

Business Architecture Working Group – Roadmap Discussion

The following lays out a series of near term and longer-term goals for moving along the existing standards work at the OMG that relates to Business Architecture. The Roadmap's list of deliverables is intended to provide a way to move forward the discussion of this effort by identify a small handful of activities that might have immediate value to the Business Architecture community as well as being within the reach of the OMG community to address in the next 1-2 years.

Near Term Roadmap (1-2 years)

- Provide one or more normative notations for SVBR
 - While SVBR allows for the creation of vocabularies from an expression standpoint (although lacking any normative notation) it does not map upon existing knowledge modeling either in UML or in other notations (e.g. ORM). It would be valuable for their to be normative graphical and expression-based representations of the same underlying vocabulary.
- Add abstract modeling capabilities to existing process modeling
 - Add formal definition for abstractions of Process Models from an operational perspective.
 - Provide semantics for higher level process flows that are able to be semantically validated against workflows defined with BPDM/BPMN
 - Extend BPDM Standard
 - Extend relationship between activities in workflows and organizational elements to allow relationship other than the organizational element performing the activity
 - Swimlane in BPMN is equivalent to Responsible in RACI
 - Provide integration between BPDM and Organizational Modeling standard
- Reconcile SVBR Rules with operational needs
 - Reconcile the overlap of “enforcement” semantics in SVBR with process semantics
 - Overall, SVBR seems to take an approach that resembles “requirements” rather than the way we think of rules in an operational context. Possibly we could treat this formally and have enforcement be able to be “satisfied” by any number of Workflow Models.
 - Integrate operational aspect of rules into BPDM or possibly segregate behavioral aspects of SVBR into separate standard
- Integrate events across rules and workflow
 - Define how rules can derive events
 - Events may be situational (e.g. when x happens)
 - Events may be temporal (e.g. if x is true from more than 10 minutes)

- Events may be derived from other events (e.g. if event has happened and situation x is also true)
- Extend SBVR to support events

Extended Roadmap (3-4 years)

- Add ability to support standard some standard objective models
 - The existing BPMM would need to be extended to have more specific semantics for things like SWOT as well as support the capture of the rationales supporting the outcome
- Add ability to model analytic models such as value streams (probably currently the most common process analysis technique)
 - These appear to have similar semantics to workflow models but they do not have rigorous semantics about succession and exceptions. These might more properly be considered scenarios for a potential workflow.

Reference List of Business Modeling Variations

The following is the initial cut of an effort to gather and consolidate the major variations of business models that are currently in use. No claim is made that this list is inclusive of all the business modeling in use today nor would that necessarily even be the goal. However, this list is intended to capture the range of activities that are currently done under the guise of Business Architecture. Some areas, in particular Financial Modeling and Strategy Modeling, still need some further investigation. Hopefully this list will provide some context for our discussion of what Business Architecture encompasses.

Organizational Models

- Abstract Organizational Model
 - Description:
 - Identify categories or roles of organizations
 - Usage:
 - Used to identify organizational level roles for external organizations
 - e.g. trading partner
 - E.g. state governmental organization
 - Used to support process models at a high level of abstraction
 - Organization in relationship to all external organizations it interacts with
 - “Context” diagrams
 - Relationship to other models:
 - Knowledge and Assets flow between organizations
 - Issues:
 - Formal abstraction of organizations is not currently supported in standards
- Organizational Reporting / Authority Model
 - Description:
 - Identify relationships between elements within an organization in order to indicate when a formal accountability / authority structure exists between these elements
 - Usage:
 - Traditional organizational models indicating reporting structures
 - Traditional organizational models indicating financial rollups
 - Relationship to other models:
 - Used to support aggregation of metrics from Objectives Models
 - Used to support role definitions for Process Models
 - Issues:
 - Traditional organizational models focus on financial-based reporting structures at higher levels and personnel responsibility at lower levels. This is a mixed semantic

- Clear delineation of meaning of relationships between organizational units needs to be established
- Organizational Collaboration Model
 - Description:
 - Identify relationships that describe how individuals participate in reaching a decision
 - Usage:
 - Knowledge / Expertise networks
 - E.g. social networks that document de facto experts
 - Capture informal organizational knowledge about how work is done to serve as a guide to make sure that the correct resources are pulled into workflows
 - RACI models
 - Define additional roles beyond the role that actually does an activity in a Process Model.
 - Provides visibility into the informal collaboration that should occur during the process
 - Relationship to other models:
 - Adds information about informal roles in Process Models
 - Makes use of organizational skill model to define which role in an organization fits which role in the collaboration
 - Issues:
 - No current standards exist to support this kind of modeling. Could potentially look at examples from social networking efforts.
- Organizational Skill Model
 - Description:
 - Captures abstractions for responsibilities within an organization which are then mapped to individuals within the organization
 - Usage:
 - Used to define required skillsets in organizations in relationship to Process Models.
 - Provides an abstraction from individual job position to a functional behavior
 - Relationship to other models:
 - Uses individuals from Organizational Reporting model
 - Issues:
 - No know existing standard supports this kind of modeling. Could examine work done for employee development and job classification to see if there is relevant work.
- Organizational Geographical Model
 - Description:

- Captures the geographical distribution of processes or assets within an organization.
- Usage:
 - Show location of assets, processes for Material Flows
 - Show areas of responsibility for roles within Business Process Models
 - Show areas associated with variants in Process Models
- Relationship to other models:
 - Relates processes or activities within processes to geographic elements
 - Relates Knowledge or Assets to geographic elements
 - Relates organizational elements to geographic elements
- Issues:
 - No know existing standard supports this kind of modeling.

Process Models

- Material Flow Model
 - Show the operational consumption of input materials and resulting output materials
 - E.g. manufacturing processes
- Business Process Models
 - Operational Process Models are abstractions of workflow models
 - In the operational context they can be formal abstractions
 - Should define semantics for correctness of relationship between levels.
 - All inputs/outputs that are not entirely produced and consumed by the processes at a lower level must be represented at the higher level for correctness to exist
 - Abstractions are usually formalized into levels. Example structure below:
 - Level 1 Enterprise
 - Level 2 Major Processes within an Organization
 - Level 3 Supporting Processes within an Organization
 - Level 4 Workflow – Individual Role-based process flows
- Workflow Models
 - Show activities at the level where a particular role or roles are assigned to the activity
 - RACI can be used to standardize roles relationship to an activity
 - Documents the path that a piece of work follows across multiple organizational roles leading to completion of that piece of work
 - Work items can have various levels of abstractions
 - E.g. A workitem can be treated as completed within a subprocess but not a higher level workflow
 - May be decomposed into levels for modularity but levels do not differ in their semantics
- Task Flows

- Follows how a particular user goes about doing work which may cross multiple workflows
 - Use cases are a common technique for document task flow
- Tasks document how user interaction occurs at a point in a workflow where a human interaction is indicated
- Issues:
 - Need to define semantics for inputs and outputs into processes
 - Creates (new instance of type comes into existence)
 - Consumes (an instance of type, or some portion of it, ceases to exist or is removed from its current location)
 - Uses (instance is made available to process but is not consumed by process, usage may be recorded though and be detrimental)

Objective Models

- Hierarchical Objective Models
 - Goals
 - Strategies
 - Tactics
 - Requirements
 - Metrics
 - Issues:
 - Need to define semantics for levels.
 - Each level can be considered a view of an objective associated with an organizational role
- Balanced Scorecards
 - Grouping of metrics associated with a particular organizational role
 - Each view is tied to a category of high level objectives Traditional views:
 - Customer
 - Capabilities (employees, knowledge)
 - Financial
 - Process
 - Issues:
 - Need to define supporting groups of objectives.
 - Need to associate a scorecard to Organizational Role
- Requirements Models
 - Description:
 - Capture statement of intent that must be translated into operational implementations
 - Usage:
 - Used to trace the source of a requirement from the objectives that it serves and to the operational model changes that satisfy them
 - Relationship to other models:

- Requirements support objectives in the objective model
 - Requirements are satisfied by operational models or knowledge models
 - Requirements are managed by a Process
 - Issues:
 - No current standard appears to exist although multiple vendors have products in this area
- Metrics Models
 - Capture the quantifiable measures that are established as targets for an organization
 - Issues:
 - Need to be tied to Workflow Models
 - Need to be able to capture if metric is a direct or indirect measure
 - For indirect measures need to be able to associate with analytic model describing decision framework

Asset Models

- Material Models
 - Define the set of material and characteristics of those materials
 - E.g. quantity, quality , cost
 - Usage:
 - Also need to support hierarchy of input/output types. Potential standard base type:
- Tangible Object
 - A physical object which is used by a Process Flow but which is not used in is not consumed in order to create a produce and is not part of the product itself.
 - Tools, manuals, and capital equipment are typical examples
 - Usage
 - Used in Process Flows both from an operational as well as an analytical standpoint

Knowledge Models

- Entity models
 - Define terms and facts that are structural
 - Defines constraints on multiplicities of facts
 - Many of these elements also participate in higher level aggregations like:
 - Fulfilled order consists or Customer Order, Packaging, Shipping Label, etc
 - Usage:
 - Establish the knowledge concepts that an activity within a workflow can manipulate
 - Are use to form the basis of a vocabulary for writing business rules and the definition of the work performed within an activity
- Event Models
 - Define the occurrences that trigger business behavior
 - Can be rule triggered or explicitly created via Process Flow
 - Always have an occurrence time

- May additionally have other facts
- Usage:
 - Defines triggers that initiate or modify the flow with operational business processes
- Rule Models
 - Define inferred facts between terms (relationship between customer term and preferred customer term)
 - Can be defined both temporally or universally
 - Usage:
 - Are used to derive knowledge

Analytic Models

- Value Chains (see Porter)
 - Used to identify key objectives based upon identification of various kinds of contribution to a generic strategy
 - Issues:
 - Need to relate to a kind of objective “Generic Strategy”
 - Relate to abstract flows in process models: e.g. Inbound Logistics, Operations, Outbound Logistics, Marketing and Sales, Service
 - Need to relate to abstract flows in process models that correspond to functional areas: e.g. Firm Infrastructure, Human Resource Management, Technology Development and Procurement
 - Need to record analytic analysis of a particular objective’s contribution to “Generic Strategy”
- Value Streams (see Martin)
 - Used to identify the key value creating activities from the point of view of a particular customer
 - Do not reflect actual flow of work although are generally arranged in a time-based order which reflects the most common scenario
 - Issues:
 - Use same activities as process flows but are generally not proper abstractions of lower levels nor at the workflow level
 - Need to relate to organizational roles, objectives, knowledge and/or material assets
- SWOT
 - Used to capture the various decision inputs that are to be taken into account to come to a particular analytic decision that leads to the establishment of an objective
 - Issues:
 - Need to relate to objectives that the analysis produces.
 - Need to capture rationale which explains how decision was reached given decision inputs

- Root Cause Analysis
 - Used to structure the capture of a set of causes and effects related to a particular issue
 - Issues:
 - Need to relate to an issue
 - Used to develop objectives that address an issue
- Activity-based Costing
 - An analytic framework used to determine the unit cost of executing a process to produce some outcome
 - Issues:
 - Requires relationships to organizational roles to support costing
 - Requires relationships to asset models to support costing
 - Makes use of process models at various levels of abstraction intended to reflect actual operational behavior
- Financial Models (Return on Capital, etc)
- Strategy Models (see Kaplan and Norton)