document (Please refer to XDS-1.b for additional level of specification). In this White Paper it is assumed to be implicit the selection of the information and the retrieve of the Mammography images from the Image Archive/Image Document Source or from the XDS Repository. After the interpretation of the images the radiologist produces the Report 1 (Output for the Workflow Document for this task).

620 The radiologist workstation RIS is assumed to be grouped with a Content Consumer and a Content Updater in order to retrieve the last version of the Workflow Document, to update and release it according to the updating rules explained at the end of the Task 1.

### **Task 4: EVALUATION 2**

625 For this second evaluation the author/owner will be the second radiologist whose Report 2 will be created in the same fashion as the first report. The second radiologist will dispose of the KOS Document and the woman's screening information except the first report. The Workflow Document is updated and all the task data (author/owner ...) are added.

630 The case with more potential Content Updaters working in the same time, which modify and add new data using a common latest version of the Workflow Document, shall succeed only for the first Content Updater who submits it. The lifecycle management of the workflow document does not allow concurrent editing (Please see section 3.3.1.2). In fact the other(s) would submit the Workflow Document with the documentUniqueID of a "Deprecated" Workflow Document and this fact cannot be accepted: an error occurs and the Content Consumer shall retrieve again the actual last version of the Workflow Document to allow the current updating of the Workflow Document.

635 When the second radiologist is established, her/his Content Consumer shall always refer to the Evaluation 1 Workflow Document (by checking the Workflow Document Description) to avoid this kind of errors:

- 640
- The second radiologist will not see the screening images on his/her worklist until the first one has finished his/her evaluation (sequential double reading)
  - Retrieve of the "actual" Workflow Document and update of it only at the end of each Evaluation (for these two tasks)

645 The pre-identification of the radiologists in charge for each reading is a rigid workflow strategy: it would bind the interdependence of the Task 3-4 and eventually the Task 6c as well as the interchangeability of the radiologists; therefore it is necessary to take into account these aspects before adopting this approach.

650 **Task 5: CS EVALUATION**

At this point of the process the role of the CS is crucial in order to settle the end of the screening process or to ask for the third radiologist opinion. The CS grouped with a Content Consumer retrieves the only “Approved” version of the Workflow Document by querying the Document Registry with the transaction Registry Stored Query [ITI-18] and by retrieving the Workflow Document by using the transaction Retrieve Document Set-b [ITI-43]. The Workflow Document contains references to the two Reports to be retrieved to perform the CS evaluation and to generate the ResponseReport.

655

Once the CS is able to interpret the two Reports then there are three cases which could generate a different ResponseReport:

660

- 2 Negative reports: the CS ResponseReport (--) lead to the Task 6a
- 2 Positive reports: the CS ResponseReport (++) lead to the Task 6b for the second level of the screening
- 2 Discordant reports: the CS ResponseReport (+-) lead to the Task 6c which implies the third radiologist evaluation

665

The CS submits the new version of the Workflow Document as explained in the end of the Task 1.

The type/format standard of the report (for example DICOM SR Template 4200 “Breast Imaging Report”) is subject of discussion because of the interpretability of the fields.

670 **Task 6a: END 1**

The Task 6a occurs when the CS Evaluation provides a ResponseReport (--) which is triggered when the two reports are both “negative”.

The CS sends a letter with the negative response to the patient and updates the Workflow Document according to the steps explained in the end of the Task 1. It sets the workflowStatus to “CLOSED” which implies the end of the screening process.

675

**Task 6b: SECOND LEVEL 1**

The ResponseReport (++) entails the Task 6b which represents the start of a second level of the screening treatment. In this use case the second level of the screening is not included so the CS sends the “Alert” Letter to the patient and updates the Workflow Document. In this task the CS is in charge to update the Workflow Document as explained in the end of the Task 1 and will set the workflowStatus “CLOSED”.

680

685

### **Task 6c: EVALUATION 3**

690 After the CS Evaluation if there are discordant reports a third radiologist evaluation occurs. In the Evaluation 3 Task the author/owner will be the third radiologist whose Report 3 will be created in the same fashion as the reports of the two previous radiologists. The Workflow Document is updated adding all the task data (author/owner ...) in the same way that was explained in the end of the first task.

### **Task 7: RESPONSE**

695 After the submission of the Report 3, the CS shall settle the screening process according to the result. As explained before, the CS Content Consumer retrieved the latest version of the Workflow Document by querying the Document Registry with the transaction Registry Stored Query [ITI-18] and by retrieving the Workflow Document by using the transaction Retrieve Document Set-b [ITI-43]. The Workflow Document contains the reference to the third Report to be retrieved in order perform the last CS evaluation and to generate the ResponseReport.

700 If the Report 3 is “Negative” the CS creates a ResponseReport (-) and the following task shall be the Task 8, on the other hand, if the Report 3 is “Positive” the CS generates a ResponseReport (+) which shall lead to the Task 9.

705 As mentioned before, the type/format standard of the report (for example DICOM SR Template 4200 “Breast Imaging Report”) is subject of discussion because of the interpretability of the fields.

### **Task 8: END 2**

710 The ResponseReport (-) entails the Task 8 of the process. The CS sends a letter with the negative response to the patient, updates the Workflow Document previously retrieved and submits it to the Document Repository. According to the steps explained at the end of the Task 1 section it sets the workflowStatus to “CLOSED” which implies the end of the screening process.

### **Task 9: SECOND LEVEL 2**

715 In presence of the ResponseReport (+) the second level of the screening treatment shall take place. In this use case the second level of the screening is not part of this text. The CS will send the “Alert” Letter to the patient and update the Workflow Document. Updates of the Workflow Document will occur as explained in the end of the Task 1. The workflowStatus will be set to “CLOSED”.

720 The figures below show how the Workflow Document grows through the different tasks of the process. Furthermore examples for the attributes are depicted.

In particular the following Figure 3.2.1.1-1 illustrates the shortest possible path which occurs when a woman misses her scheduled appointment (Task 1 and Task 2b). In the Figure 3.2.1.1-2

725 the process up to the Task 5 is explained from the startup sequence to the end of the double reading of the mammography exam. The Figure 3.2.1.1-3 and Figure 3.2.1.1-4 illustrate the first two closing tasks and the Figure 3.2.1.1-5 the tasks from the third reading to the two possible final Tasks.

### **3.2.1.1 Process Flow**

730 The use case's process flow is illustrated in the following figures and includes the main actors, actions and transactions (internal or XDS). The tasks box shall occur according to the rules of the use case.

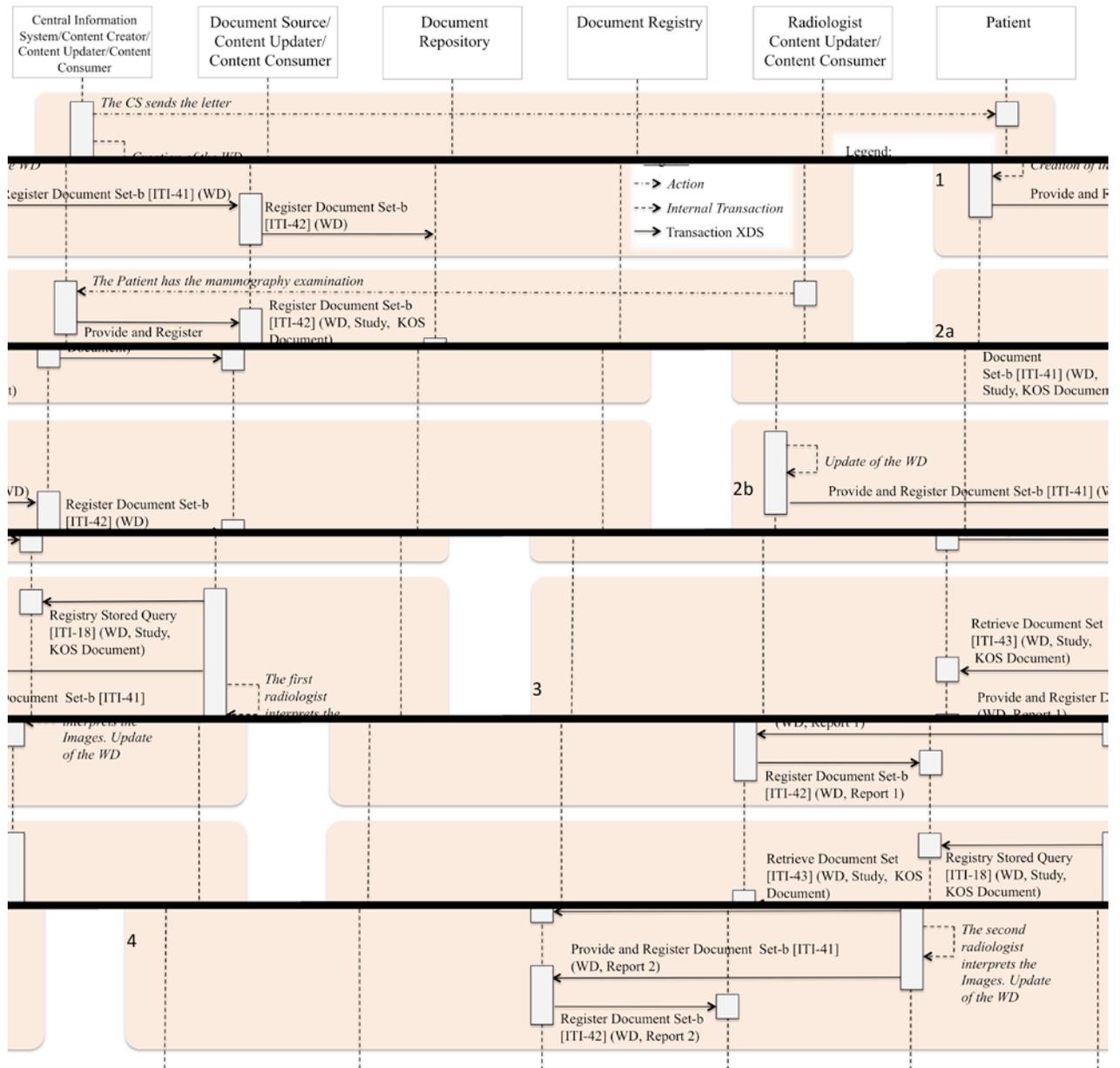
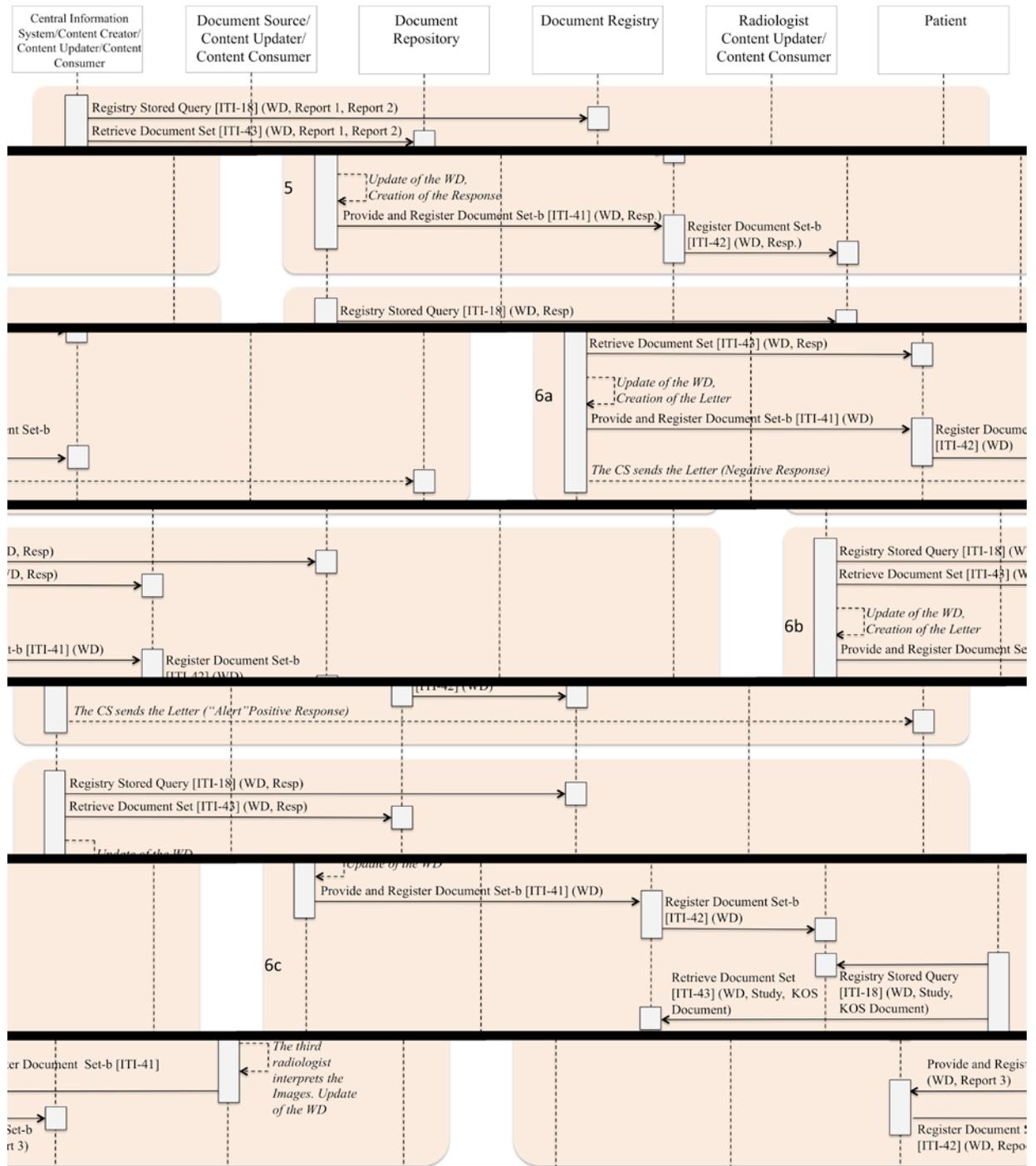


Figure 3.2.1.1-1: XSM-WD Basic Process Flow Tasks: 1 – 4



735

Figure 3.2.1.1-2: XSM-WD Basic Process Flow Tasks: 5 – 6c

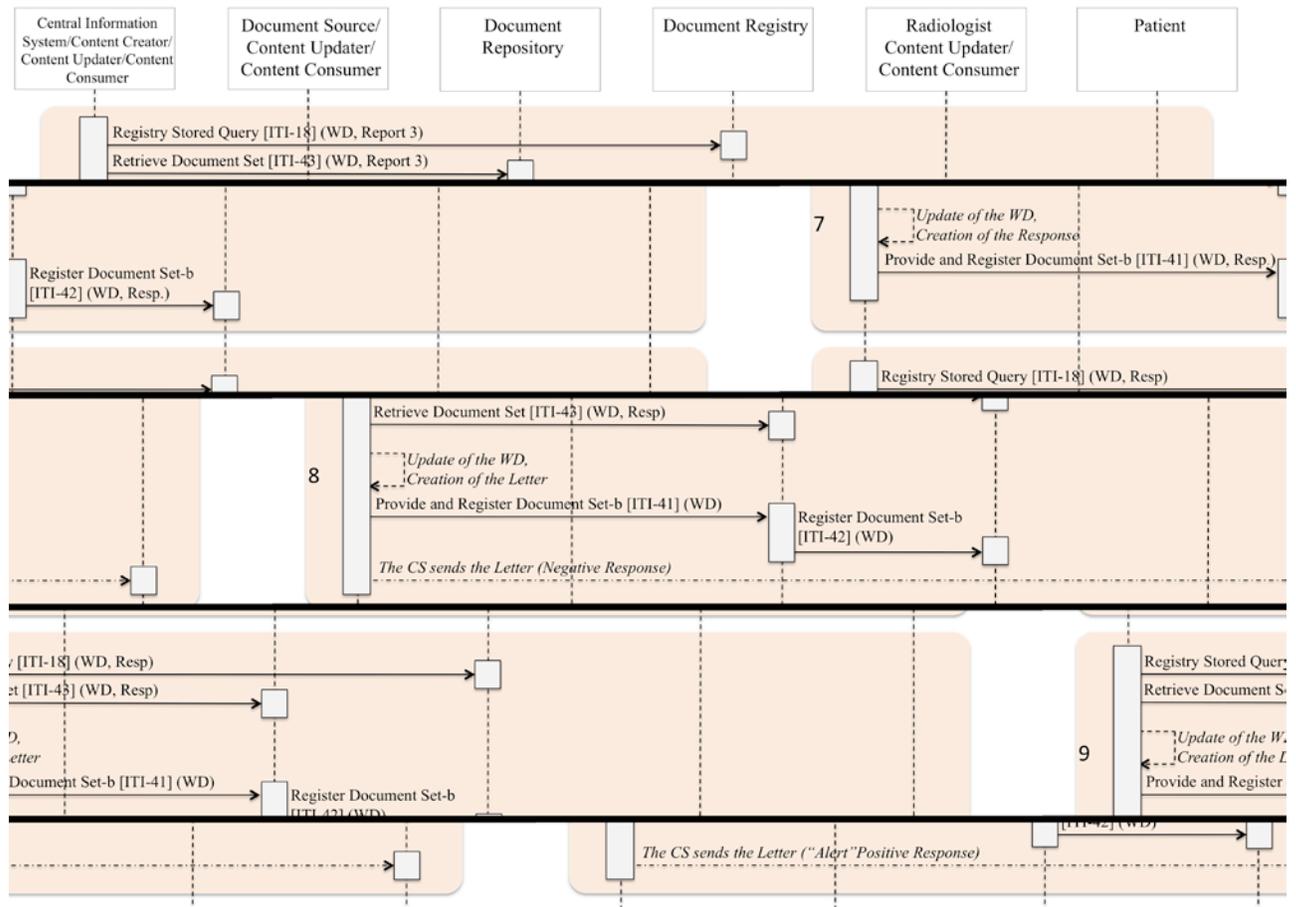


Figure 3.2.1.1-3: XSM-WD Basic Process Flow Tasks: 7 – 9

740 In the Tasks 5 to 9, the CS makes queries to retrieve the WD, Reports and Response. Depending on the implementations, the last two kinds of document's queries could be submitted after the WD's retrieve.

745

750 **3.2.2 French Use Case**

The French mammography screening program is composed of the following Tasks with the respective features:

**Task 1: OGD RECRUITMENT**

755 The OGD IS (Information System) sends invitation letters to women between 50 and 74, each two years. Invitation includes labels with name, birth date, screening turn reference (month and year), screening ID and often a barcode and the list of facilities agreed for screening. The woman calls radiology facility for an appointment.

If no answer is received within three months a reminder is sent.

760

**Task 2: EXAMINATION**

The day of the appointment the woman is identified in the RIS and the work list is updated  
Mammography exam is performed and sent to PACS and/or reading workstation.

765 Radiologist performs physical examination reads mammograms. If necessary, performs an ultrasound examination.

**Task 3: EVALUATION A**

770 Radiologist dictates the full report and completes the screening interpretation form on the reading workstation. The implementation of the screening interpretation form on the station is an open issue in the OGD. In some cases, the secretary types the report in the RIS.

Then the full examination reports (mammography views, ultrasound views if done, full report, screening interpretation form) are sent by the radiologist to the OGD IS.

**Task 4: EVALUATION B**

775 OGD IS dispatches the received folder to several second reading workstations (in the workflow the BI-RADS 1-2 cases are taken into account in order to provide the complete Workflow Document Tasks description).

Second reader performs his reading and fills his section of the screening interpretation form.

780 **Task 5: COMPARISON EVALUATION (OGD EVALUATION or EVALUATION 3)**

In this Task the OGS employer analyzes the results and if the first and the second reading match (both positive and negative results) then the OGD IS sends a letter to woman and referring physician and archives the folder.

785 If no match, folder is submitted to OGD scientific committee for the third advice and for the final decision.

**Task 6a: END 1**

790 If the first and the second reading are positive then the OGD IS sends a letter to the woman and to the referring physician and archives the folder.

**Task 7a: Positive Findings**

If the first and the second reading are both negative then the OGD IS sends an alert letter to the woman and to the referring physician and archives the folder.

795 **Task 8: COMPARISON EVALUATION (OGD EVALUATION or EVALUATION 3)**

If there are two discordant results, the entire folder is submitted to OGD scientific committee for the third advice and for the final decision.

**Task 6b: END 1**

800 If the OGD committee decides that the woman’s screening result is negative then the OGD IS sends a letter to the woman and to the referring physician and archives the folder.

**Task 7b: Positive Findings**

805 If the OGD committee decides that the woman’s screening result is positive then the OGD IS sends an alert letter to the woman and to the referring physician and archives the folder.

Some key issues for this use case:

- Management of IDs:
    - INS (National ID in France)
    - 810 • HIS/RIS IDs
    - ODG ID
  - Discussion between DICOM SR and HL7 CDA for report and screening interpretation form
  - Trigger mechanism for sending folder to the ODG
- 815

### 3.2.2.1 Process Flow

The use case's process flow is illustrated in the following figures and includes the main actors, actions and transactions (internal or XDS). The tasks shall occur according to the rules of the use case. The XDS compliance depends on the level of the radiology facility.

820

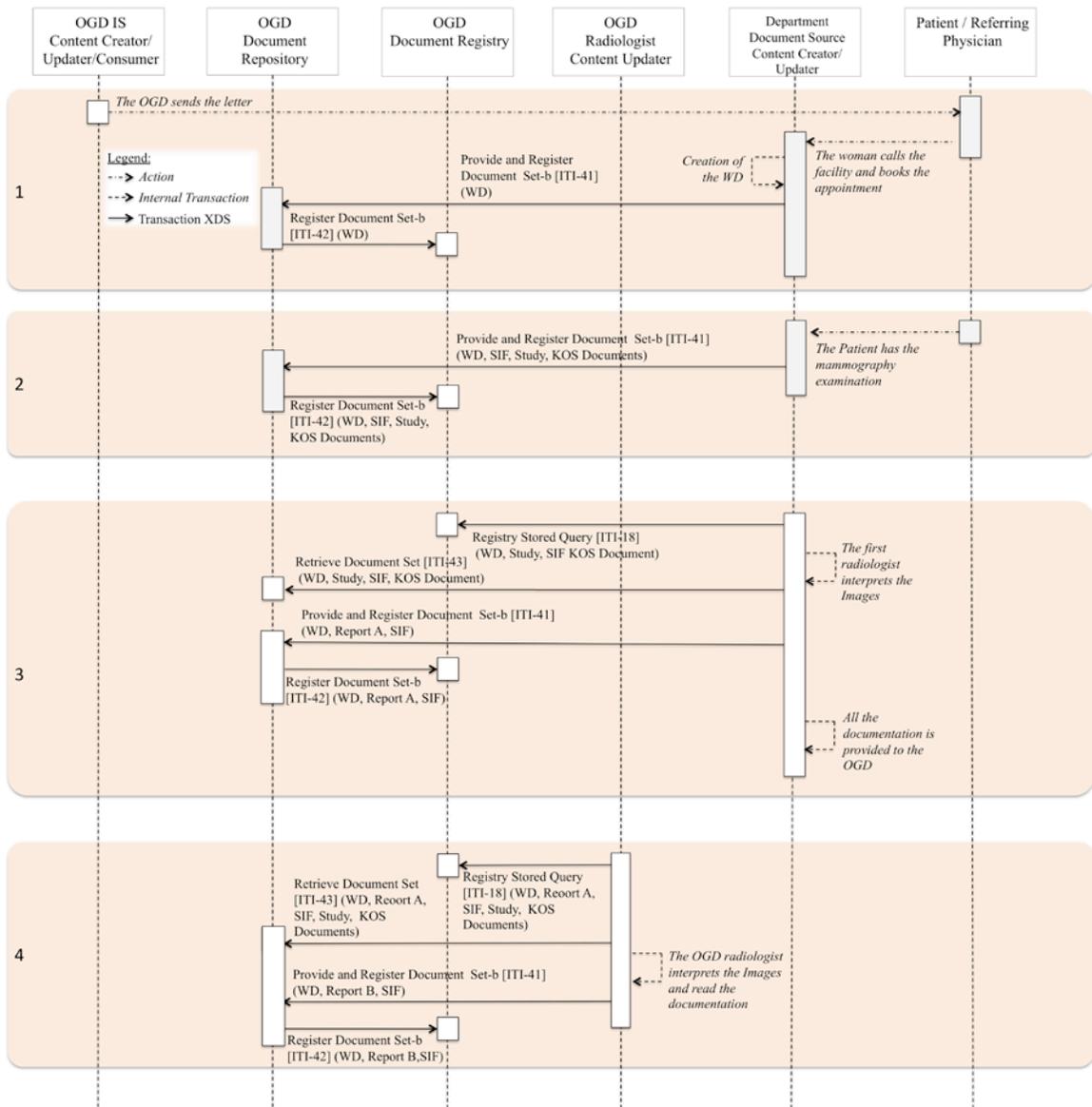
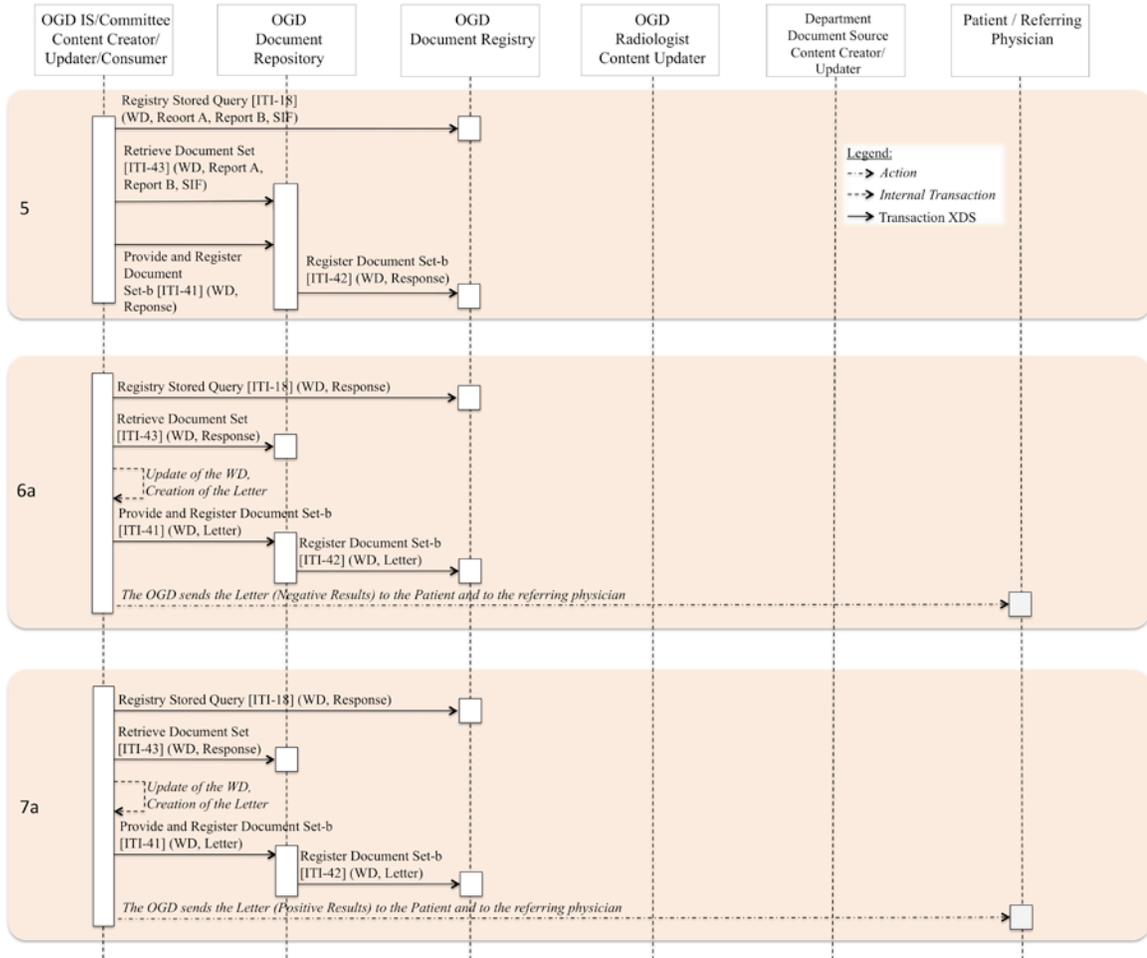


Figure 3.2.2.1-1: XSM-WD Basic Process Flow Tasks: 1 – 4



825

Figure 3.2.2.1-2: XSM-WD Basic Process Flow Tasks: 5 – 7a

830

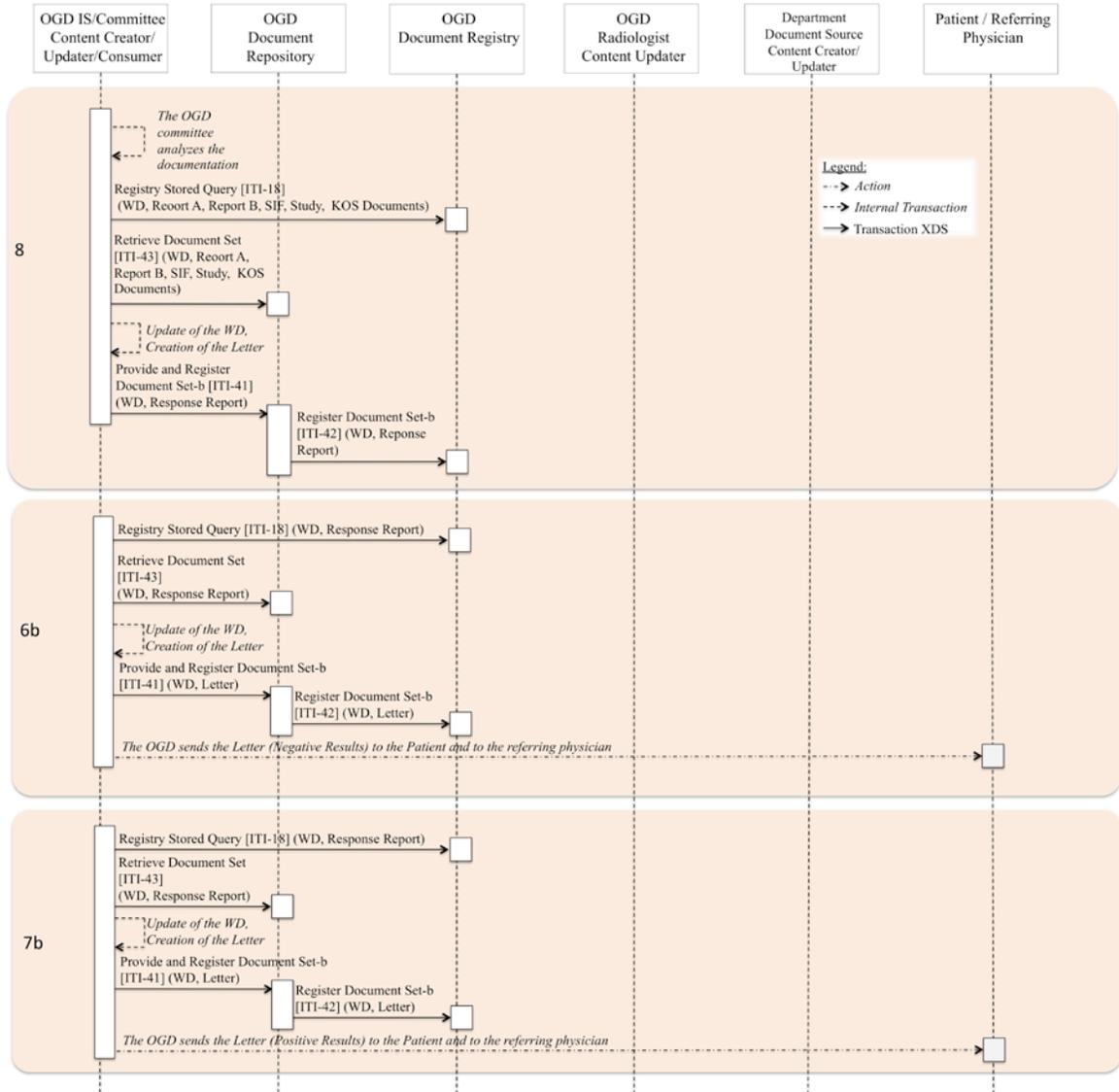


Figure 3.2.2.1-3: XSM-WD Basic Process Flow Tasks: 8 – 7b

840 **3.2.3 Ontario Use Case**

**Task 1: RECRUITMENT**

Within the OBSP, Recruitment and Scheduling are two completely separate processes. There are legal reasons for this, having to do with Canadian privacy regulations.

845 Recruitment in Ontario focuses on raising awareness of the OBSP and the benefits of breast screening in general. Canadian privacy regulations preclude targeted mail outs by the OBSP to women 50+, or booking appointments without prior consent.

850 General Practitioners (GPs) are invited to participate in the recruitment program by promoting the OBSP to their patients. To this end, GPs are asked to send personalized letters of invitation to participate in the OBSP from the GPs to their eligible patients (optionally, the OBSP can perform the work and cover the costs involved in doing this).

Additional recruitment outreach programs take place at the regional level, to reach target populations (specific ethnicities, neighborhoods, etc.) within the region.

855 One month before woman's next visit is due, a reminder letter is sent to her in order to encourage her to book her next visit. For the purposes of this document this is considered a form of organized recruitment.

*Eligible women are:*

Normal risk:

- 50+ years old;
- 860 • No personal history of breast cancer;
- No acute symptoms;
- Without implants;
- Have not had a mammogram within the last 11 months.

High risk:

- 865 • 30 - 69 years old;
- Referred by their physician;
- Have no acute breast symptoms;
- Meet one of the following conditions:
  - identified through genetic testing as a carrier of a deleterious gene mutation;
  - 870 • declined genetic testing but is a first degree relative of a mutation carrier;
  - family history consistent with a hereditary breast cancer syndrome and estimated personal lifetime cancer risk  $\geq 25\%$  using the IBIS Genetic Breast Cancer

Predisposition Tool or the BOADICEA Model of Genetic Susceptibility to Breast Cancer;

- 875
- received chest radiation treatment for another condition before the age of 30 and at least 8 years previously.

## **Task 2: SCHEDULING**

880 A screening appointment is made by the woman herself, by calling an OBSP site and arranging a convenient time, or through the woman's GP doing the same. Each Screening Facility performs its own scheduling and worklist management. Scheduling data is then communicated to the CS.

### *Players:*

- Subject - resides within Ontario;
- OBSP Central Office - located in Toronto, Ontario;
- CS - resides at OBSP Central Office;

885

- OBSP Screening Facility - located somewhere in Ontario, within one of the 8 regions;
- RIS - located at OBSP Screening Facility;
- CS Terminal - located at OBSP Screening Facility;
- OBSP Regional Centre - located in Ontario, in one of the 8 regions into which the province is subdivided;

890

- General Practitioner (GP) - located within Ontario.

### *Main flow:*

- Woman becomes aware of OBSP and necessity of attending screening;
- Woman calls OBSP site and makes an appointment for breast screening;
- Appointment scheduled in RIS at Screening Facility;

895

- Some preliminary demographic information is collected by Screening Facility staff;
- Priors are located and requested, if they are in another location;
- CS is notified of upcoming appointment, demographics, and request for priors.

### *Alternate flows:*

#### Alternate flow: Recruitment by GP

- 900
- Woman's GP sends her a letter of invitation to participate in OBSP;
  - Woman agrees to participate;
  - Woman's GP calls OBSP and makes appointment on her behalf for a screening;
  - Appointment scheduled in RIS at Screening Facility;

- Preliminary demographic information collected by Screening Facility staff;
- 905 • Priors are located and requested, if they are in another location;
- CS is notified of upcoming appointment, demographics, and request for priors.

Alternate flow: subject has already undergone screening within OBSP in previous years

- Two-year (or annual) follow-up letter sent to woman;
- Woman calls and makes appointment;
- 910 • Appointment scheduled in RIS at Screening Facility;
- Preliminary demographic information verified by Screening Facility staff;
- Priors are located and requested, if they are in another location;
- CS is notified of upcoming appointment, demographics, and request for priors.

Alternate flow: High-risk woman aged 30 - 69

- 915 • Woman requests genetic testing / assessment of hereditary risk;
- Woman found to be eligible for screening under high-risk classification;
- Woman's GP calls OBSP and refers her for high-risk screening, and makes appointments for mammographic screening and for breast MR;
- Appointment scheduled in RIS at Screening Facility;
- 920 • Preliminary demographic information collected by Screening Facility staff;
- Priors are located and requested, if they are in another location;
- CS is notified of upcoming appointment, demographics, and request for priors.

*Outcomes:*

- Appointment time and date established by screening facility, and recorded in RIS;
- 925 • Preliminary demographic information collected / verified;
- Priors are located and requested, if they are located at another facility;
- OBSP subject ID created within CS, if this is a new subject;
- CS notified of upcoming appointment(s);
- CS notified of demographics collected / verified to date;
- 930 • CS notified of request for priors, if applicable.

### **Task 3: ADMISSION**

935 On the day of her screening appointment, the subject presents herself at the screening facility. Some demographics are collected by the staff at the facility and forwarded to the CS. Relevant consent forms are signed.

*Players:*

- Subject - at Screening Facility;
- 940 • OBSP Screening Facility - within Ontario, within one of the 8 regions;
- RIS - resides at OBSP Screening Facility;
- CS Terminal - resides at OBSP Screening Facility;
- OBSP Central Office - in Toronto, Ontario;
- CS - resides at OBSP Central Office.

945 Appointment must have been arranged - subject must appear in Screening Facility's worklist

*Main flow:*

- Subject presents herself at Screening Facility at appointed date and time;
- Subject provides demographic information to administrative staff (or simply verifies this information, if she is a returning subject);
- 950 • Subject signs relevant consent forms (consents pertain to: screening results to be propagated to GP, OBSP to book any further assessments required, info for any further assessments to be propagated back to OBSP, consent to be contacted regarding participation in studies as applicable);
- Accession number is assigned by Screening Facility RIS;
- 955 • Administrative staff transcribes demographic information and information pertaining to consents, and forwards this data to CS at OBSP Central Office.

*Alternate flow:*

Alternate flow: Clinical history taken during Admission

- 960 • In addition to the flow described above, clinical history may be taken by Screening Facility Administrative Staff at time of Admission (at some Screening Facilities history is taken by Administrative Staff; at some facilities it is taken by the Nurse Examiner or Mammographic Technologist during Exam).

*Outcomes:*

- Demographic information (and perhaps clinical history) for patient (stored within CS);
- 965 • Consent forms (paper copy kept in patient's bag onsite; electronic copy of information sent to CS);

- Accession number assigned by Screening Facility RIS.

**Task 4: EXAM**

970 The subject is first given a physical breast exam, conducted by a trained Nurse Examiner. After the physical exam has been completed, a mammographic exam is performed by a Mammographic Technologist, consisting of 2-view mammography for each breast, plus any additional films deemed necessary or advisable by the Mammographic Technologist.

975 At some facilities where breast MR is offered, high-risk subjects are also examined using breast MR. This is typically done during a separate visit.

*Players:*

- Subject - at the Screening Facility;
- Nurse Examiner - at the Screening Facility;
- Mammographic Technologist - at the Screening Facility;
- 980 • PACS - located at the Screening Facility;
- RIS - located at the Screening Facility;
- CS Terminal - located at the Screening Facility;
- CS - located at OBSP Central Office;
- [Optional] MR Technologist - at the Screening Facility.

985 *Preconditions:*

- Ideally, priors will be available by the time the exam is performed, in order to allow the Mammographic Technologist to refer to them before performing the exam. However, priors are not required at the time of the exam;
- Subject was admitted.

990 *Main flow:*

- Physical breast exam: conducted by a trained nurse examiner. The results of this examination are recorded on a paper document that is kept in the patient's bag for the visit. The data from this form is later transcribed to electronic form by administrative staff at screening facility and transmitted to CS;
- 995 • Mammographic exam: 2-view mammography on each breast, plus any additional images that are deemed necessary or advisable by the technologist. Technologist's notes are recorded on a paper document that is kept in the patient's bag for the visit. The data from this form is later transcribed to electronic form by administrative staff at screening facility and transmitted to CS. Images obtained are stored in local PACS;
- 1000 • Exam added to reading worklist in RIS.

*Alternate flows:*

Alternate flow: Subject clinical history obtained by Nurse Examiner or Mammographic Technologist

- 1005
  - At Screening Facilities where clinical history is not obtained by Screening Facility Administrative Staff, it is taken by Nurse Examiner or Mammographic Technologist at the very beginning of the Exam;
  - Remaining flow for Exam follows that outlined above in "Main Flow".

Alternate flow: High-risk subjects

- 1010
  - Physical breast exam and mammographic exam are performed as described above;
  - Breast MR is used to image subject's breasts during a separate visit. Images from MR exam are stored in local PACS;
  - Exam added to reading worklist in RIS.

*Outcome:*

- 1015
  - Nurse Examiner's report (stored in bag; transcribed for CS);
  - Mammographic Technologist's notes (stored in bag; transcribed for CS);
  - Mammographic images (stored locally in PACS);
  - MR exam images [alternate flow] (stored locally in PACS);
  - Exam added to reading worklist in RIS.

1020 **Task 5: REPORTING**

1025 Reporting is performed by a Radiologist specialized in reading mammograms, who must meet CAR-MAP requirements (Canadian Association of Radiologists - Mammography Accreditation Program), as well as satisfying national guidelines set out in Quality Determinants of Organized Breast Cancer Screening Program, Health Canada (2003). The reading is performed as a single reading, and the use of CAD, if any, is at the discretion of the Radiologist. For most Screening Facilities, the reporting generally takes place at the location where the exam took place, but there are exceptions to this (one exception is the mobile van, and another exception is a site in a sparsely-populated location whose exams are read via teleradiology in a larger facility).

*Players:*

- 1030
  - Radiologist - usually performs reading at facility where images were acquired, but there are exceptions to this (e.g., exams from the Moose Factory screening facility are read in Timmins; images acquired in the mobile van are read in Thunder Bay);

- 1035
  - PACS - located at facility where images are read; in a teleradiology / mobile imaging situation, there will also be a PACS (or other image storage mechanism) at the facility where images were acquired;
  - RIS - located at facility where images are read;
  - CS Terminal - located at facility where images are read;
  - CS - located at OBSP Central Office.

*Pre condition:*

- 1040
  - Images and all applicable reports / notes from exam must be available (Nurse examiner's report, mammographic technologist's notes);
  - [Alternate flow: MR images must be available];
  - Priors must be present for the reading (at least the previous set of images, but some centers use more when these exist);
- 1045
  - Radiologist must meet requirements set out in guidelines followed by OBSP (CAR-MAP and Health Canada's "Quality Determinants" guideline).

*Main flow:*

- 1050
  - A single radiologist reads the acquired images, optionally using CAD at his or her discretion. (The previous set of priors, if they exist, is displayed along with the current images.);
  - The radiologist makes use of his or her reading, in conjunction with the nurse examiner's report and the mammographic technologist's notes, and produces a recommendation (no significant findings / refer for assessment / annual recall / etc.);
- 1055
  - The radiologist makes his or her report on a paper form, or in some cases an electronic form, which is later transcribed to a proprietary format and sent to the CS;
  - The facility's RIS makes note of the fact that the exam has been read.

*Alternate flow:*

Alternate flow: high-risk subject, MR portion of exam

- 1060
  - A single radiologist reads and reports on the results of the MR exam (the mammography exam will occur at a different time);
  - The radiologist makes his or her report on a paper form (or in some cases an electronic form) which is later transcribed to a proprietary format and sent to the CS;
  - The facility's RIS makes note of the fact that the exam has been read.

*Outcomes:*

- 1065
  - Radiologist's report is produced;

- Contents of report are transmitted to CS.

### **Task 6: EVALUATION**

1070 The radiologist's recommendations are communicated to various stakeholders by the Screening Facility Administrative Staff. If abnormalities have been found, the Subject is referred for assessment, which may be managed by the OBSP (if consent for this has been given, and an OBSP-affiliated Assessment Centre exists nearby), or by the subject's GP (if assessment is to be handled by an external facility).

1075 The subject's GP is notified of the results of the screening exam by a letter sent to the GP immediately (requirement is within 2 weeks, but in practice this occurs much faster). The subject herself is notified of results by letter, which is sent out 2 weeks after the letter to her GP.

The results of any assessment that occurs are propagated back to the OBSP Central Office, if consent has been given by the subject (this occurs >98% of the time).

#### *Players:*

- 1080
- Screening Facility Administrative Staff - located at Screening Facility;
  - General Practitioner (GP) - located somewhere in Ontario;
  - Subject- located somewhere in Ontario;
  - Assessment Centre - located somewhere in Ontario;
  - CS - located at OBSP Central Office.

1085 *Pre conditions:*

- Radiologist's recommendations must be available;
  - Subject's instructions regarding who should be notified of screening results should be in place;
  - Subject consents regarding assessment (who should refer, communication of assessment results) must be signed or decline.
- 1090

#### *Main Flow:*

- Notification of screening results is sent to GP by Screening Facility Administrative Staff (within 2 weeks max, but in practice, results are sent out immediately);
  - Two weeks after the results sent to the GP, Screening Facility Administrative Staff send a letter to the subject herself, notifying her of the screening results;
  - If further assessment is recommended, OBSP refers subject to Assessment Centre;
  - If subject consent is in place, results of assessment are propagated back to OBSP.
- 1095

*Alternate Flows:*

Alternate flow: GP to refer for assessment

- 1100
- Notification of screening results is sent to GP by Screening Facility Administrative Staff (within 2 weeks max, but in practice, results are sent out immediately);
  - Two weeks after the results sent to the GP, Screening Facility Administrative Staff send a letter to the subject herself, notifying her of the screening results;
  - If further assessment is recommended, GP refers subject to external Assessment Centre;
- 1105
- If subject consent is in place, results of assessment are propagated back to OBSP.

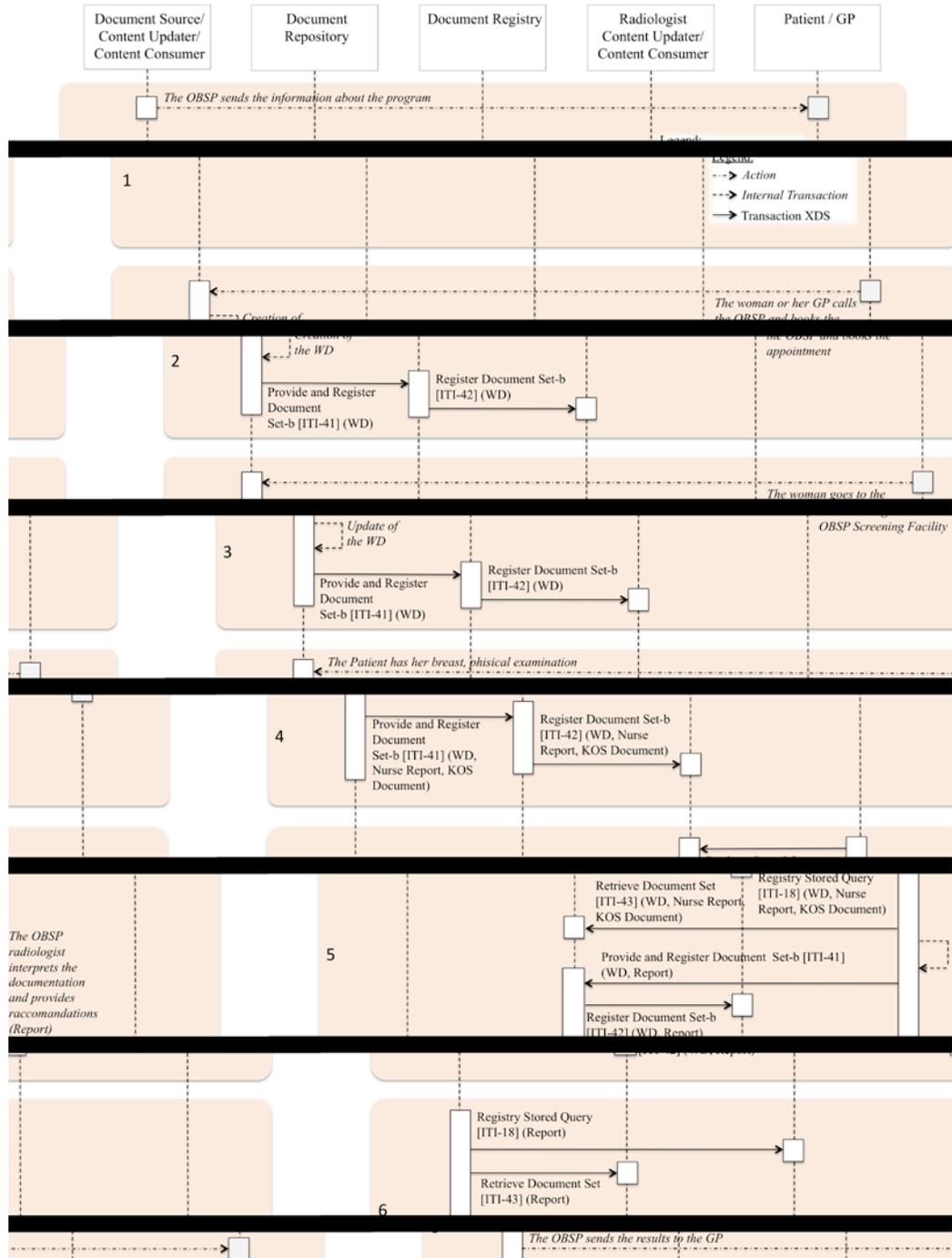
Alternate flow: subject wishes to be notified directly of screening results, without intermediary GP

- Notification of screening results is sent to subject by Screening Facility Administrative Staff (within 2 weeks max, but in practice, results are sent out immediately).
- 1110
- Outcomes*
- Radiologist's recommendations;
  - Letter to GP;
  - Letter to subject;
  - Assessment results.

1115

### **3.2.3.1 Process Flow**

The use case's process flow is illustrated in the following figures and includes the main actors, actions and transactions (internal or XDS). The tasks box shall occur according to the rules of the use case.



1120

Figure 3.2.3.1-1: XSM-WD Basic Process Flow Tasks: 1 – 6

### 3.3 Use Cases Workflow Document

1125 In the second chapter, the Italian, French and Ontario’s Screening program have been explained with all their tasks for each possible sequence path: positive or negative results in single reading, double blind reading as well as in the case where a third reading is needed to be performed. As mentioned before, this text does not include the Second Level of the Mammography Screening analysis which is out of the scope of this White Paper: for further Workflow Document  
 1130 specification to manage this issue, please see the Cross Enterprise Tumor Board Workflow Definition Profile.

#### 3.3.1 Workflow Definition Identifier and management

1135 This workflow is assigned a specific OID that shall be used to assign an identifier to the workflowDefinitionReference element of a Workflow Document that tracks a mammography screening process.

type of Workflow	Workflow Definition Reference
MammoScreening workflow	a.a.a.a.a.a.aaaa.a.a.a.a.a

#### 3.3.1.1 Workflow Opening and Closing

1140 The Screening Mammography Workflow shall be opened by an actor which represents the Content Creator (Example: Central Information System which is in charge to enlist all the eligible women). The participant responsible of closing the Workflow shall be a Content Updater (Example: Central System or the ADT where the No Admission - Task 2b of the Italian use case is performed by this actor).

1145 Each task shall be characterized by a number of attributes which allow a baseline description for the contents of the Workflow Document during the Mammography Screening. For example the “Task dependencies” establishes which tasks come before the current task and which task are possible after it (ancestor and successor Tasks).

1150 The XSM-WD Workflow Definition does not introduce new metadata and all the metadata elements used are the common XDS document metadata specified in ITI TF-3:4.1.5 and in ITI TF-3:5.4.6. In this section only the use of some specific metadata for the use of XDW in the XSM-WD context is specified.

**Table 3.3.1.1-1: XDS Metadata Attribute Definition**

XDS Metadata Attribute	Definition
typeCode	For the Workflow Document which tracks the XSM-WD process the code for the typeCode shall be: This code will be assigned by LOINC.
classCode	For the Workflow Document which tracks the XSM-WD process the code for the classCode is defined by the XDW profile. See XDW Supplement Section 5.4.6.1.

XDS Metadata Attribute	Definition
eventCodeList	<p><b>Rule 1:</b> A XSM-WD workflow shall be created with code OPEN and shall remain in this status until it is set to CLOSED.</p> <p><b>Rule 2:</b> A XSM-WD workflow should be set to CLOSED when: - one of the tasks has the status FAILED; or - when you complete the workflow final response tasks in status COMPLETED. See ITI TF-3: 5.4.5.7 for a general description of this attribute.</p>
serviceStartTime	It is the time at which work began on the first task for this workflow.
serviceStopTime	<p>It is the time at which the status of the overall Workflow is changed from OPEN to CLOSED.</p> <p>It shall be empty when the workflow is still in OPEN state.</p>

### 3.3.1.2 XDW Workflow lifecycle management

1155 The XSM-WD, as well as XDW, uses the XDS lifecycle management tools to perform changes to the Workflow Document instead of requiring an integration of all the different task management systems in the different organizations. The coordination in a screening workflow needs to be accomplished taking into account each program’s approach. The task management shall be defined for every step in the mammography screening and each potential race condition has to be detected and analyzed considering time and involved actors. In order to reach the correct Workflow Document update during the entire screening path, each institution board shall define organizational rules to avoid conflicts and malfunctions.

1160

For example: “the replacement of a Workflow Document which has been already replaced” condition. This event occurs when an actor B tries to replace a Workflow Document instance and an actor A replaces it before actor B. Considering the XDS lifecycle management, the XDS Document Registry does not allow to record the Workflow Document that has been sent from the actor B. The actor B which is an XDW Document Creator or Update (as well as the actor A), shall obtain again the most recent version of the Workflow Document which was updated by the actor A, check the evolution of the workflow, and perform a new content update. Although this kind of condition has a low frequency, every predictable potential case that might occur shall be inspected to reduce the chances for this type of events by adopting criteria and rules that every actor, in charge for a specific task function, must follow.

1165

1170

For example: focusing on the double blind reading tasks in the Italian workflow, after the end of the mammography examination, the images are available for the two radiologist’s interpretation. The problem can be avoided, for instance by assigning time windows or random schedulations for the first and second reading.

1175

### 3.3.2 XSM-WD Workflow Document: Italy Use Case

1180 For the specific task description see section 3.2.1. The following Table displays the workflow overview.

**Table 3.3.2-1: Workflow Description Overview – Italy Use Case**

Task Type	Requirement For task initiation	Task Statuses *valid when task initiated	Task Property	Input Docs	Option	Output Docs	Option
Recruitment	At XDW doc creation	COMPLETE D* IN_PROGRESS FAILED	Cardinality: 1..1 Removable: no	MSWoman Doc (Item from the list of eligible women)	R	InvitationLetter	R
NoAdmission	When the woman does not attend the appointment.	COMPLETE D* IN_PROGRESS FAILED	Cardinality: 1..1 Removable: no	InvitationLetter	O	NoAdmission Document	R
Examination	When the woman attend the appointment.	IN_PROGRESS COMPLETE D* FAILED	Cardinality: 1..1 Removable: no	InvitationLetter	R	KOSDocument	R
				PreviousExamItems	O	ScreeningForm	R
Evaluation	When the examination's Workflow Document is completed	IN_PROGRESS* COMPLETE D FAILED	Cardinality: 1..n Removable: no	KOSDocument	R	Report(i)	R
				ScreeningForm	R		
CSEvaluation	When the Evaluation Tasks are completed	IN_PROGRESS* COMPLETE D FAILED	Cardinality: 1..1 Removable: no	Report1	R	ResponseReport	R
				Report2	R		
End	When the Response Report (negative) is available	COMPLETE D* FAILED*	Cardinality: 1..1 Removable: no	ResponseReport	R	LetterToPatient	R

Task Type	Requirement For task initiation	Task Statuses *valid when task initiated	Task Property	Input Docs	Option	Output Docs	Option
SecondLevel	When the Response Report (positive) is available	COMPLETE D* FAILED*	Cardinality: 1..1 Removable: no	ResponseReport	R	LetterToPatient ("Alert")	R
Response	When the third Report (positive) is available	IN_PROGRESS* COMPLETE D FAILED	Cardinality: 1..1 Removable: no	Report3	R	ResponseReport	R

### 3.3.2.1 Task 1: Recruitment

Task attributes	Rules for the task "Recruitment"
Task id	Unique id of the instance of the task
Task type	Recruitment
Task name	Recruitment
Task description	Invitation of the eligible women to attend the mammography screening appointment.
Task dependencies	Ancestors: None Successors: NoAdmission, Examination
Status allowed	COMPLETED: A Recruitment task is always set to COMPLETED when created. IN_PROGRESS: If the recruitment has to be evaluated. FAILED: If the CS wants to abort the process just created.

Task attributes	Rules for the task “Recruitment”															
Status transactions	<p>If the CS needs to abort the Recruitment invitation there are the following transactions of status: from none to COMPLETED , from COMPLETED to IN_PROGRESS, IN_PROGRESS to FAILED</p> <table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>COMPLETED</td> <td>IN_PROGRESS</td> <td>release</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	COMPLETED	IN_PROGRESS	release	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType														
none	COMPLETED	create														
COMPLETED	IN_PROGRESS	release														
IN_PROGRESS	FAILED	fail														
IN_PROGRESS	COMPLETED	complete														
Input	MSWomanDoc (Item from the list of eligible women documentId)															
Output	InvitationLetter															
Owner	CS															
Owner changes	No															
<taskEvent>	1 if the CS does not need to abort the recruitment. 3 in the other cases.															
Task Removal allowed	No															
Task Duplication	No															

1185

### 3.3.2.2 Task 2b: No Admission

Task attributes	Rules for the task “No Admission”
Task id	Unique id of the instance of the task
Task type	NoAdmission
Task name	NoAdmission
Task description	The woman does not attend the appointment.
Task dependencies	<p>Ancestors: Recruitment</p> <p>Successors: None if the final status is COMPLETED, Examination if the final status is FAILED.</p>
Status allowed	<p>COMPLETED: A NoAdmission task is always set to COMPLETED when created.</p> <p>IN_PROGRESS: If the NoAdmission fails or it is paused.</p> <p>FAILED: If the CS wants to abort the process just created ((the woman comes to the appointment later and it is possible to schedule</p>

Task attributes	Rules for the task “No Admission”															
	the appointment in another slot).															
Status transactions	<p>If the CS needs to abort the NoAdmission there are the following transactions of status: from none to COMPLETED, from COMPLETED to IN_PROGRESS, IN_PROGRESS to FAILED.</p> <table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>COMPLETED</td> <td>IN_PROGRESS</td> <td>release</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	COMPLETED	IN_PROGRESS	release	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType														
none	COMPLETED	create														
COMPLETED	IN_PROGRESS	release														
IN_PROGRESS	FAILED	fail														
IN_PROGRESS	COMPLETED	complete														
Input	InvitationLetter															
Output	NoAdmissionDocument															
Owner	CS															
Owner changes	No															
<taskEvent>	1 if the woman does not attend the appointment. 3 if the No Admission task fails and the appointment is rescheduled.															
Task Removal allowed	No															
Task Duplication	No															

### 3.3.2.3 Task 2a: Examination

1190

Task attributes	Rules for the task “Examination”
Task id	Unique id of the instance of the task
Task type	Examination
Task name	Examination
Task description	The woman attends the appointment and has her mammography exam.
Task dependencies	Ancestors: Recruitment Successors: Evaluation
Status allowed	IN_PROGRESS: The woman is admitted: when occurs this Task’s status is set IN_PROGRESS COMPLETED :When the woman has her exam the status is set COMPLETED

Task attributes	Rules for the task “Examination”															
	FAILED: if the appointment cannot be performed.															
Status transactions	<p>The starting status is IN_PROGRESS and then it shall be COMPLETED when the screening examination is completed.</p> <table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>COMPLETED</td> <td>IN_PROGRESS</td> <td>release</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	COMPLETED	IN_PROGRESS	release	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType														
none	COMPLETED	create														
COMPLETED	IN_PROGRESS	release														
IN_PROGRESS	FAILED	fail														
IN_PROGRESS	COMPLETED	complete														
Input	InvitationLetter, PreviousExamsItems															
Output	KOSDocument, ScreeningForm															
Owner	Document Source Technician															
Owner changes	One or more (Depends on who performs the admission and the exam).															
<taskEvent>	Three															
Task Removal allowed	No															
Task Duplication	No															

### 3.3.2.4 Task 3: Evaluation 1

Task attributes	Rules for the task “Evaluation 1”
Task id	Unique id of the instance of the task
Task type	Evaluation
Task name	Evaluation1
Task description	The first radiologist interprets the mammography images and produces the Report 1.
Task dependencies	Ancestors: Examination Successors: Evaluation
Status allowed	IN_PROGRESS: the status will change at the end of the evaluation COMPLETED: if the first evaluation is complete FAILED: when an error occurs and the Workflow Document cannot be completed

Task attributes	Rules for the task “Evaluation 1”												
Status transactions	<p>When the radiologist is reading the images the status is IN_PROGRESS and at the end it will be set as COMPLETED.</p> <table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											
Input	KOSDocument, ScreeningForm												
Output	Report1												
Owner	Radiologist1												
Owner changes	No												
<taskEvent>	2												
Task Removal allowed	No												
Task Duplication	No												

1195 **3.3.2.5 Task 4: Evaluation 2**

Task attributes	Rules for the task “Evaluation 2”
Task id	Unique id of the instance of the task
Task type	Evaluation
Task name	Evaluation2
Task description	The second radiologist interprets the mammography images and produces the Report2.
Task dependencies	Ancestors: Evaluation Successors: CSEvaluation
Status allowed	IN_PROGRESS: the status will change at the end of the evaluation COMPLETED: if the second evaluation is complete FAILED: when an error occurs and the Workflow Document cannot be completed

Task attributes	Rules for the task “Evaluation 2”												
Status transactions	<p>When the radiologist is reading the images the status is IN_PROGRESS and at the end it will be set as COMPLETED.</p> <table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											
Input	KOS Document, Screening Form												
Output	Report2												
Owner	Radiologist2												
Owner changes	No												
<taskEvent>	2												
Task Removal allowed	No												
Task Duplication	No												

### 3.3.2.6 Task 5: CS Evaluation

Task attributes	Rules for the task “CS Evaluation”
Task id	Unique id of the instance of the task
Task type	CSEvaluation
Task name	CSEvaluation
Task description	The CS creates the ResponseReport based on the contents included in the Report1 and in the Report2.
Task dependencies	<p>Ancestors: Evaluation</p> <p>Successors: End, SecondLevel, Evaluation</p>
Status allowed	<p>IN_PROGRESS: the status will change at the end of the CS evaluation</p> <p>COMPLETED: if the CS evaluation is complete</p> <p>FAILED: when an error occurs and the Workflow Document cannot be completed</p>
Status transactions	When the CS is considering whether the reports are positive, negative or discordant, the status is set IN_PROGRESS and at the end it will be set as COMPLETED.

Task attributes	Rules for the task “CS Evaluation”		
	Initial Status	Final Status	eventType
	none	IN_PROGRESS	create
	IN_PROGRESS	FAILED	fail
	IN_PROGRESS	COMPLETED	complete
Input	Report1, Report2		
Output	ResponseReport		
Owner	CS		
Owner changes	No		
<taskEvent>	2		
Task Removal allowed	No		
Task Duplication	No		

1200

### 3.3.2.7 Task 6a: End 1

Task attributes	Rules for the task “End 1”		
Task id	Unique id of the instance of the task		
Task type	End		
Task name	End1		
Task description	The mammography exam is negative and the CS sends the Letter result to the woman.		
Task dependencies	Ancestors: CSEvaluation Successors: None		
Status allowed	COMPLETED: this task is created as complete. FAILED: when the process fails for any reason.		
Status transactions	This task is automatically generated and when it fails the status is FAILED instead of COMPLETED.		
	Initial Status	Final Status	eventType
	none	COMPLETED	complete
	none	FAILED	fail
Input	ResponseReport		

Task attributes	Rules for the task “End 1”
Output	LetterToPatient
Owner	CSLatestOperatorName
Owner changes	No
<taskEvent>	Only one
Task Removal allowed	No
Task Duplication	No

### 3.3.2.8 Task 6b: Second Level 1

1205

Task attributes	Rules for the task “Second Level 1”									
Task id	Unique id of the instance of the task									
Task type	SecondLevel									
Task name	SecondLevel1									
Task description	The mammography exam is positive and the CS sends the “Alert” Letter to the woman.									
Task dependencies	Ancestors: CSEvaluation Successors: None									
Status allowed	COMPLETED: this task is created as complete. FAILED: when the process fails for any reason.									
Status transactions	This task is automatically generated and when it fails the status is FAILED instead of COMPLETED. <table border="1" data-bbox="703 1402 1349 1528"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>none</td> <td>FAILED</td> <td>fail</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	none	FAILED	fail
Initial Status	Final Status	eventType								
none	COMPLETED	create								
none	FAILED	fail								
Input	ResponseReport									
Output	LetterToPatient (“Alert”)									
Owner	CSLatestOperatorName									
Owner changes	No									
<taskEvent>	Only one									

Task attributes	Rules for the task “Second Level 1”
Task Removal allowed	No
Task Duplication	No

### 3.3.2.9 Task 6c: Evaluation 3

Task attributes	Rules for the task “Evaluation 3”												
Task id	Unique id of the instance of the task												
Task type	Evaluation												
Task name	Evaluation3												
Task description	The third radiologist interprets the mammography images and produces the Report3.												
Task dependencies	Ancestors: CSEvaluation Successors: End, SecondLevel												
Status allowed	IN_PROGRESS: the status will change at the end of the evaluation COMPLETED: if the third evaluation is complete FAILED: when an error occurs and the Workflow Document cannot be completed												
Status transactions	When the radiologist is reading the images the status is IN_PROGRESS and at the end it will be set as COMPLETED. <table border="1" data-bbox="703 1234 1349 1398"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											
Input	KOSDocument, ScreeningForm												
Output	Report3												
Owner	Radiologist3												
Owner changes	No												
<taskEvent>	2												
Task Removal allowed	No												
Task Duplication	No												

1210 **3.3.2.10 Task 7: Response**

Task attributes	Rules for the task “Response”												
Task id	Unique id of the instance of the task												
Task type	Response (or CSEvaluation)												
Task name	Response												
Task description	The CS creates the final ResponseReport based on the contents included in the Report3.												
Task dependencies	Ancestors: Evaluation Successors: End, SecondLevel												
Status allowed	IN_PROGRESS: the Operator is interpreting the information. COMPLETED: when the response is completed. FAILED: when the process fails for any reason.												
Status transactions	When the CS is considering whether the report is positive, or negative, the status is set IN_PROGRESS and at the end it will be set as COMPLETED. <table border="1" data-bbox="703 993 1349 1157"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											
Input	Report3												
Output	ResponseReport												
Owner	CSLatestOperatorName												
Owner changes	No												
<taskEvent>	2												
Task Removal allowed	No												
Task Duplication	No												

**3.3.2.11 Task 8: End 2**

Task attributes	Rules for the task “End 2”
Task id	Unique id of the instance of the task

Task attributes	Rules for the task “End 2”									
Task type	End									
Task name	End2									
Task description	The Report3 is negative and the CS sends the results Letter to the patient.									
Task dependencies	Ancestors: Response Successors: None									
Status allowed	COMPLETED: this task is created as complete. FAILED: when the process fails for any reason.									
Status transactions	This task is automatically generated and when it fails the status is FAILED instead of COMPLETED. <table border="1" data-bbox="703 772 1349 894"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>none</td> <td>FAILED</td> <td>fail</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	none	FAILED	fail
Initial Status	Final Status	eventType								
none	COMPLETED	create								
none	FAILED	fail								
Input	ResponseReport									
Output	LetterToPatient									
Owner	CSLatestOperatorName									
Owner changes	No									
<taskEvent>	Only one									
Task Removal allowed	No									
Task Duplication	No									

1215

### 3.3.2.12 Task 9: Second Level 2

Task attributes	Rules for the task “Second Level 2”
Task id	Unique id of the instance of the task
Task type	SecondLevel
Task name	SecondLevel2
Task description	The third Report is positive and the CS sends the “Alert” Letter to the woman (or other communication).
Task dependencies	Ancestors: Response

Task attributes	Rules for the task “Second Level 2”									
	Successors: None									
Status allowed	COMPLETED: this task is created as complete. FAILED: when the process fails for any reason.									
Status transactions	This task is automatically generated and when it fails the status is FAILED instead of COMPLETED <table border="1" data-bbox="703 527 1349 651"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>none</td> <td>FAILED</td> <td>fail</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	none	FAILED	fail
Initial Status	Final Status	eventType								
none	COMPLETED	create								
none	FAILED	fail								
Input	ResponseReport									
Output	LetterToPatient (“Alert”)									
Owner	CSLatestOperatorName									
Owner changes	No									
<taskEvent>	Only one									
Task Removal allowed	No									
Task Duplication	No									

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### 3.3.3 XSM-WD Workflow Document: France Use Case

1235 For the specific task description see section 3.2.2. The following Table displays the workflow overview.

**Table 3.3.3-1: Workflow Description Overview – France Use Case**

Task Type	Requirement For task initiation	Task Statuses *valid when task initiated	Task Property	Input Docs	Option	Output Docs	Option
RecruitmentScheduling	At XDW doc creation	COMPLETE D* IN_PROGRESS SS FAILED	Cardinality: 1..1 Removable: no	MSWomanDoc (Item from the list of eligible women)	R	InvitationLetter	R
Examination	The examination takes place	IN_PROGRESS* COMPLETE D FAILED	Cardinality: 1..n Removable: no	InvitationLetter	R	KOSDocument1	R
						KOSDocument2	O
Evaluation A	When the examination's Workflow Document is completed	IN_PROGRESS* COMPLETE D FAILED	Cardinality: 1..1 Removable: no	KOSDocument1	R	ReportA	R
				KOSDocument2	O	SIF	R
Evaluation B	When the examination's Workflow Document is completed	IN_PROGRESS* COMPLETE D FAILED	Cardinality: 1..1 Removable: no	KOSDocument1	R	ReportB	R
				KOSDocument2	O		
				ReportA	R		
				SIF	R		
OGDEvaluation	When the second Report is available	IN_PROGRESS* COMPLETE D FAILED	Cardinality: 1..1 Removable: no	ReportA	R	ResponseReport	R
				SIF	R		
				ReportB	R		
End	When the ResponseReport (negative) is available	COMPLETE D* FAILED*	Cardinality: 1..1 Removable: no	ResponseReport	R	LetterToPatient	R
						LetterToGP	R
SecondLevel	When the ResponseReport (positive) is available	COMPLETE D* FAILED*	Cardinality: 1..1 Removable: no	ResponseReport	R	LetterToPatient	R
						LetterToGP	R

Task Type	Requirement For task initiation	Task Statuses *valid when task initiated	Task Property	Input Docs	Option	Output Docs	Option
Evaluation C	When the OGD evaluation team needs the third evaluation	IN_PROGRESS* COMPLETE FAILED	Cardinality: 1..1 Removable: no	KOSDocument 1	R	ReportC	R
				KOSDocument 2	O		
				ReportA	R		
				SIF	R		
				ReportB	R		
Response	When the OGD evaluation is available	IN_PROGRESS* COMPLETE FAILED	Cardinality: 1..1 Removable: no	ReportC	R	ResponseReport	R

### 3.3.3.1 Task 1: Recruitment Scheduling

Task attributes	Rules for the task “Recruitment Scheduling”
Task id	Unique id of the instance of the task
Task type	RecruitmentScheduling
Task name	RecruitmentScheduling
Task description	Invitation of the eligible women to attend the mammography screening appointment.
Task dependencies	Ancestors: None Successors: Examination
Status allowed	COMPLETED: A Recruitment task is always set to COMPLETED when created. IN_PROGRESS: If the recruitment has to be evaluated. FAILED: If the OGD_Operator wants to abort the process just created.

Task attributes	Rules for the task “Recruitment Scheduling”															
Status transactions	<p>If the OGD_Operator needs to abort the Recruitment invitation there are the following transactions of status: from none to COMPLETED , from COMPLETED to IN_PROGRESS, IN_PROGRESS to FAILED</p> <table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>COMPLETED</td> <td>IN_PROGRESS</td> <td>release</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	COMPLETED	IN_PROGRESS	release	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType														
none	COMPLETED	create														
COMPLETED	IN_PROGRESS	release														
IN_PROGRESS	FAILED	fail														
IN_PROGRESS	COMPLETED	complete														
Input	MSWomanDoc (Lists of eligible women documentId)															
Output	InvitationLetter															
Owner	OGD_Operator															
Owner changes	No															
<taskEvent>	3															
Task Removal allowed	No															
Task Duplication	No															

1240

### 3.3.3.2 Task 2: Examination

Task attributes	Rules for the task “Examination”
Task id	Unique id of the instance of the task
Task type	Examination
Task name	Examination
Task description	The woman attends the appointment and has her basic examination.
Task dependencies	<p>Ancestors: Recruitment Scheduling</p> <p>Successors: Evaluation</p>
Status allowed	<p>IN_PROGRESS: The woman is admitted: when occurs this task’s status is set IN_PROGRESS.</p> <p>COMPLETED: When the woman has her exam the status shall be COMPLETED.</p> <p>FAILED: If the examination cannot be performed.</p>

Task attributes	Rules for the task “Examination”															
Status transactions	<p>The starting status is IN_PROGRESS and then it is set COMPLETED when the screening examination is completed.</p> <table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>COMPLETED</td> <td>IN_PROGRESS</td> <td>release</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	COMPLETED	IN_PROGRESS	release	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType														
none	COMPLETED	create														
COMPLETED	IN_PROGRESS	release														
IN_PROGRESS	FAILED	fail														
IN_PROGRESS	COMPLETED	complete														
Input	InvitationLetter															
Output	KOSDocument1, KOSDocument2 (Optional)															
Owner	Technologist															
Owner changes	One or more (Depends on who performs the admission and the exam).															
<taskEvent>	3															
Task Removal allowed	No															
Task Duplication	No															

### 3.3.3.3 Task 3: Evaluation A

1245

Task attributes	Rules for the task “Evaluation A”
Task id	Unique id of the instance of the task
Task type	EvaluationA
Task name	EvaluationA
Task description	The first radiologist interprets the mammography images and produces the ReportA and the SIF (Screening Interpretation Form).
Task dependencies	Ancestors: Examination Successors: Evaluation
Status allowed	IN_PROGRESS: the status will change at the end of the evaluation COMPLETED: if the first evaluation is complete FAILED: when an error occurs and the Workflow Document cannot be completed
Status transactions	When the radiologist is reading the images the status is IN_PROGRESS and at the end it will be set as COMPLETED.

Task attributes	Rules for the task “Evaluation A”												
	<table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											
Input	KOSDocument1, KOSDocument2												
Output	ReportA, SIF												
Owner	RadiologistA												
Owner changes	No												
<taskEvent>	2												
Task Removal allowed	No												
Task Duplication	No												

### 3.3.3.4 Task 4: Evaluation B

Task attributes	Rules for the task “Evaluation B”						
Task id	Unique id of the instance of the task						
Task type	EvaluationB						
Task name	EvaluationB						
Task description	The OGD radiologist interprets the mammography images, the ReportA, the SIF and produces the ReportB.						
Task dependencies	Ancestors: Evaluation Successors: OGDEvaluation						
Status allowed	IN_PROGRESS: the status will change at the end of the evaluation COMPLETED: if the second evaluation is complete FAILED: when an error occurs and the Workflow Document cannot be completed						
Status transactions	When the radiologist is reading the images the status is IN_PROGRESS and at the end it will be set as COMPLETED.						
	<table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create
Initial Status	Final Status	eventType					
none	IN_PROGRESS	create					

Task attributes	Rules for the task “Evaluation B”						
	<table border="1"> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </table>	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
IN_PROGRESS	FAILED	fail					
IN_PROGRESS	COMPLETED	complete					
Input	KOSDocument1, KOSDocument2, ReportA, SIF						
Output	ReportB, SIF (updated)						
Owner	OGD_Radiologist						
Owner changes	No						
<taskEvent>	2						
Task Removal allowed	No						
Task Duplication	No						

1250 **3.3.3.5 Task 5: OGD Evaluation**

Task attributes	Rules for the task “OGD Evaluation”												
Task id	Unique id of the instance of the task												
Task type	OGDEvaluation												
Task name	OGDEvaluation												
Task description	The OGD operator creates the ResponseReport Based on the contents included in the Report A, SIF and Report B.												
Task dependencies	Ancestors: Evaluation Successors: End, Second Level, Evaluation												
Status allowed	IN_PROGRESS: the status will change at the end of the evaluation COMPLETED: if the OGD evaluation is complete FAILED: when an error occurs and the Workflow Document cannot be completed												
Status transactions	When the OGD operator is considering whether the reports are positive, negative or discordant, the status is set IN_PROGRESS and at the end it will be set COMPLETED. <table border="1" data-bbox="703 1640 1349 1801"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											

Task attributes	Rules for the task “OGD Evaluation”
Input	ReportA, SIF, ReportB
Output	ResponseReport
Owner	OGD_Operator
Owner changes	No
<taskEvent>	2
Task Removal allowed	No
Task Duplication	No

### 3.3.3.6 Task 6: End 1

Task attributes	Rules for the task “End 1”									
Task id	Unique id of the instance of the task									
Task type	End									
Task name	End1									
Task description	The mammography exam is negative and the OGD_Operator sends the Letter result to the woman.									
Task dependencies	Ancestors: OGD_Evaluation Successors: None									
Status allowed	COMPLETED: this task is created as complete. FAILED: when the process fails for any reason.									
Status transactions	This task is automatically generated and when it fails the status is FAILED instead of COMPLETED. <table border="1" data-bbox="703 1455 1349 1577"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>none</td> <td>FAILED</td> <td>fail</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	none	FAILED	fail
Initial Status	Final Status	eventType								
none	COMPLETED	create								
none	FAILED	fail								
Input	ResponseReport									
Output	LetterToPatient, LetterToGP									
Owner	OGD_Operator									
Owner changes	No									

Task attributes	Rules for the task “End 1”
<taskEvent>	Only one
Task Removal allowed	No
Task Duplication	No

1255

### 3.3.3.7 Task 7: Second Level 1

Task attributes	Rules for the task “Second Level 1”									
Task id	Unique id of the instance of the task									
Task type	SecondLevel									
Task name	SecondLevel1									
Task description	The mammography exam is positive and the OGD sends the “Alert” Letter to the woman and to the referring physician.									
Task dependencies	Ancestors: OGD Evaluation Successors: None									
Status allowed	COMPLETED: this task is created as complete. FAILED: when the process fails for any reason.									
Status transactions	This task is automatically generated and when it fails the status is FAILED instead of COMPLETED. <table border="1" data-bbox="703 1251 1349 1373"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>none</td> <td>FAILED</td> <td>fail</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	none	FAILED	fail
Initial Status	Final Status	eventType								
none	COMPLETED	create								
none	FAILED	fail								
Input	ResponseReport									
Output	LetterToPatient (“Alert”), LetterToGP (“Alert”)									
Owner	OGD_Operator									
Owner changes	No									
<taskEvent>	Only one									
Task Removal allowed	No									
Task Duplication	No									

## 3.3.3.8 Task 8: Evaluation C

1260

Task attributes	Rules for the task “Evaluation C”												
Task id	Unique id of the instance of the task												
Task type	EvaluationC												
Task name	EvaluationC												
Task description	The OGD Committee interprets the mammography images and other documents and produces the ReportC.												
Task dependencies	Ancestors: OGDEvaluation Successors: End, SecondLevel												
Status allowed	IN_PROGRESS: the status will change at the end of the evaluation COMPLETED: if the third evaluation is complete FAILED: when an error occurs and the Workflow Document cannot be completed												
Status transactions	When the radiologist is reading the images the status is IN_PROGRESS and at the end it will be set as COMPLETED. <table border="1" data-bbox="703 974 1349 1136"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											
Input	KOSDocument1, KOSDocument2, ReportA, ReportB, SIF												
Output	ReportC												
Owner	OGD_Committee												
Owner changes	No												
<taskEvent>	2												
Task Removal allowed	No												
Task Duplication	No												

1265 **3.3.3.9 Task 8: Response**

Task attributes	Rules for the task “Response”												
Task id	Unique id of the instance of the task												
Task type	Response												
Task name	Response												
Task description	The OGD Operator creates the final ResponseReport Based on the contents included in the ReportC.												
Task dependencies	Ancestors: Evaluation Successors: End, SecondLevel												
Status allowed	IN_PROGRESS: the status will change at the end of the evaluation COMPLETED: if the response is complete FAILED: when an error occurs and the Workflow Document cannot be completed												
Status transactions	When the OGD operator is considering whether the reports are positive, negative or discordant, the status is set IN_PROGRESS and at the end it will be set COMPLETED. <table border="1" data-bbox="703 1020 1349 1182"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											
Input	ReportC												
Output	ResponseReport												
Owner	OGD_Operator												
Owner changes	No												
<taskEvent>	2												
Task Removal allowed	No												
Task Duplication	No												

1270

### 3.3.3.10 Task 6b: End 2

Task attributes	Rules for the task “End 2”									
Task id	Unique id of the instance of the task									
Task type	End									
Task name	End 2									
Task description	The Report C is negative and the OGD Operator sends the results Letter to the woman.									
Task dependencies	Ancestors: Response Successors: None									
Status allowed	COMPLETED: this task is created as complete. FAILED: when the process fails for any reason.									
Status transactions	This task is automatically generated and when it fails the status is FAILED instead of COMPLETED. <table border="1" data-bbox="703 932 1349 1056"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>none</td> <td>FAILED</td> <td>fail</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	none	FAILED	fail
Initial Status	Final Status	eventType								
none	COMPLETED	create								
none	FAILED	fail								
Input	ResponseReport									
Output	Letter to Patient									
Owner	OGD Operator									
Owner changes	No									
<taskEvent>	Only one									
Task Removal allowed	No									
Task Duplication	No									

### 3.3.3.11 Task 7b: Second Level 2

1275

Task attributes	Rules for the task “Second Level 2”
Task id	Unique id of the instance of the task
Task type	Second Level

<b>Task attributes</b>	<b>Rules for the task “Second Level 2”</b>									
Task name	Second Level 2									
Task description	The third Report is positive and the OGD sends the “Alert” Letter to the woman and to the referring physician.									
Task dependencies	Ancestors: Response Successors: None									
Status allowed	COMPLETED: this task is created as complete. FAILED: when the process fails for any reason.									
Status transactions	<p>This task is automatically generated and when it fails the status is FAILED instead of COMPLETED.</p> <table border="1"> <thead> <tr> <th><b>Initial Status</b></th> <th><b>Final Status</b></th> <th><b>eventType</b></th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>none</td> <td>FAILED</td> <td>fail</td> </tr> </tbody> </table>	<b>Initial Status</b>	<b>Final Status</b>	<b>eventType</b>	none	COMPLETED	create	none	FAILED	fail
<b>Initial Status</b>	<b>Final Status</b>	<b>eventType</b>								
none	COMPLETED	create								
none	FAILED	fail								
Input	ResponseReport									
Output	LetterToPatient, LetterToGP									
Owner	OGD_Operator									
Owner changes	No									
<taskEvent>	Only one									
Task Removal allowed	No									
Task Duplication	No									

1280

1285

### 3.3.4 XSM-WD Workflow Document: Ontario Use Case

For the specific task description see section 3.2.3. The Tasks developed are related to the main flow. The following Table displays the workflow overview.

1290

**Table 3.3.4-1: Workflow Description Overview – Ontario Use Case**

Task Type	Requirement For task initiation	Task Statuses *valid when task initiated	Task Property	Input Docs	Option	Output Docs	Option	
Recruitment	At XDW doc creation	COMPLETE D* IN_PROGRESS FAILED	Cardinality: 1..1 Removable: no	MSWomanDoc (Item from the list of eligible women)	R	InvitationLetter	R	
Scheduling	When the woman calls the facility	COMPLETE D* IN_PROGRESS FAILED	Cardinality: 1..1 Removable: no	InvitationLetter	O	AppointmentInformation	R	
Admission	When the woman attends the appointment	COMPLETE D* FAILED*	Cardinality: 1..1 Removable: no	AppointmentInformation	R	ExaminationData	R	
						ConsentForm	R	
Examination	The examination takes place	IN_PROGRESS* COMPLETE FAILED	Cardinality: 1..n Removable: no	ExaminationData	R	NurseReport	R	
						MammogramsID	R	
						TechnologistNotes	O	
Reporting	When the examination's Workflow Document is completed	IN_PROGRESS* COMPLETE FAILED	Cardinality: 1..1 Removable: no	NurseReport	R	Report	R	
							MammogramsID	R
							TechnologistNotes	O
Evaluation	When the examination's	IN_PROGRESS* COMPLETE	Cardinality: 1..1 Removable:	Report	R	LetterToPatient	R	

Task Type	Requirement For task initiation	Task Statuses *valid when task initiated	Task Property	Input Docs	Option	Output Docs	Option
	Workflow Document is completed	D FAILED	no			LetterToG P	R
Recommendation						R	

### 3.3.4.1 Task 1: Recruitment

Task attributes	Rules for the task "Recruitment"															
Task id	Unique id of the instance of the task															
Task type	Recruitment															
Task name	Recruitment															
Task description	Invitation of the eligible women to attend the mammography screening appointment (or reminder letter). This Task is optional.															
Task dependencies	Ancestors: None Successors: Scheduling															
Status allowed	COMPLETED: A Recruitment task is always set to COMPLETED when created. IN_PROGRESS: If the recruitment has to be evaluated. FAILED: If the OBSP_IS_Operator wants to abort the process just created.															
Status transactions	<p>If the OBSP_IS_Operator needs to change the Recruitment invitation there are the following transactions of status: from none to COMPLETED, from COMPLETED to IN_PROGRESS, IN_PROGRESS to FAILED.</p> <table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>COMPLETED</td> <td>IN_PROGRESS</td> <td>release</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	COMPLETED	IN_PROGRESS	release	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType														
none	COMPLETED	create														
COMPLETED	IN_PROGRESS	release														
IN_PROGRESS	FAILED	fail														
IN_PROGRESS	COMPLETED	complete														
Input	MSWomanDoc															
Output	InvitationLetter															
Owner	OBSP_IS_Operator															

Task attributes	Rules for the task “Recruitment”
Owner changes	No
<taskEvent>	1 or 3 if the recruitment has to be evaluated.
Task Removal allowed	No
Task Duplication	No

### 3.3.4.2 Task 2: Scheduling

1295

Task attributes	Rules for the task “Scheduling”															
Task id	Unique id of the instance of the task															
Task type	Scheduling															
Task name	Scheduling															
Task description	The woman phones to the screening center and books the appointment.															
Task dependencies	Ancestors: None Successors: Examination															
Status allowed	COMPLETED: A Scheduling task is always set to COMPLETED when created. IN_PROGRESS: If the recruitment has to be modified. FAILED: If the OBSP_IS_Operator wants to abort the process just created.															
Status transactions	<p>If the OBSP_IS_Operator needs to change the Scheduling there are the following transactions of status: from none to COMPLETED, from COMPLETED to IN_PROGRESS, IN_PROGRESS to FAILED.</p> <table border="1"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>COMPLETED</td> <td>IN_PROGRESS</td> <td>release</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	COMPLETED	IN_PROGRESS	release	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType														
none	COMPLETED	create														
COMPLETED	IN_PROGRESS	release														
IN_PROGRESS	FAILED	fail														
IN_PROGRESS	COMPLETED	complete														
Input	InvitationLetter (optional)															
Output	AppointmentInformation															
Owner	OBSP_CS_Operator															

Task attributes	Rules for the task “Scheduling”
Owner changes	No
<taskEvent>	1 or 3 if the Scheduling has to be evaluated.
Task Removal allowed	No
Task Duplication	No

### 3.3.4.3 Task 3: Admission

Task attributes	Rules for the task “Admission”									
Task id	Unique id of the instance of the task									
Task type	Admission									
Task name	Admission									
Task description	The woman attends the appointment at the screening facility and provides information and consent.									
Task dependencies	Ancestors: Scheduling Successors: Examination									
Status allowed	COMPLETED: When the woman has been admitted to the facility. FAILED: when the process fails for any reason.									
Status transactions	<p>If the OBSP_CS_Operator admits the woman the status is set to COMPLETED, if the woman does not attend her appointment the status is set FAILED.</p> <table border="1" data-bbox="703 1331 1349 1453"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>COMPLETED</td> <td>create</td> </tr> <tr> <td>none</td> <td>FAILED</td> <td>fail</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	COMPLETED	create	none	FAILED	fail
Initial Status	Final Status	eventType								
none	COMPLETED	create								
none	FAILED	fail								
Input	AppointmentInformation									
Output	ExaminationData, ConsentForm									
Owner	OBSP_CS_Operator									
Owner changes	One or more (Depends on who performs the admission and the exam).									
<taskEvent>	One									

Task attributes	Rules for the task “Admission”
Task Removal allowed	No
Task Duplication	No

1300 **3.3.4.4 Task 4: Examination**

Task attributes	Rules for the task “Examination”												
Task id	Unique id of the instance of the task												
Task type	Examination												
Task name	Examination												
Task description	The woman has her examination: Nurse exam, Mammographic exam.												
Task dependencies	Ancestors: Admission Successors: Evaluation												
Status allowed	IN_PROGRESS: during the examinations. COMPLETED: after the nurse and technical examinations have been completed. FAILED: If the examinations cannot be performed.												
Status transactions	The starting status is IN_PROGRESS and then it is set COMPLETED when the screening examination is completed. <table border="1" data-bbox="703 1257 1349 1415"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											
Input	Examination data												
Output	NurseReport, MammogramsID, TechnologistNotes												
Owner	Document Source Operators (OBSP_Nurse, OBSP_Technologist)												
Owner changes	One or more (Depends on who performs the exams)												
<taskEvent>	2												
Task Removal allowed	No												
Task Duplication	No												

### 3.3.4.5 Task 5: Reporting

Task attributes	Rules for the task “Reporting”												
Task id	Unique id of the instance of the task												
Task type	Reporting												
Task name	Reporting												
Task description	The OBSP radiologist interprets the mammography images and the other documents and produces the Report.												
Task dependencies	Ancestors: Examination Successors: Evaluation												
Status allowed	IN_PROGRESS: the status will change at the end of the evaluation COMPLETED: if the evaluation is complete FAILED: when an error occurs and the Workflow Document cannot be completed												
Status transactions	When the radiologist is reading the images the status is IN_PROGRESS and at the end it will be set as COMPLETED. <table border="1" data-bbox="703 989 1349 1152"> <thead> <tr> <th>Initial Status</th> <th>Final Status</th> <th>eventType</th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	Initial Status	Final Status	eventType	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
Initial Status	Final Status	eventType											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											
Input	MammogramsID, TechnologistNotes, NurseReport												
Output	Report												
Owner	OBSP_Radiologist												
Owner changes	No												
<taskEvent>	2												
Task Removal allowed	No												
Task Duplication	No												

1305 **3.3.4.6 Task 6: Evaluation**

Task attributes	Rules for the task “Evaluation”
Task id	Unique id of the instance of the task

<b>Task attributes</b>	<b>Rules for the task “Evaluation”</b>												
Task type	Evaluation												
Task name	Evaluation												
Task description	The OBSP Screening Facility Administrative Staff SFAS composes the notification for the screening results to the woman and her GP.												
Task dependencies	Ancestors: Reporting Successors: None												
Status allowed	IN_PROGRESS: The OBSP SFAS sends the results to the GP: when occurs this Task’s status shall be IN_PROGRESS. COMPLETED: After two weeks, the OBSP SFAS sends the results to the patient: when occurs this Task’s status shall be COMPLETED. FAILED: when the process fails during the Evaluation.												
Status transactions	The starting status is IN_PROGRESS and then it shall be COMPLETED when the OBSP SFAS sends results to the patient. <table border="1" data-bbox="703 865 1349 1029"> <thead> <tr> <th><b>Initial Status</b></th> <th><b>Final Status</b></th> <th><b>eventType</b></th> </tr> </thead> <tbody> <tr> <td>none</td> <td>IN_PROGRESS</td> <td>create</td> </tr> <tr> <td>IN_PROGRESS</td> <td>FAILED</td> <td>fail</td> </tr> <tr> <td>IN_PROGRESS</td> <td>COMPLETED</td> <td>complete</td> </tr> </tbody> </table>	<b>Initial Status</b>	<b>Final Status</b>	<b>eventType</b>	none	IN_PROGRESS	create	IN_PROGRESS	FAILED	fail	IN_PROGRESS	COMPLETED	complete
<b>Initial Status</b>	<b>Final Status</b>	<b>eventType</b>											
none	IN_PROGRESS	create											
IN_PROGRESS	FAILED	fail											
IN_PROGRESS	COMPLETED	complete											
Input	Report												
Output	LetterToGP, LetterToPatient, Recommendation												
Owner	OBSP_SFAS_Operator												
Owner changes	Yes												
<taskEvent>	2												
Task Removal allowed	No												
Task Duplication	No												

## Appendix A

1315 The three Country based Workflow Document examples are provided in this Appendix.

For further information and updates on the Workflow Document implementation, please refer to the IT Infrastructure Technical Framework Supplement – Cross-Enterprise Document Workflow (XDW).

1320

Example: Implementation of the XML Workflow Document for the Italian use case:

1325

```
<?xml version="1.0" encoding="UTF-8"?>
<xdw:XDW.WorkflowDocument xmlns:h17="urn:h17-org:v3"
  xmlns:ws-ht="http://docs.oasis-open.org/ns/bpel4people/ws-humantask/types/200803"
  xmlns:xdw="urn:ihe:iti:2011:xdw"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="urn:ihe:iti:2011:xdw file:XDW-2012-06-21.xsd">
```

1330

```
  <xdw:id root="1.2.3.4.5"/>
  <xdw:effectiveTime value="20120310160000"/>
  <xdw:confidentialityCode code="1.24.3.3.3"/>
  <xdw:patient>
    <xdw:id root="1.3.6.1.4.1.21367.13.20.1000" extension="33333"
  assigningAuthorityName="IHERED"/>
```

1335

```
  </xdw:patient>
  <xdw:author>
    <xdw:assignedPerson>
```

1340

```
    <h17:name>
      <h17:family>CSLatestOperatorName</h17:family>
      <h17:prefix>Mr.</h17:prefix>
    </h17:name>
  </xdw:assignedPerson>
```

1345

```
  </xdw:author>
  <xdw:workflowInstanceID>urn:oid:1.2.3.4</xdw:workflowInstanceID>
  <xdw:workflowDocumentSequenceNumber>6</xdw:workflowDocumentSequenceNumber>
  <xdw:workflowStatus>CLOSED</xdw:workflowStatus>
  <xdw:workflowStatusHistory>
```

1350

```
    <xdw:documentEvent>
      <xdw:eventTime>2012-02-27T09:00:00.0Z</xdw:eventTime>
      <xdw:eventType>create</xdw:eventType>
      <xdw:taskEventIdentifier> urn:oid:1.2.3.4.5</xdw:taskEventIdentifier>
      <xdw:author>CSRegistrationOperatorName</xdw:author>
```

1355

```

    <xdw:previousStatus></xdw:previousStatus>
    <xdw:actualStatus>OPEN</xdw:actualStatus>
  </xdw:documentEvent>
  <xdw:documentEvent>

```

1360

```

    <xdw:eventTime>2012-03-10T16:00:00.0Z</xdw:eventTime>
    <xdw:eventType>complete</xdw:eventType>
    <xdw:taskEventIdentifier> urn:oid:1.2.3.4.17</xdw:taskEventIdentifier>
    <xdw:author>CSLatestOperatorName</xdw:author>
    <xdw:previousStatus>OPEN</xdw:previousStatus>
    <xdw:actualStatus>CLOSED</xdw:actualStatus>
  </xdw:documentEvent>
</xdw:workflowStatusHistory>
<xdw:workflowDefinitionReference>urn:oid:1.2.3.4.5.6.7.8.9</xdw:workflowDefinitionReference>
<xdw:TaskList>
  <xdw:XDWTask>
    <xdw:taskData>

```

1365

1370

```

      <ws-ht:taskDetails>
        <ws-ht:id>1</ws-ht:id>
        <ws-ht:taskType>Recruitment</ws-ht:taskType>
        <ws-ht:name>Recruitment</ws-ht:name>
        <ws-ht:status>COMPLETED</ws-ht:status>
        <ws-ht:actualOwner>CSRegistrationOperatorName</ws-ht:actualOwner>
        <ws-ht:createdTime>2012-02-27T09:00:00.0Z</ws-ht:createdTime>
        <ws-ht:createdBy>CSRegistrationOperatorName</ws-ht:createdBy>
        <ws-ht:lastModifiedTime>2012-02-27T09:01:00.0Z</ws-ht:lastModifiedTime>
        <ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
      </ws-ht:taskDetails>

```

1375

1380

```

      <ws-ht:description>Invitation of the eligible women to attend the mammography
screening appointment.</ws-ht:description>
      <ws-ht:input>

```

1385

```

        <!-- one part element for each document in input -->
        <ws-ht:part name="MSWomanDoc"          <!--Item from the list of eligible
women documentId-->
          <ws-ht:reference uid="urn:oid:1.2.3.4.4.1"/>
        </ws-ht:part>
      </ws-ht:input>
      <ws-ht:output>

```

1390

```

        <!-- one part element for each document in output -->
        <ws-ht:part name="InvitationLetter"    <!--Invitation Letter-->
          <ws-ht:reference uid="urn:oid:1.2.3.4.4.2"/>
        </ws-ht:part>

```

1395

```
</ws-ht:output>
```

```
</xdw:taskData>
```

```
<xdw:taskEventHistory>
```

```
<xdw:taskEvent>
```

```
<xdw:id>101</xdw:id>
```

```
<xdw:eventTime>2012-02-27T09:00:00.0Z</xdw:eventTime>
```

1400

```
<xdw:identifier>urn:oid:1.2.3.4.5</xdw:identifier>
```

```
<xdw:eventType>create</xdw:eventType>
```

```
<xdw:status>COMPLETED</xdw:status>
```

```
</xdw:taskEvent>
```

```
<xdw:taskEvent>
```

1405

```
<xdw:id>102</xdw:id>
```

```
<xdw:eventTime>2012-02-27T09:00:30.0Z</xdw:eventTime>
```

```
<xdw:identifier>urn:oid:1.2.3.4.6</xdw:identifier>
```

```
<xdw:eventType>release</xdw:eventType>
```

```
<xdw:status>IN_PROGRESS</xdw:status>
```

1410

```
</xdw:taskEvent>
```

```
<xdw:taskEvent>
```

```
<xdw:id>103</xdw:id>
```

```
<xdw:eventTime>2012-02-27T09:01:00.0Z</xdw:eventTime>
```

```
<xdw:identifier>urn:oid:1.2.3.4.7</xdw:identifier>
```

1415

```
<xdw:eventType>complete</xdw:eventType>
```

```
<xdw:status>COMPLETED</xdw:status>
```

```
</xdw:taskEvent>
```

```
</xdw:taskEventHistory>
```

```
</xdw:XDWTask>
```

1420

```
<xdw:XDWTask>
```

```
<xdw:taskData>
```

```
<ws-ht:taskDetails>
```

```
<ws-ht:id>2</ws-ht:id>
```

```
<ws-ht:taskType>Examination</ws-ht:taskType>
```

1425

```
<ws-ht:name>Examination</ws-ht:name>
```

```
<ws-ht:status>COMPLETED</ws-ht:status>
```

```
<ws-ht:actualOwner>DocumentSourceTech</ws-ht:actualOwner>
```

```
<ws-ht:createdTime>2012-03-05T09:00:00.0Z</ws-ht:createdTime>
```

```
<ws-ht:createdBy>DocumentSourceTech</ws-ht:createdBy>
```

1430

```
<ws-ht:lastModifiedTime>2012-03-05T09:50:00.0Z</ws-ht:lastModifiedTime>
```

```
<ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
```

```
</ws-ht:taskDetails>
```

```
1435     <ws-ht:description>The woman attend the appointment and has her mammography exam.
</ws-ht:description>
    <ws-ht:input>
      <!-- one part element for each document in input -->
      <ws-ht:part name="InvitationLetter">
        <ws-ht:reference uid="urn:oid:1.2.3.4.4.2"/>
      </ws-ht:part>
1440     <ws-ht:part name="PreviousExamsItems">
      <ws-ht:reference uid="urn:oid:1.2.3.4.4.3"/>
    </ws-ht:part>
  </ws-ht:input>
  <ws-ht:output>
1445     <!-- one part element for each document in output -->
    <ws-ht:part name="KOSDocument">
      <ws-ht:reference uid="urn:oid:1.2.3.4.4.4"/>
    </ws-ht:part>
    <ws-ht:part name="ScreeningForm">
1450     <ws-ht:reference uid="urn:oid:1.2.3.4.4.5"/>
    </ws-ht:part>
  </ws-ht:output>
</xdw:taskData>
<xdw:taskEventHistory>
1455   <xdw:taskEvent>
     <xdw:id>201</xdw:id>
     <xdw:eventTime>2012-03-05T09:00:00.0Z</xdw:eventTime>
     <xdw:identifier>urn:oid:1.2.3.4.8</xdw:identifier>
     <xdw:eventType>create</xdw:eventType>
1460     <xdw:status>COMPLETED</xdw:status>
  </xdw:taskEvent>
  <xdw:taskEvent>
     <xdw:id>202</xdw:id>
     <xdw:eventTime>2012-03-05T09:20:00.0Z</xdw:eventTime>
1465     <xdw:identifier>urn:oid:1.2.3.4.9</xdw:identifier>
     <xdw:eventType>release</xdw:eventType>
     <xdw:status>IN_PROGRESS</xdw:status>
  </xdw:taskEvent>
  <xdw:taskEvent>
1470     <xdw:id>203</xdw:id>
     <xdw:eventTime>2012-03-05T09:50:00.0Z</xdw:eventTime>
     <xdw:identifier>urn:oid:1.2.3.4.10</xdw:identifier>
```

1475

```
        <xdw:eventType>complete</xdw:eventType>
        <xdw:status>COMPLETED</xdw:status>
    </xdw:taskEvent>
</xdw:taskEventHistory>
</xdw:XDWTask>
```

1480

```
<xdw:XDWTask>
  <xdw:taskData>
    <ws-ht:taskDetails>
      <ws-ht:id>3</ws-ht:id>
      <ws-ht:taskType>Evaluation</ws-ht:taskType>
      <ws-ht:name>Evaluation1</ws-ht:name>
      <ws-ht:status>COMPLETED</ws-ht:status>
```

1485

```
      <ws-ht:actualOwner>Radiologist1</ws-ht:actualOwner>
      <ws-ht:createdTime>2012-03-05T14:00:00.0Z</ws-ht:createdTime>
      <ws-ht:createdBy>Radiologist1</ws-ht:createdBy>
      <ws-ht:lastModifiedTime>2012-03-05T14:10:00.0Z</ws-ht:lastModifiedTime>
      <ws-ht:renderingMethodExists>false</ws-ht:renderingMethodExists>
```

1490

```
    </ws-ht:taskDetails>
```

```
    <ws-ht:description>The first radiologist interprets the mammography images and
produces the Report 1. </ws-ht:description>
```

1495

```
    <ws-ht:input>
      <!-- one part element for each document in input -->
      <ws-ht:part name="KOSDocument">
        <ws-ht:reference uid="urn:oid:1.2.3.4.4.4"/>
      </ws-ht:part>
```

1500

```
      <ws-ht:part name="ScreeningForm">
        <ws-ht:reference uid="urn:oid:1.2.3.4.4.5"/>
      </ws-ht:part>
```

```
    </ws-ht:input>
```

```
    <ws-ht:output>
```

```
      <!-- one part element for each document in output -->
```

1505

```
      <ws-ht:part name="Report1">
        <ws-ht:reference uid="urn:oid:1.2.3.4.4.6"/>
      </ws-ht:part>
```

```
    </ws-ht:output>
```

```
  </xdw:taskData>
```

1510

```
<xdw:taskEventHistory>
```

```
  <xdw:taskEvent>
```

```
    <xdw:id>301</xdw:id>
```

```
    <xdw:eventTime>2012-03-05T14:00:00.0Z</xdw:eventTime>
```

1515

```

    <xdw:identifier>urn:oid:1.2.3.4.11</xdw:identifier>
    <xdw:eventType>create</xdw:eventType>
    <xdw:status>IN_PROGRESS</xdw:status>
  </xdw:taskEvent>
  <xdw:taskEvent>
    <xdw:id>302</xdw:id>
    <xdw:eventTime>2012-03-05T14:10:00.0Z</xdw:eventTime>
    <xdw:identifier>urn:oid:1.2.3.4.12</xdw:identifier>
    <xdw:eventType>complete</xdw:eventType>
    <xdw:status>COMPLETED</xdw:status>
  </xdw:taskEvent>
</xdw:taskEventHistory>
</xdw:XDWTask>
<xdw:XDWTask>
  <xdw:taskData>
    <ws-ht:taskDetails>
      <ws-ht:id>4</ws-ht:id>
      <ws-ht:taskType>Evaluation</ws-ht:taskType>
      <ws-ht:name>Evaluation2</ws-ht:name>
      <ws-ht:status>COMPLETED</ws-ht:status>
      <ws-ht:actualOwner>Radiologist2</ws-ht:actualOwner>
      <ws-ht:createdTime>2012-03-08T14:00:00.0Z</ws-ht:createdTime>
      <ws-ht:createdBy>Radiologist2</ws-ht:createdBy>
      <ws-ht:lastModifiedTime>2012-03-08T14:10:00.0Z</ws-ht:lastModifiedTime>
      <ws-ht:renderingMethodExists>false</ws-ht:renderingMethodExists>
    </ws-ht:taskDetails>
    <ws-ht:description>The second radiologist interprets the mammography images and
produces the Report 2. </ws-ht:description>
    <ws-ht:input>
      <!-- one part element for each document in input -->
      <ws-ht:part name="KOSDocument">
        <ws-ht:reference uid="urn:oid:1.2.3.4.4.4"/>
      </ws-ht:part>
      <ws-ht:part name="ScreeningForm">
        <ws-ht:reference uid="urn:oid:1.2.3.4.4.5"/>
      </ws-ht:part>
    </ws-ht:input>
    <ws-ht:output>
      <!-- one part element for each document in output -->
      <ws-ht:part name="Report2">

```

1520

1525

1530

1535

1540

1545

1550

1555

```

        <ws-ht:reference uid="urn:oid:1.2.3.4.4.7"/>
        </ws-ht:part>
    </ws-ht:output>
</xdw:taskData>

```

1560

```

<xdw:taskEventHistory>
    <xdw:taskEvent>
        <xdw:id>401</xdw:id>
        <xdw:eventTime>2012-03-08T14:00:00.0Z</xdw:eventTime>
        <xdw:identifier>urn:oid:1.2.3.4.13</xdw:identifier>
        <xdw:eventType>create</xdw:eventType>
        <xdw:status>IN_PROGRESS</xdw:status>
    </xdw:taskEvent>

```

1565

```

    <xdw:taskEvent>
        <xdw:id>402</xdw:id>
        <xdw:eventTime>2012-03-08T14:10:00.0Z</xdw:eventTime>
        <xdw:identifier>urn:oid:1.2.3.4.14</xdw:identifier>
        <xdw:eventType>complete</xdw:eventType>
        <xdw:status>COMPLETED</xdw:status>
    </xdw:taskEvent>

```

1570

```

</xdw:taskEventHistory>
</xdw:XDWTask>

```

1575

```

<xdw:XDWTask>
    <xdw:taskData>

```

```

        <ws-ht:taskDetails>
            <ws-ht:id>5</ws-ht:id>
            <ws-ht:taskType>CSEvaluation</ws-ht:taskType>
            <ws-ht:name>CSEvaluation</ws-ht:name>
            <ws-ht:status>COMPLETED</ws-ht:status>
            <ws-ht:actualOwner>CS</ws-ht:actualOwner>
            <ws-ht:createdTime>2012-03-10T14:00:00.0Z</ws-ht:createdTime>
            <ws-ht:createdBy>CS</ws-ht:createdBy>
            <ws-ht:lastModifiedTime>2012-03-10T14:01:00.0Z</ws-ht:lastModifiedTime>
            <ws-ht:renderingMethodExists>false</ws-ht:renderingMethodExists>
        </ws-ht:taskDetails>

```

1585

```

        <ws-ht:description>The CS creates the ResponseReport based on the contents
included in the Report 1 and in the Report 2.    </ws-ht:description>

```

1590

```

        <ws-ht:input>
            <!-- one part element for each document in input -->
            <ws-ht:part name="Report1">
                <ws-ht:reference uid="urn:oid:1.2.3.4.4.6"/>

```

```
1595     </ws-ht:part>
        <ws-ht:part name="Report2">
            <ws-ht:reference uid="urn:oid:1.2.3.4.4.7"/>
        </ws-ht:part>
    </ws-ht:input>
    <ws-ht:output>
        <!-- one part element for each document in output -->
1600     <ws-ht:part name="ResponseReport">
            <ws-ht:reference uid="urn:oid:1.2.3.4.4.8"/>
        </ws-ht:part>
    </ws-ht:output>
</xdw:taskData>
1605 <xdw:taskEventHistory>
    <xdw:taskEvent>
        <xdw:id>501</xdw:id>
        <xdw:eventTime>2012-03-10T14:00:00.0Z</xdw:eventTime>
        <xdw:identifier>urn:oid:1.2.3.4.15</xdw:identifier>
1610     <xdw:eventType>create</xdw:eventType>
        <xdw:status>IN_PROGRESS</xdw:status>
    </xdw:taskEvent>
    <xdw:taskEvent>
        <xdw:id>502</xdw:id>
1615     <xdw:eventTime>2012-03-10T14:01:00.0Z</xdw:eventTime>
        <xdw:identifier>urn:oid:1.2.3.4.16</xdw:identifier>
        <xdw:eventType>complete</xdw:eventType>
        <xdw:status>COMPLETED</xdw:status>
    </xdw:taskEvent>
</xdw:taskEventHistory>
1620 </xdw:XDWTask>
    <xdw:XDWTask>
        <xdw:taskData>
            <ws-ht:taskDetails>
1625         <ws-ht:id>6</ws-ht:id>
        <ws-ht:taskType>End</ws-ht:taskType>
        <ws-ht:name>End1</ws-ht:name>
        <ws-ht:status>COMPLETED</ws-ht:status>
        <ws-ht:actualOwner>CSLatestOsperatorName</ws-ht:actualOwner>
1630     <ws-ht:createdTime>2012-03-10T16:00:00.0Z</ws-ht:createdTime>
        <ws-ht:createdBy>CSLatestOsperatorName</ws-ht:createdBy>
        <ws-ht:lastModifiedTime>2012-03-10T16:00:00.0Z</ws-ht:lastModifiedTime>
```

1635

```

        <ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
    </ws-ht:taskDetails>
    <ws-ht:description>The mammography exam is negative and the CS sends the Letter
    result to the woman. </ws-ht:description>

```

1640

```

    <ws-ht:input>
        <!-- one part element for each document in input -->
        <ws-ht:part name="ResponseReport">
            <ws-ht:reference uid="urn:oid:1.2.3.4.4.8"/>
        </ws-ht:part>
    </ws-ht:input>

```

1645

```

    <ws-ht:output>
        <!-- one part element for each document in output -->
        <ws-ht:part name="LetterToPatient">
            <ws-ht:reference uid="urn:oid:1.2.3.4.4.9"/>
        </ws-ht:part>
    </ws-ht:output>

```

1650

```

</xdw:taskData>
<xdw:taskEventHistory>

```

1655

```

    <xdw:taskEvent>
        <xdw:id>601</xdw:id>
        <xdw:eventTime>2012-03-10T16:00:00.0Z</xdw:eventTime>
        <xdw:identifier>urn:oid:1.2.3.4.17</xdw:identifier>
        <xdw:eventType>complete</xdw:eventType>
        <xdw:status>COMPLETED</xdw:status>
    </xdw:taskEvent>

```

1660

```

    </xdw:XDWTask>
</xdw:TaskList>
</xdw:XDW.WorkflowDocument>

```

1665

Example: Implementation of the XML Workflow Document for the French use case:

1670

```

<?xml version="1.0" encoding="UTF-8"?>
<xdw:XDW.WorkflowDocument xmlns:hl7="urn:hl7-org:v3"
    xmlns:ws-ht="http://docs.oasis-open.org/ns/bpel4people/ws-humantask/types/200803"
    xmlns:xdw="urn:ihe:iti:2011:xdw"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="urn:ihe:iti:2011:xdw file:XDW-2012-06-21.xsd">

```

1675

```
<xdw:id root="1.2.3.4.5"/>
<xdw:effectiveTime value="20120310160000"/>
<xdw:confidentialityCode code="1.24.3.3.3"/>
<xdw:patient>
  <xdw:id root="1.3.6.1.4.1.21367.13.20.1000" extension="33333"
assigningAuthorityName="IHERED"/>
```

1680

```
</xdw:patient>
<xdw:author>
  <xdw:assignedPerson>
    <hl7:name>
      <hl7:family>OGD_Operator</hl7:family>
      <hl7:prefix>Mr.</hl7:prefix>
```

1685

```
</hl7:name>
  </xdw:assignedPerson>
</xdw:author>
```

1690

```
<xdw:workflowInstanceID>urn:oid:1.2.3.4</xdw:workflowInstanceID>
<xdw:workflowDocumentSequenceNumber>6</xdw:workflowDocumentSequenceNumber>
<xdw:workflowStatus>CLOSED</xdw:workflowStatus>
<xdw:workflowStatusHistory>
```

1695

```
<xdw:documentEvent>
  <xdw:eventTime>2012-02-27T09:00:00.0Z</xdw:eventTime>
  <xdw:eventType>create</xdw:eventType>
  <xdw:taskEventIdentifier> urn:oid:1.2.3.4.5</xdw:taskEventIdentifier>
  <xdw:author>OGD_Operator</xdw:author>
  <xdw:previousStatus></xdw:previousStatus>
  <xdw:actualStatus>OPEN</xdw:actualStatus>
```

1700

```
</xdw:documentEvent>
<xdw:documentEvent>
  <xdw:eventTime>2012-03-10T16:00:00.0Z</xdw:eventTime>
  <xdw:eventType>complete</xdw:eventType>
  <xdw:taskEventIdentifier> urn:oid:1.2.3.4.17</xdw:taskEventIdentifier>
  <xdw:author>OGD_Operator</xdw:author>
  <xdw:previousStatus>OPEN</xdw:previousStatus>
  <xdw:actualStatus>CLOSED</xdw:actualStatus>
```

1705

```
</xdw:documentEvent>
</xdw:workflowStatusHistory>
<xdw:workflowDefinitionReference>urn:oid:1.2.3.4.5.6.7.8.9</xdw:workflowDefinitionReference>
```

1710

```
<xdw:TaskList>
  <xdw:XDWTask>
    <xdw:taskData>
```

1715

```

<ws-ht:taskDetails>
  <ws-ht:id>1</ws-ht:id>
  <ws-ht:taskType>RecruitmentScheduling</ws-ht:taskType>
  <ws-ht:name>RecruitmentScheduling</ws-ht:name>
  <ws-ht:status>COMPLETED</ws-ht:status>
  <ws-ht:actualOwner>OGD_Operator</ws-ht:actualOwner>
  <ws-ht:createdTime>2012-02-27T09:00:00.0Z</ws-ht:createdTime>
  <ws-ht:createdBy>OGD_Operator</ws-ht:createdBy>
  <ws-ht:lastModifiedTime>2012-02-27T09:01:00.0Z</ws-ht:lastModifiedTime>
  <ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
</ws-ht:taskDetails>

```

1720

1725

```

  <ws-ht:description>Invitation of the eligible women to attend the mammography
screening appointment.</ws-ht:description>

```

1730

```

  <ws-ht:input>
    <!-- one part element for each document in input -->
    <ws-ht:part name="MSWomanDoc"          <!--Item from the list of eligible
women documentId-->
      <ws-ht:reference uid="urn:oid:1.2.3.4.4.1"/>
    </ws-ht:part>
  </ws-ht:input>

```

1735

```

  <ws-ht:output>
    <!-- one part element for each document in output -->
    <ws-ht:part name="InvitationLetter"    <!--Invitation Letter-->
      <ws-ht:reference uid="urn:oid:1.2.3.4.4.2"/>
    </ws-ht:part>
  </ws-ht:output>

```

1740

```

</xdw:taskData>
<xdw:taskEventHistory>

```

1745

```

  <xdw:taskEvent>
    <xdw:id>101</xdw:id>
    <xdw:eventTime>2012-02-27T09:00:00.0Z</xdw:eventTime>
    <xdw:identifier>urn:oid:1.2.3.4.5</xdw:identifier>
    <xdw:eventType>create</xdw:eventType>
    <xdw:status>COMPLETED</xdw:status>
  </xdw:taskEvent>

```

1750

```

  <xdw:taskEvent>
    <xdw:id>102</xdw:id>
    <xdw:eventTime>2012-02-27T09:00:30.0Z</xdw:eventTime>
    <xdw:identifier>urn:oid:1.2.3.4.6</xdw:identifier>
    <xdw:eventType>release</xdw:eventType>
    <xdw:status>IN_PROGRESS</xdw:status>

```

1755

&lt;/xdw:taskEvent&gt;

&lt;xdw:taskEvent&gt;

&lt;xdw:id&gt;103&lt;/xdw:id&gt;

&lt;xdw:eventTime&gt;2012-02-27T09:01:00.0Z&lt;/xdw:eventTime&gt;

&lt;xdw:identifier&gt;urn:oid:1.2.3.4.7&lt;/xdw:identifier&gt;

&lt;xdw:eventType&gt;complete&lt;/xdw:eventType&gt;

1760

&lt;xdw:status&gt;COMPLETED&lt;/xdw:status&gt;

&lt;/xdw:taskEvent&gt;

&lt;/xdw:taskEventHistory&gt;

&lt;/xdw:XDWTask&gt;

1765

&lt;xdw:XDWTask&gt;

&lt;xdw:taskData&gt;

&lt;ws-ht:taskDetails&gt;

&lt;ws-ht:id&gt;2&lt;/ws-ht:id&gt;

&lt;ws-ht:taskType&gt;Examination&lt;/ws-ht:taskType&gt;

&lt;ws-ht:name&gt;Examination&lt;/ws-ht:name&gt;

1770

&lt;ws-ht:status&gt;COMPLETED&lt;/ws-ht:status&gt;

&lt;ws-ht:actualOwner&gt;Technologist&lt;/ws-ht:actualOwner&gt;

&lt;ws-ht:createdTime&gt;2012-03-05T09:00:00.0Z&lt;/ws-ht:createdTime&gt;

&lt;ws-ht:createdBy&gt;Technologist&lt;/ws-ht:createdBy&gt;

&lt;ws-ht:lastModifiedTime&gt;2012-03-05T09:50:00.0Z&lt;/ws-ht:lastModifiedTime&gt;

1775

&lt;ws-ht:renderingMethodExists&gt;&gt;false&lt;/ws-ht:renderingMethodExists&gt;

&lt;/ws-ht:taskDetails&gt;

&lt;ws-ht:description&gt;The woman attend the appointment and has her basic examination. &lt;/ws-ht:description&gt;

1780

&lt;ws-ht:input&gt;

&lt;!-- one part element for each document in input --&gt;

&lt;ws-ht:part name="InvitationLetter"&gt;

&lt;ws-ht:reference uid="urn:oid:1.2.3.4.4.2"/&gt;

&lt;/ws-ht:part&gt;

&lt;/ws-ht:input&gt;

1785

&lt;ws-ht:output&gt;

&lt;!-- one part element for each document in output --&gt;

&lt;ws-ht:part name="KOSDocument1"&gt;

&lt;ws-ht:reference uid="urn:oid:1.2.3.4.4.3"/&gt;

&lt;/ws-ht:part&gt;

1790

&lt;ws-ht:part name="KOSDocument2"&gt;

&lt;ws-ht:reference uid="urn:oid:1.2.3.4.4.4"/&gt;

&lt;/ws-ht:part&gt;

&lt;/ws-ht:output&gt;

1795

```
</xdw:taskData>
```

```
<xdw:taskEventHistory>
```

```
<xdw:taskEvent>
```

```
<xdw:id>201</xdw:id>
```

```
<xdw:eventTime>2012-03-05T09:00:00.0Z</xdw:eventTime>
```

```
<xdw:identifier>urn:oid:1.2.3.4.8</xdw:identifier>
```

1800

```
<xdw:eventType>create</xdw:eventType>
```

```
<xdw:status>COMPLETED</xdw:status>
```

```
</xdw:taskEvent>
```

```
<xdw:taskEvent>
```

```
<xdw:id>202</xdw:id>
```

```
<xdw:eventTime>2012-03-05T09:20:00.0Z</xdw:eventTime>
```

```
<xdw:identifier>urn:oid:1.2.3.4.9</xdw:identifier>
```

```
<xdw:eventType>release</xdw:eventType>
```

```
<xdw:status>IN_PROGRESS</xdw:status>
```

1805

```
</xdw:taskEvent>
```

```
<xdw:taskEvent>
```

```
<xdw:id>203</xdw:id>
```

```
<xdw:eventTime>2012-03-05T09:50:00.0Z</xdw:eventTime>
```

```
<xdw:identifier>urn:oid:1.2.3.4.10</xdw:identifier>
```

```
<xdw:eventType>complete</xdw:eventType>
```

```
<xdw:status>COMPLETED</xdw:status>
```

1810

```
</xdw:taskEvent>
```

```
</xdw:taskEventHistory>
```

```
</xdw:XDWTask>
```

```
<xdw:XDWTask>
```

1815

```
<xdw:taskData>
```

```
<ws-ht:taskDetails>
```

```
<ws-ht:id>3</ws-ht:id>
```

```
<ws-ht:taskType>Evaluation</ws-ht:taskType>
```

```
<ws-ht:name>EvaluationA</ws-ht:name>
```

```
<ws-ht:status>COMPLETED</ws-ht:status>
```

```
<ws-ht:actualOwner>RadiologistA</ws-ht:actualOwner>
```

```
<ws-ht:createdTime>2012-03-05T14:00:00.0Z</ws-ht:createdTime>
```

```
<ws-ht:createdBy>RadiologistA</ws-ht:createdBy>
```

```
<ws-ht:lastModifiedTime>2012-03-05T14:10:00.0Z</ws-ht:lastModifiedTime>
```

1825

```
<ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
```

```
</ws-ht:taskDetails>
```

1830

```
<ws-ht:description>The first radiologist interprets the mammography images and produces the Report A and the SIF. </ws-ht:description>
```

1835

```
<ws-ht:input>
  <!-- one part element for each document in input -->
  <ws-ht:part name="KOSDocument1">
    <ws-ht:reference uid="urn:oid:1.2.3.4.4.3"/>
  </ws-ht:part>
  <ws-ht:part name="KOSDocument2">
    <ws-ht:reference uid="urn:oid:1.2.3.4.4.4"/>
  </ws-ht:part>
</ws-ht:input>
```

1840

1845

```
<ws-ht:output>
  <!-- one part element for each document in output -->
  <ws-ht:part name="ReportA">
    <ws-ht:reference uid="urn:oid:1.2.3.4.4.5"/>
  </ws-ht:part>
  <ws-ht:part name="SIF">
    <ws-ht:reference uid="urn:oid:1.2.3.4.4.6"/>
  </ws-ht:part>
</ws-ht:output>
```

1850

1855

```
</xdw:taskData>
<xdw:taskEventHistory>
  <xdw:taskEvent>
    <xdw:id>301</xdw:id>
    <xdw:eventTime>2012-03-05T14:00:00.0Z</xdw:eventTime>
    <xdw:identifier>urn:oid:1.2.3.4.11</xdw:identifier>
    <xdw:eventType>create</xdw:eventType>
    <xdw:status>IN_PROGRESS</xdw:status>
```

1860

1865

```
</xdw:taskEvent>
  <xdw:taskEvent>
    <xdw:id>302</xdw:id>
    <xdw:eventTime>2012-03-05T14:10:00.0Z</xdw:eventTime>
    <xdw:identifier>urn:oid:1.2.3.4.12</xdw:identifier>
    <xdw:eventType>complete</xdw:eventType>
    <xdw:status>COMPLETED</xdw:status>
  </xdw:taskEvent>
</xdw:taskEventHistory>
```

1870

```
</xdw:XDWTask>
<xdw:XDWTask>
  <xdw:taskData>
    <ws-ht:taskDetails>
      <ws-ht:id>4</ws-ht:id>
```

1875

```

<ws-ht:taskType>Evaluation</ws-ht:taskType>
<ws-ht:name>EvaluationB</ws-ht:name>
<ws-ht:status>COMPLETED</ws-ht:status>
<ws-ht:actualOwner>RadiologistB</ws-ht:actualOwner>
<ws-ht:createdTime>2012-03-08T14:00:00.0Z</ws-ht:createdTime>
<ws-ht:createdBy>RadiologistB</ws-ht:createdBy>

```

1880

```

<ws-ht:lastModifiedTime>2012-03-08T14:20:00.0Z</ws-ht:lastModifiedTime>
<ws-ht:renderingMethodExists>false</ws-ht:renderingMethodExists>
</ws-ht:taskDetails>

```

1885

<ws-ht:description>The second radiologist interprets the mammography images, the ReportA, the SIF and produces the Report B. </ws-ht:description>

```

<ws-ht:input>

```

```

  <!-- one part element for each document in input -->

```

```

  <ws-ht:part name="KOSDocument1">

```

```

    <ws-ht:reference uid="urn:oid:1.2.3.4.4.3"/>

```

```

  </ws-ht:part>

```

1890

```

  <ws-ht:part name="KOSDocument2">

```

```

    <ws-ht:reference uid="urn:oid:1.2.3.4.4.4"/>

```

```

  </ws-ht:part>

```

```

  <ws-ht:part name="ReportA">

```

```

    <ws-ht:reference uid="urn:oid:1.2.3.4.4.5"/>

```

1895

```

  </ws-ht:part>

```

```

  <ws-ht:part name="SIF">

```

```

    <ws-ht:reference uid="urn:oid:1.2.3.4.4.6"/>

```

```

  </ws-ht:part>

```

```

</ws-ht:input>

```

1900

```

<ws-ht:output>

```

```

  <!-- one part element for each document in output -->

```

```

  <ws-ht:part name="ReportB">

```

```

    <ws-ht:reference uid="urn:oid:1.2.3.4.4.7"/>

```

```

  </ws-ht:part>

```

1905

```

</ws-ht:output>

```

```

</xdw:taskData>

```

```

<xdw:taskEventHistory>

```

```

  <xdw:taskEvent>

```

1910

```

    <xdw:id>401</xdw:id>

```

```

    <xdw:eventTime>2012-03-08T14:00:00.0Z</xdw:eventTime>

```

```

    <xdw:identifier>urn:oid:1.2.3.4.13</xdw:identifier>

```

```

    <xdw:eventType>create</xdw:eventType>

```

```

    <xdw:status>IN_PROGRESS</xdw:status>

```

1915

```

</xdw:taskEvent>
<xdw:taskEvent>
  <xdw:id>402</xdw:id>
  <xdw:eventTime>2012-03-08T14:20:00.0Z</xdw:eventTime>
  <xdw:identifier>urn:oid:1.2.3.4.14</xdw:identifier>
  <xdw:eventType>complete</xdw:eventType>
  <xdw:status>COMPLETED</xdw:status>
</xdw:taskEvent>
  
```

1920

```

</xdw:taskEventHistory>
</xdw:XDWTask>
<xdw:XDWTask>
  
```

1925

```

    <xdw:taskData>
      <ws-ht:taskDetails>
        <ws-ht:id>5</ws-ht:id>
        <ws-ht:taskType>OGDEvaluation</ws-ht:taskType>
        <ws-ht:name>OGDEvaluation</ws-ht:name>
        <ws-ht:status>COMPLETED</ws-ht:status>
        <ws-ht:actualOwner>OGD_Operator</ws-ht:actualOwner>
        <ws-ht:createdTime>2012-03-10T14:00:00.0Z</ws-ht:createdTime>
        <ws-ht:createdBy>OGD_Operator</ws-ht:createdBy>
        <ws-ht:lastModifiedTime>2012-03-10T14:01:00.0Z</ws-ht:lastModifiedTime>
        <ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
      </ws-ht:taskDetails>
  
```

1930

```

    <ws-ht:description>The OGD Operator creates the ResponseReport based on the
contents included in the Report A, SIF and in the Report B. </ws-ht:description>
  
```

1935

```

    <ws-ht:input>
      <!-- one part element for each document in input -->
  
```

1940

```

      <ws-ht:part name="ReportA">
        <ws-ht:reference uid="urn:oid:1.2.3.4.4.5"/>
      </ws-ht:part>
  
```

1945

```

      <ws-ht:part name="SIF">
        <ws-ht:reference uid="urn:oid:1.2.3.4.4.6"/>
      </ws-ht:part>
  
```

1950

```

      <ws-ht:part name="ReportB">
        <ws-ht:reference uid="urn:oid:1.2.3.4.4.5"/>
      </ws-ht:part>
    </ws-ht:input>
    <ws-ht:output>
      <!-- one part element for each document in output -->
  
```

1955

```
<ws-ht:part name="ResponseReport">
  <ws-ht:reference uid="urn:oid:1.2.3.4.4.8"/>
</ws-ht:part>
```

1960

```
</ws-ht:output>
</xdw:taskData>
<xdw:taskEventHistory>
  <xdw:taskEvent>
    <xdw:id>501</xdw:id>
    <xdw:eventTime>2012-03-10T14:00:00.0Z</xdw:eventTime>
    <xdw:identifier>urn:oid:1.2.3.4.15</xdw:identifier>
    <xdw:eventType>create</xdw:eventType>
    <xdw:status>IN_PROGRESS</xdw:status>
  </xdw:taskEvent>
```

1965

```
<xdw:taskEvent>
  <xdw:id>502</xdw:id>
  <xdw:eventTime>2012-03-10T14:01:00.0Z</xdw:eventTime>
  <xdw:identifier>urn:oid:1.2.3.4.16</xdw:identifier>
  <xdw:eventType>complete</xdw:eventType>
  <xdw:status>COMPLETED</xdw:status>
</xdw:taskEvent>
```

1970

```
</xdw:taskEventHistory>
```

1975

```
</xdw:XDWTask>
<xdw:XDWTask>
```

1980

```
<xdw:taskData>
  <ws-ht:taskDetails>
    <ws-ht:id>6</ws-ht:id>
    <ws-ht:taskType>End</ws-ht:taskType>
    <ws-ht:name>End1</ws-ht:name>
    <ws-ht:status>COMPLETED</ws-ht:status>
    <ws-ht:actualOwner>OGD_Operator</ws-ht:actualOwner>
    <ws-ht:createdTime>2012-03-10T16:00:00.0Z</ws-ht:createdTime>
    <ws-ht:createdBy>OGD_Operator</ws-ht:createdBy>
    <ws-ht:lastModifiedTime>2012-03-10T16:00:00.0Z</ws-ht:lastModifiedTime>
    <ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
  </ws-ht:taskDetails>
```

1985

1990

```
<ws-ht:description>The mammography exam is negative and the OGD_Operator sends
the Letter result to the woman. </ws-ht:description>
<ws-ht:input>
  <!-- one part element for each document in input -->
  <ws-ht:part name="ResponseReport">
```

1995

```

        <ws-ht:reference uid="urn:oid:1.2.3.4.4.8"/>
    </ws-ht:part>
</ws-ht:input>
<ws-ht:output>
    <!-- one part element for each document in output -->

```

2000

```

        <ws-ht:part name="LetterToPatient">
            <ws-ht:reference uid="urn:oid:1.2.3.4.4.9"/>
        </ws-ht:part>
    </ws-ht:output>
</xdw:taskData>
<xdw:taskEventHistory>

```

2005

```

    <xdw:taskEvent>
        <xdw:id>601</xdw:id>
        <xdw:eventTime>2012-03-10T16:00:00.0Z</xdw:eventTime>
        <xdw:identifier>urn:oid:1.2.3.4.17</xdw:identifier>
        <xdw:eventType>complete</xdw:eventType>

```

2010

```

        <xdw:status>COMPLETED</xdw:status>
    </xdw:taskEvent>
</xdw:taskEventHistory>
</xdw:XDWTask>
</xdw:TaskList>

```

2015

```

</xdw:XDW.WorkflowDocument>

```

Example: Implementation of the XML Workflow Document for the Ontario use case:

2020

```

<?xml version="1.0" encoding="UTF-8"?>
<xdw:XDW.WorkflowDocument xmlns:hl7="urn:hl7-org:v3"
    xmlns:ws-ht="http://docs.oasis-open.org/ns/bpel4people/ws-humantask/types/200803"
    xmlns:xdw="urn:ihe:iti:2011:xdw"

```

2025

```

    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="urn:ihe:iti:2011:xdw file:XDW-2012-06-21.xsd">
    <xdw:id root="1.2.3.4.5"/>
    <xdw:effectiveTime value="20120305161500"/>
    <xdw:confidentialityCode code="1.24.3.3.3"/>

```

2030

```

    <xdw:patient>
        <xdw:id root="1.3.6.1.4.1.21367.13.20.1000" extension="33333"
        assigningAuthorityName="IHERED"/>
    </xdw:patient>

```

2035

```
<xdw:author>
```

```
  <xdw:assignedPerson>
```

```
    <hl7:name>
```

```
      <hl7:family>OBSP_IS_Operator</hl7:family>
```

```
      <hl7:prefix>Mr.</hl7:prefix>
```

```
    </hl7:name>
```

2040

```
  </xdw:assignedPerson>
```

```
</xdw:author>
```

```
<xdw:workflowInstanceID>urn:oid:1.2.3.4</xdw:workflowInstanceID>
```

```
<xdw:workflowDocumentSequenceNumber>6</xdw:workflowDocumentSequenceNumber>
```

```
<xdw:workflowStatus>CLOSED</xdw:workflowStatus>
```

2045

```
<xdw:workflowStatusHistory>
```

```
  <xdw:documentEvent>
```

```
    <xdw:eventTime>2012-02-27T09:00:00.0Z</xdw:eventTime>
```

```
    <xdw:eventType>create</xdw:eventType>
```

```
    <xdw:taskEventIdentifier> urn:oid:1.2.3.4.5</xdw:taskEventIdentifier>
```

2050

```
    <xdw:author>OBSP_IS_Operator</xdw:author>
```

```
    <xdw:previousStatus></xdw:previousStatus>
```

```
    <xdw:actualStatus>OPEN</xdw:actualStatus>
```

```
  </xdw:documentEvent>
```

```
  <xdw:documentEvent>
```

2055

```
    <xdw:eventTime>2012-03-05T16:15:00.0Z</xdw:eventTime>
```

```
    <xdw:eventType>complete</xdw:eventType>
```

```
    <xdw:taskEventIdentifier> urn:oid:1.2.3.4.17</xdw:taskEventIdentifier>
```

```
    <xdw:author>OBSP_SFAS_Operator</xdw:author>
```

```
    <xdw:previousStatus>OPEN</xdw:previousStatus>
```

2060

```
    <xdw:actualStatus>CLOSED</xdw:actualStatus>
```

```
  </xdw:documentEvent>
```

```
</xdw:workflowStatusHistory>
```

```
<xdw:workflowDefinitionReference>urn:oid:1.2.3.4.5.6.7.8.9</xdw:workflowDefinitionReference>
```

```
<xdw:TaskList>
```

2065

```
  <xdw:XDWTask>
```

```
    <xdw:taskData>
```

```
      <ws-ht:taskDetails>
```

```
        <ws-ht:id>1</ws-ht:id>
```

```
        <ws-ht:taskType>Recruitment</ws-ht:taskType>
```

2070

```
        <ws-ht:name>Recruitment</ws-ht:name>
```

```
        <ws-ht:status>COMPLETED</ws-ht:status>
```

```
        <ws-ht:actualOwner>OBSP_IS_Operator</ws-ht:actualOwner>
```

```
        <ws-ht:createdTime>2012-02-27T09:00:00.0Z</ws-ht:createdTime>
```

2075

```
<ws-ht:createdBy>OBSP_IS_Operator</ws-ht:createdBy>
```

```
<ws-ht:lastModifiedTime>2012-02-27T09:01:00.0Z</ws-ht:lastModifiedTime>
```

```
<ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
```

```
</ws-ht:taskDetails>
```

```
<ws-ht:description>Invitation of the eligible women to attend the mammography  
screening appointment.</ws-ht:description>
```

2080

```
<ws-ht:input>
```

```
<!-- one part element for each document in input -->
```

```
<ws-ht:part name="MSWomanDoc" <!--Item from the list of eligible  
women documentId-->
```

```
<ws-ht:reference uid="urn:oid:1.2.3.4.4.1"/>
```

2085

```
</ws-ht:part>
```

```
</ws-ht:input>
```

```
<ws-ht:output>
```

```
<!-- one part element for each document in output -->
```

2090

```
<ws-ht:part name="InvitationLetter" <!--Invitation Letter-->
```

```
<ws-ht:reference uid="urn:oid:1.2.3.4.4.2"/>
```

```
</ws-ht:part>
```

```
</ws-ht:output>
```

```
</xdw:taskData>
```

```
<xdw:taskEventHistory>
```

2095

```
<xdw:taskEvent>
```

```
<xdw:id>101</xdw:id>
```

```
<xdw:eventTime>2012-02-27T09:00:00.0Z</xdw:eventTime>
```

```
<xdw:identifier>urn:oid:1.2.3.4.5</xdw:identifier>
```

```
<xdw:eventType>create</xdw:eventType>
```

2100

```
<xdw:status>COMPLETED</xdw:status>
```

```
</xdw:taskEvent>
```

```
<xdw:taskEvent>
```

```
<xdw:id>102</xdw:id>
```

```
<xdw:eventTime>2012-02-27T09:00:30.0Z</xdw:eventTime>
```

2105

```
<xdw:identifier>urn:oid:1.2.3.4.6</xdw:identifier>
```

```
<xdw:eventType>release</xdw:eventType>
```

```
<xdw:status>IN_PROGRESS</xdw:status>
```

```
</xdw:taskEvent>
```

```
<xdw:taskEvent>
```

2110

```
<xdw:id>103</xdw:id>
```

```
<xdw:eventTime>2012-02-27T09:01:00.0Z</xdw:eventTime>
```

```
<xdw:identifier>urn:oid:1.2.3.4.7</xdw:identifier>
```

```
<xdw:eventType>complete</xdw:eventType>
```

```
<xdw:status>COMPLETED</xdw:status>
```

```

2115     </xdw:taskEvent>
        </xdw:taskEventHistory>
    </xdw:XDWTask>
    <xdw:XDWTask>
2120     <xdw:taskData>
        <ws-ht:taskDetails>
            <ws-ht:id>2</ws-ht:id>
            <ws-ht:taskType>Scheduling</ws-ht:taskType>
            <ws-ht:name>Scheduling</ws-ht:name>
            <ws-ht:status>COMPLETED</ws-ht:status>
2125     <ws-ht:actualOwner>Technologist</ws-ht:actualOwner>
            <ws-ht:createdTime>2012-02-28T09:00:00.0Z</ws-ht:createdTime>
            <ws-ht:createdBy>Technologist</ws-ht:createdBy>
            <ws-ht:lastModifiedTime>2012-02-28T09:10:00.0Z</ws-ht:lastModifiedTime>
            <ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
2130     </ws-ht:taskDetails>
            <ws-ht:description>The woman phones to the screening centre and books the
appointment. </ws-ht:description>
            <ws-ht:input>
                <!-- one part element for each document in input -->
2135     <ws-ht:part name="InvitationLetter">
                    <ws-ht:reference uid="urn:oid:1.2.3.4.4.2"/>
                </ws-ht:part>
            </ws-ht:input>
            <ws-ht:output>
                <!-- one part element for each document in output -->
2140     <ws-ht:part name="AppointmentInformation">
                    <ws-ht:reference uid="urn:oid:1.2.3.4.4.3"/>
                </ws-ht:part>
            </ws-ht:output>
2145     </xdw:taskData>
    <xdw:taskEventHistory>
        <xdw:taskEvent>
            <xdw:id>201</xdw:id>
            <xdw:eventTime>2012-02-28T09:00:00.0Z</xdw:eventTime>
2150     <xdw:identifier>urn:oid:1.2.3.4.8</xdw:identifier>
            <xdw:eventType>create</xdw:eventType>
            <xdw:status>COMPLETED</xdw:status>
        </xdw:taskEvent>
        <xdw:taskEvent>

```

```

2155     <xdw:id>202</xdw:id>
        <xdw:eventTime>2012-02-28T09:05:00.0Z</xdw:eventTime>
        <xdw:identifier>urn:oid:1.2.3.4.9</xdw:identifier>
        <xdw:eventType>release</xdw:eventType>
        <xdw:status>IN_PROGRESS</xdw:status>
2160     </xdw:taskEvent>
        <xdw:taskEvent>
            <xdw:id>203</xdw:id>
            <xdw:eventTime>2012-02-28T09:10:00.0Z</xdw:eventTime>
            <xdw:identifier>urn:oid:1.2.3.4.10</xdw:identifier>
2165     <xdw:eventType>complete</xdw:eventType>
            <xdw:status>COMPLETED</xdw:status>
        </xdw:taskEvent>
    </xdw:taskEventHistory>
</xdw:XDWTask>
2170 <xdw:XDWTask>
    <xdw:taskData>
        <ws-ht:taskDetails>
            <ws-ht:id>3</ws-ht:id>
            <ws-ht:taskType>Admission</ws-ht:taskType>
2175     <ws-ht:name>Admission</ws-ht:name>
            <ws-ht:status>COMPLETED</ws-ht:status>
            <ws-ht:actualOwner>OBSP_CS_Operator</ws-ht:actualOwner>
            <ws-ht:createdTime>2012-03-05T14:00:00.0Z</ws-ht:createdTime>
            <ws-ht:createdBy>OBSP_CS_Operator</ws-ht:createdBy>
2180     <ws-ht:lastModifiedTime>2012-03-05T14:00:00.0Z</ws-ht:lastModifiedTime>
            <ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
        </ws-ht:taskDetails>
        <ws-ht:description>The woman attends the appointment at the screening facility
and provides informations and consent. </ws-ht:description>
2185     <ws-ht:input>
        <!-- one part element for each document in input -->
        <ws-ht:part name="AppointmentInformation">
            <ws-ht:reference uid="urn:oid:1.2.3.4.4.3"/>
        </ws-ht:part>
2190     </ws-ht:input>
        <ws-ht:output>
        <!-- one part element for each document in output -->
        <ws-ht:part name="ExaminationData">
            <ws-ht:reference uid="urn:oid:1.2.3.4.4.4"/>

```

```

2195         </ws-ht:part>
           <ws-ht:part name="ConsentForm">
             <ws-ht:reference uid="urn:oid:1.2.3.4.4.5"/>
           </ws-ht:part>
         </ws-ht:output>
2200 </xdw:taskData>
       <xdw:taskEventHistory>
         <xdw:taskEvent>
           <xdw:id>301</xdw:id>
           <xdw:eventTime>2012-03-05T14:00:00.0Z</xdw:eventTime>
2205 <xdw:identifier>urn:oid:1.2.3.4.11</xdw:identifier>
           <xdw:eventType>create</xdw:eventType>
           <xdw:status>COMPLETED</xdw:status>
         </xdw:taskEvent>
       </xdw:taskEventHistory>
     </xdw:XDWTask>
   <xdw:XDWTask>
     <xdw:taskData>
       <ws-ht:taskDetails>
         <ws-ht:id>4</ws-ht:id>
2215 <ws-ht:taskType>Examination</ws-ht:taskType>
         <ws-ht:name>Examination</ws-ht:name>
         <ws-ht:status>COMPLETED</ws-ht:status>
         <ws-ht:actualOwner>Technologist</ws-ht:actualOwner>
         <ws-ht:createdTime>2012-03-05T14:10:00.0Z</ws-ht:createdTime>
2220 <ws-ht:createdBy>Nurse</ws-ht:createdBy>
         <ws-ht:lastModifiedTime>2012-03-05T14:40:00.0Z</ws-ht:lastModifiedTime>
         <ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
       </ws-ht:taskDetails>
       <ws-ht:description>The woman has her examination: Nurse exam, Mammographic exam.
2225 </ws-ht:description>
       <ws-ht:input>
         <!-- one part element for each document in input -->
         <ws-ht:part name="ExaminationData">
           <ws-ht:reference uid="urn:oid:1.2.3.4.4.4"/>
2230 </ws-ht:part>
       </ws-ht:input>
       <ws-ht:output>
         <!-- one part element for each document in output -->

```

```
2235     <ws-ht:part name="NurseReport">
          <ws-ht:reference uid="urn:oid:1.2.3.4.4.6"/>
        </ws-ht:part>
          <ws-ht:part name="MammogramsID">
          <ws-ht:reference uid="urn:oid:1.2.3.4.4.7"/>
2240     </ws-ht:part>
          <ws-ht:part name="TechnologistNotes">
          <ws-ht:reference uid="urn:oid:1.2.3.4.4.8"/>
          </ws-ht:part>
        </ws-ht:output>
2245 </xdw:taskData>
<xdw:taskEventHistory>
  <xdw:taskEvent>
    <xdw:id>401</xdw:id>
    <xdw:eventTime>2012-03-05T14:10:00.0Z</xdw:eventTime>
2250 <xdw:identifier>urn:oid:1.2.3.4.12</xdw:identifier>
    <xdw:eventType>create</xdw:eventType>
    <xdw:status>IN_PROGRESS</xdw:status>
  </xdw:taskEvent>
  <xdw:taskEvent>
    <xdw:id>402</xdw:id>
    <xdw:eventTime>2012-03-05T14:40:00.0Z</xdw:eventTime>
2255 <xdw:identifier>urn:oid:1.2.3.4.13</xdw:identifier>
    <xdw:eventType>complete</xdw:eventType>
    <xdw:status>COMPLETED</xdw:status>
  </xdw:taskEvent>
</xdw:taskEventHistory>
</xdw:XDWTask>
<xdw:XDWTask>
  <xdw:taskData>
2265 <ws-ht:taskDetails>
    <ws-ht:id>5</ws-ht:id>
    <ws-ht:taskType>Reporting</ws-ht:taskType>
    <ws-ht:name>Reporting</ws-ht:name>
    <ws-ht:status>COMPLETED</ws-ht:status>
2270 <ws-ht:actualOwner>OBSP_Radiologist</ws-ht:actualOwner>
    <ws-ht:createdTime>2012-03-05T15:00:00.0Z</ws-ht:createdTime>
    <ws-ht:createdBy>OBSP_Radiologist</ws-ht:createdBy>
    <ws-ht:lastModifiedTime>2012-03-05T15:15:00.0Z</ws-ht:lastModifiedTime>
    <ws-ht:renderingMethodExists>false</ws-ht:renderingMethodExists>
```

```
2275         </ws-ht:taskDetails>
other documents <ws-ht:description>The OBSP radiologist interprets the mammography images and
and produces the Report </ws-ht:description>
2280         <ws-ht:input>
                <!-- one part element for each document in input -->
                <ws-ht:part name="NurseReport">
                <ws-ht:reference uid="urn:oid:1.2.3.4.4.6"/>
                </ws-ht:part>
2285         <ws-ht:part name="MammogramsID">
                <ws-ht:reference uid="urn:oid:1.2.3.4.4.7"/>
                </ws-ht:part>
                <ws-ht:part name="TechnologistNotes">
                <ws-ht:reference uid="urn:oid:1.2.3.4.4.8"/>
                </ws-ht:part>
2290         </ws-ht:input>
        <ws-ht:output>
                <!-- one part element for each document in output -->
                <ws-ht:part name="Report">
                <ws-ht:reference uid="urn:oid:1.2.3.4.4.8"/>
2295         </ws-ht:part>
                </ws-ht:output>
        </xdw:taskData>
        <xdw:taskEventHistory>
                <xdw:taskEvent>
2300                 <xdw:id>501</xdw:id>
                <xdw:eventTime>2012-03-05T15:00:00.0Z</xdw:eventTime>
                <xdw:identifier>urn:oid:1.2.3.4.14</xdw:identifier>
                <xdw:eventType>create</xdw:eventType>
                <xdw:status>IN_PROGRESS</xdw:status>
2305         </xdw:taskEvent>
                <xdw:taskEvent>
                <xdw:id>502</xdw:id>
                <xdw:eventTime>2012-03-05T15:15:00.0Z</xdw:eventTime>
                <xdw:identifier>urn:oid:1.2.3.4.15</xdw:identifier>
2310         <xdw:eventType>complete</xdw:eventType>
                <xdw:status>COMPLETED</xdw:status>
                </xdw:taskEvent>
        </xdw:taskEventHistory>
</xdw:XDWTask>
```

```

2315 <xdw:XDWTask>
      <xdw:taskData>
        <ws-ht:taskDetails>
          <ws-ht:id>6</ws-ht:id>
2320 <ws-ht:taskType>Evaluation</ws-ht:taskType>
          <ws-ht:name>Evaluation</ws-ht:name>
          <ws-ht:status>COMPLETED</ws-ht:status>
          <ws-ht:actualOwner>OBSP_SFAS_Operator</ws-ht:actualOwner>
          <ws-ht:createdTime>2012-03-05T16:00:00.0Z</ws-ht:createdTime>
          <ws-ht:createdBy>OBSP_SFAS_Operator</ws-ht:createdBy>
2325 <ws-ht:lastModifiedTime>2012-03-05T16:15:00.0Z</ws-ht:lastModifiedTime>
          <ws-ht:renderingMethodExists>>false</ws-ht:renderingMethodExists>
        </ws-ht:taskDetails>
        <ws-ht:description>The OBSP Screening Facility Administrative Staff SFAS composes
2330 the notification for the screening results to the woman and her GP. </ws-ht:description>
        <ws-ht:input>
          <!-- one part element for each document in input -->
          <ws-ht:part name="Report">
            <ws-ht:reference uid="urn:oid:1.2.3.4.4.9"/>
          </ws-ht:part>
2335 </ws-ht:input>
        <ws-ht:output>
          <!-- one part element for each document in output -->
          <ws-ht:part name="LetterToPatient">
            <ws-ht:reference uid="urn:oid:1.2.3.4.4.10"/>
2340 </ws-ht:part>
          <ws-ht:part name="LetterToGP">
            <ws-ht:reference uid="urn:oid:1.2.3.4.4.11"/>
          </ws-ht:part>
          <ws-ht:part name="Recommendation">
2345 <ws-ht:reference uid="urn:oid:1.2.3.4.4.12"/>
          </ws-ht:part>
        </ws-ht:output>
      </xdw:taskData>
      <xdw:taskEventHistory>
2350 <xdw:taskEvent>
        <xdw:id>601</xdw:id>
        <xdw:eventTime>2012-03-05T16:00:00.0Z</xdw:eventTime>
        <xdw:identifier>urn:oid:1.2.3.4.16</xdw:identifier>
        <xdw:eventType>create</xdw:eventType>

```

2355

```
<xdw:status>IN_PROGRESS</xdw:status>
```

```
</xdw:taskEvent>
```

```
<xdw:taskEvent>
```

```
<xdw:id>602</xdw:id>
```

2360

```
<xdw:eventTime>2012-03-05T16:15:00.0Z</xdw:eventTime>
```

```
<xdw:identifier>urn:oid:1.2.3.4.17</xdw:identifier>
```

```
<xdw:eventType>complete</xdw:eventType>
```

```
<xdw:status>COMPLETED</xdw:status>
```

```
</xdw:taskEvent>
```

```
</xdw:taskEventHistory>
```

2365

```
</xdw:XDWTask>
```

```
</xdw:TaskList>
```

```
</xdw:XDW.WorkflowDocument>
```

## Glossary

2370 **Workflow Document:** The instrument to manage and track a shared workflow. It records the creation of tasks and maintains a historical record of tasks as they move through the associated workflow. The Workflow Document also maintains the references to health information input and output associated with each task. Such shared workflow status information allows the various participating systems to coordinate by:

- 2375
- being aware of the history of a workflow for a patient
  - obtaining and reading the workflow's incomplete tasks
  - updating this shared document as the workflow tasks are performed according to a referenced workflow definition

2380 **Content Consumer:** A XDW actor using the contents created and updated by the Content Creator and the Content Updater respectively.

**Content Creator:** A XDW actor having the duty to create the Workflow Document.

**Content Updater:** A XDW actor that modifies the Workflow Document when it is required throughout the workflow.

2385 **XDW Content profile:** The gathering of the Content Creator, the Content Consumer and the Content Updater.