Health BPM Workshop

Outbrief Notes for Industry Event
December 6, 2016
OMG Meeting, Coronado, CA
Goals of the Breakout Sessions

• Stratify the “stack” from Platform Independent (PIM) to Setting Specific (e.g., considering institutional or organizational factors/constraints) to Platform Specific (PSM)

• Substantiate the transitions between “layers”
  • Establish an ontology
  • Assume/enforce that lower layers comply/conform

• Define boundaries between the three classifications described above

• Note: The set defined becomes the intersect between workflow activities and an “Order Catalog”

• An Example: A given process step, such as “Capture Xray Image” would be platform independent, but the manifestation is expected to be setting specific (e.g., one site may use film while another is digital). When ultimately mapping to the platform specific instance, considerations such as existing IT systems, interface protocol, etc. all come into play. Note the increasing specificity and refinement as we traverse the stack.

This illustrates the value of the approach, where a high-level flow can be standardized, but allowing for “degrees of freedom” in implementation to accommodate specific assets and institutional differences, so long as those do not compromise the overall flow being documented.
Breakout Group: Conceptual and Platform Independent

- Leverages OMG “language” specifications
  - BPMN
  - CMMN
  - DMN
- Platform Independent Representation
- While the guide itself will be setting-independent, it is envisioned to be applied to situations that are setting-specific, particularly through the mapping to PSM-level realization

Note that multiple other candidate dimensions were identified, including
- Setting Specific/Independent
- Platform Specific/Independent
- Business Model
- Technical Platform
- Resources

Key Success Factors Included:
- Maintenance of consistent semantics [Level of model, role in process, etc.]
- Suitability/Selection of Content Language for Best Fit [Degrees of Freedom supported, types of processes, activities, etc.]
- “Contract” for Knowledge Assets [How boundaries are established; support for composition, etc.]

Core Principles
- Implementable
  (intention is that models can be expressed in standards-based tooling and directly executed wherever possible)
- Narrow in scope (not trying to “boil the ocean”)
  (Models produced will be expressions of business processes and/or workflows that are part of care delivery, wellness management, etc.)
- Self-describing
  (Models should be sufficiently and rigorously enough expressed that they can stand alone and be appropriately and accurately interpreted without undue context required.)
- Define metadata
  (Inherent in the model definition pattern will be sufficient metadata descriptors to allow for the efficient, accurate discovery of relevant models by other parties or institutions.)
- Modularity of Process
  (Intention is that models are composable, with very complex processes being expressed as the aggregate of smaller model parts.)
Breakout Group: Conceptual and Platform Independent

• **Recommended Action:** Create *Health Process Modeling “Field Guide”*
  
  • Target audience is a modeler working within a health institution tasked with documenting a process to be standardized, to be consumed, or to be shared (e.g., reusability)
  • Authored based upon a community of practice
  • Stratifies the different layers of modeling, rationalizing each and explaining traversal among them
    • Define the process for Stratification
    • Define the process for Validation
  • Substantiates which language(s) are used for what purpose (BPMN, CMMN, DMN, others)
  • Defines and addresses Context and associated Semantics vis-à-vis the models and their use
    • Activity, roles, resources, location
    • Profiling (Gaps-Alerts, reminders, advisory, notification)
    • Relate to emerging work (Mayo ‘Work Domain’, VA’s ‘Clinical Care Ontology’, etc.)
  • **The field guide will not itself define models – it will define HOW to model so that the resultant models are capable of being shared**
Assumption was that the input to the platform-specific workflow was a well-defined model that:
- Met business objectives/goals
- Is expressed in a computable form (BPMN, CMMN, DMN)

Given the above, the task was to define how the models are to be implemented relative to the systems they interact with.

A notional workflow was developed, spanning multiple systems.

[Action Item to formally model this in a tool]
Breakout Group: Platform Specific and FHIR Considerations

• Key Takeaways

Given this as scope and objective, we assumed the following for a starting point:

• A well-defined, computable model (or set of models)
• A set of clinical systems that are involved in the execution of this model and provide the data and workflow events necessary to traverse the model
• Defined data standards for accessing, processing and consuming data from these clinical systems
• A model execution engine that executes the provided model externally to the existing clinical systems (assuming that the existing clinical systems are not designed to natively import an externally defined model)

Challenges identified included defining:

• A means to obtain and execute the computable model(s)
• A means to access and process the data (in real time) from the clinical systems involved in the workflow
• A means to access and process the workflow events (in real time) that trigger activities in the computable model(s)
• A means to publish the outcomes of the model execution back to the clinical systems so that they can initiate any follow-on activities managed internally to the systems
• A means to resolve duplication, gaps and/or inconsistencies that may exist between the business logic embedded in the models and the business logic embedded natively within the clinical systems
• A means to evoke external knowledge systems referenced from within the model (to access business rules not defined in the model natively)
• A means to interact with end-users where necessary to ascertain data and/or notify them or activity details.

Outstanding Questions:

1) How are Data Services/Events defined that can be implemented?
2) How are non-executable business process models expressed using standards and mapped to executable models?
3) Validity of assumption that given standards for process, decision, and case management languages are fit for purpose and sufficient for health workflow modeling?
4) Need to determine what standards make sense to be utilized for each piece of the adoption use case, and what can be shared. Specifically:
   - Data Models – FHIR/UML/AML
   - Data Events/Services – FHIR
   - Business Processes – BPMN
   - Decision Processes – DMN/FHIR
   - Case Processes – CMMN

5) Clarity around mapping between process and implementation standards will need to be explored:
   - BPMN Data Objects as mapped to FHIR Resources
   - CMMN/BPMN/DMN health processes mapped to Executable BPMN, other PSMs
   - BPMN Events as mapped to [emerging] Clinical Event Standard
Next Steps

Establishing the Community:

• A community listserv has been created, hosted by OMG. It is live now (health-BPMN@omg.org). Note that all workshop participants have been added to the list. Contact meg@omg.org to opt-out.

• A follow-up meeting is scheduled to coincide with the next OMG meeting in Reston, VA in March (see next slide)

• Imminently we will ask for workstream leads and commence focus calls based up the work items below

“Field Guide”:

• Assemble multidisciplinary team to encompass likely breadth of contributor/consumer impacting these workflows. [Process engineer, clinical staff, financial analyst, industrial engineer, etc.]

• Determine specific use cases and attempt to document end-to-end process flow using core tenets described

• Collection lessons learned and populate the draft guide based upon experiential learning

Planned “Alpha” Pilot:

• “Setup” Thread
  • Establish tooling environment – determine participating vendors
  • Determine target demonstration date
  • Define efficacy metric(s)
  • Establish governance, clarify intellectual property expectations, etc.

• Inter-organizational Workflow Example
  • Determining the use case
  • Identify early-adopter participating organizations
  • Model business processes
  • Prototype execution
  • Document gaps, issues, implementation approaches (best practices)

• Porting a Workflow Example
  • Determining the use case
  • Determine tooling stack for use (heterogenous)
  • Identify potential consumer/participating organization
  • Model business processes
  • “Export” workflow for consumption by others
  • “Import” workflows from others
  • Document gaps, issues, implementation approaches (best practices)
Pragmatics

• Meetings
  • OMG March Meeting
    • AM:
      • Plenary, introducing the overall topic (new members)
      • Introduce each workstream and current status
      • Identify goals, objectives, next steps for afternoon workshop
    • PM
      • Break into 3 subgroups, aligned by workstream
      • Working session
      • Plenary Outbrief and next steps

• Calls
  • Eliciting co-chairs for each workstream
    (contact ken.rubin@Utah.edu if interested)
  • Set up a working call/cadence for each subgroup
  • Calls will be biweekly
  • Goal of developing a wireframe version by OMG March meeting
  • Each sub-activity to develop a project plan