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OBJECT MANAGEMENT GROUP®

Business Architecture Core Metamodel

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This OMG document replaces the beta~~submission~~ document (dtc/22-06-01~~bmi/22-03-15~~). It is an OMG Adopted Beta Specification and is currently in the finalization phase. Comments on the content of this document are welcome and should be directed to issues@omg.org by May 31, 2023.

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Preface

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1 Scope

The Business Architecture Core Metamodel defines concepts suitable for modeling business concepts found to be useful in business direction and strategy and not found in business operating models. These concepts include value and its delivery to stakeholders of a business, capability, abstract organization, process, product and strategy. The concepts are represented at a high level typical of executive management and staffs who are responsible for overall business management and direction. Business architecture models derived from this metamodel are not intended to represent all aspects of a business; they are intended to be used in conjunction with other models, with the ensemble of models being a sufficient basis for strategic and business analysis and planning. While the business architecture models are high level, they must be grounded in the reality and details of the business. For this reason, an ability to align or link elements or groups of elements of a business architecture model with elements and groups of elements of other models or even portions of prose documents or business data is a strong requirement. The OMG has produced or is working on specifications for other business models, but the business architect will need to include models not based on any OMG specification. This specification defines a general mechanism for linking a BACM-derived model to other models and data sources. These mechanisms respond to the RFP request for a “touchpoint” mechanism.

Business architects typically make use of conceptual frameworks to create models of a business or type of business. There are many such frameworks and they change with frequency, consequently it would be inappropriate to encode particular frameworks in the metamodel. A general mechanism, MEF [MEF] has been defined for MOF that allows the dynamic application of stereotypes to any MOF-based model. The specification requires MEF and recommends that business architects develop profiles of stereotypes for such frameworks. The concepts of the framework, represented as stereotypes, may then be applied to BACM model elements to characterize them and provide supplementary information according to the framework.

2 Conformance

~~2.1 Overview~~

~~Implementers of this specification must be able to create, edit and delete instances of each of the meta-classes and meta-associations in this specification. Implementers may perform these operations in any suitable manner, provided that the effect is as if each meta-class and meta-association were present in the implementation and associated with each instance. XMI exports of an instance model must include in each instance of a class or association, a reference to the definition of the meta-class or meta-association used to create the instance definition in the normative XMI of the relevant specification version.~~

~~The specification diagrams and prose define and use a “shortcut” mechanism for certain associations. Shortcuts are defined in the metamodel and these definitions are used to create constraints associated with instances of shortcuts. The representation of shortcuts is mandatory, but implementing the evaluation of the constraints is an optional point of compliance. Shortcuts are important tools for the evolution of BACM models, so full implementations are strongly encouraged.~~

~~The specification also defines an approach to implementing “touchpoints” (references to information contained in models outside the scope of the BACM). The approach employs a “resourceIdentifier”, typically an IRI, to identify a resource (which may be an external model, document or data set) and an alignment specification whose language is not controlled by this specification, except that if the language attribute is “Natural”, then the specification will be a prose description of the alignment mapping in a natural language.~~

~~Implementations must support all packages defined in this specification.~~

~~Implementations must implement the Metamodel Extension Facility (MEF) [MEF], which implies the implementation of [SMOF] and [MOF] or an equivalent facility. This conformance requirement supports the requirement that model elements be instances from one or more metaelements and the requirement that stereotypes be used to define frameworks for the additional interpretation of BACM models.~~

A conforming implementation may directly implement the MOF metamodel for BACM or implement a semantically equivalent metamodel using e.g. [RDF] or any other type of implementation that is semantically equivalent to the MOF metamodel for BACM and can import and export that model in [XMI]. Other import and export concrete syntaxes are allowed, but are not controlled by this specification and they may not allow exchange of models between implementations.

Conformance criteria for implementations of this specification are specified in four independent domains:

- completeness of implementation of the classes and associations in the metamodel
- implementation of SMOF
- implementation of shortcuts
- implementation of MEF

2.1 Content completeness

The rationale for these compliance points is to allow implementations to exhibit different levels of detail and complexity with respect to business architecture modeling and different implementation and maintenance costs.

Note that the instances of classes and associations in the metamodel are also classes and associations. The BACM specification does not define "individuals", but it may have external relationships to model elements or data that represent individuals or sets of individuals and their individual relationships.

2.1.1 Basic level

Completely implement the BACM_Model package classes and associations including ExternalReferences with SMM integration optional.

Implement the Capability package, replacing the variable arity associations OutcomeRelation and ObjectRelation with binary class associations.

Implement the Customer package without the ValueCharacteristic 4-ary association. ProductOffering must be implemented, but the other classes and associations in the Product package need not be implemented.

Implement the Organization package, omitting the ofProcess association and the AbstractProcess class. The Responsible association should be implemented as a binary, directed association between OrgUnits.

Do not implement the Process package

Do not implement the Strategy package

Do not implement the Product package

2.1.2 Professional level

Completely implement all packages except Strategy.

Replace the variable-arity associations OutcomeRelation and ObjectRelation with binary class associations

Replace the variable-arity association ContractRelation with a binary class association.

2.1.3 Expert level

Implement all packages and variable arity associations.

2.2 SMOF Capability

SMOF is a modification to MOF that allows instances to be members of multiple classes and to change the membership linkage between instances and their classes dynamically. SMOF also removes the assumption of disjointness of class extents and adds constraint types to declare when class extents are disjoint. This capability becomes important when aligning business architecture models with models of actual businesses as an instance such as a tool may be classified as a Resource, a Performer or a BusinessObject that is an asset.

2.2.1 Basic level

SMOF is not implemented. The extensions of classes are disjoint and may not be dynamically changed (however, the model may be edited to reflect changes). The disjointness constraints expressed in the MOF metamodel are ignored.

2.2.2 Professional level

Enough of SMOF is implemented to allow instances to be members of the extent of multiple classes and disjointness constraints as specified by [SMOF] to be expressed in the metamodel and by modelers in their models.

2.2.3 Expert level

SMOF is completely implemented.

2.3 Shortcut capability

Shortcuts allow the modeler to express an association that implies the existence of a chain of classes and associations that would justify the shortcut association. In plain language, the English term “uncle” means “the brother of a parent”; in a concept graph, “uncle” would label a direct arc between a person and that person’s uncle. However, the concept graph might also contain a direct arc labeled “parent” between the person and the person’s parent and a direct arc labeled “brother” between the person’s parent and the person’s uncle. If a shortcut association like “uncle” was created in a model, one could infer that a parent also exists (but may not be represented in the model) and that the “parent” and “brother” associations may also exist.

Shortcuts are a way to abstract detail, but it is important to be able to determine if the abstraction and the details are consistent. For this reason, shortcut associations have constraint specifications that may be applied to the model to determine this consistency. The short constraint describes the structure of a chain of instance classes and associations that should exist in the model to justify the assertion of the shortcut association. It is not an invariant and it is not required to be true in a valid model.

2.3.1 Basic level

Shortcuts are not implemented. They are ignored on import and will not be exported. The constraint language associated with a shortcut is also ignored on import and may not be created in the implementation.

2.3.2 Professional level

Shortcuts and their constraint specifications may be imported and exported. The implementation does not need to provide the capability to evaluate constraint expressions. The implementation may allow the creation of constraint specifications and must support the [OCL] language for specification of shortcut constraints. An implementation may also support constraints specified in the [SPARQL] language where the implementation is based on [RDF] or [RDF*] or any other language capable of expressing such constraints as a textual language, provided that a specification for this language is available.

2.3.3 Expert level

Shortcuts and their constraint specifications are fully implemented, including all of the requirements for the Professional level. An implementation capable of evaluating the constraints must be provided.

2.4 MOF Extension (MEF) capability

This requirement is derived from the need to apply methodological frameworks to a BACM model. As an example of a framework, consider Value Proposition Design [Osterwalder, et al., Value Proposition Design, Wiley 2014]. This methodology defines a “Customer Profile” to characterize customers according to three aspects: “Customer Job”, “Customer Pain” and “Customer Gain”. It also defines a “Value Map” to characterize the offerings from a business, with aspects “Goods and Services”, “Pain Relievers” and “Gain Creators”. The intent of this analytic framework is to allow the evaluation of the fit of a product offering to the characterized customer type.

There are a variety of such frameworks available, and they change over time; consequently, it is not appropriate to constrain the methodological framework by defining a metamodel for it. Fortunately, such frameworks have a lot in common with UML profiles. A profile, when applied to instances of UML classes and associations, can associate properties and default values with these instances. Considering the BACM Customer Package, a “Customer Profile” could be represented by an instance of BACM::Customer::Customer and the associated instances of BACM::Customer:CustomerSegment. Conceptually, a “Customer Profile” could be created in a BACM model by applying a “Customer Profile” UML stereotype to the BACM::Customer::Customer and a “Customer Job” stereotype to one or more of the BACM::Customer::CustomerSegment instances. The modeler determined properties of these

stereotypes are able to hold analysis values derived from following the analysis processes outlined in the methodology reference previously cited.

2.4.1 Basic level

The implementation is not required to provide an extension capability as described above. The modeler may elect to use the annotation capability of the BACM metamodel to capture framework defined values.

2.4.2 Professional level

The implementation may implement the UML 2.5.1 profile capability or its equivalent. This capability would effectively import the BACM metamodel, excluding elements not derived from BACM::BACM_Model::BusinessElement and make them available to Stereotypes. If the implementation provides the BACM tailored implementation of SMM, it may choose to effectively import any or all elements of the SMM metamodel and make them available to Stereotypes.

2.4.3 Expert level

The OMG Metamodel Extension Framework [MEF] relies on the dynamic metamodeling provision of SMOF to allow Profiles and Stereotypes to be defined at the metamodel level, simplifying the process for extending metamodels by adding properties and constraints to an existing metamodel without changing it. Implementations at this level will include an implementation of the [MEF] specification.

Commented [JR1]: Issue BACM-97 resolved by BACM-11

3 References

3.1 Normative References

The following normative documents contain provisions which, through reference in this text, constitute provisions of this specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply.

[UML] Unified Modeling Language https://www.omg.org/spec/UML.

[XMI] XML Metadata Interchange. https://www.omg.org/spec/XMI

[MEF] Metamodel Extension Facility (MEF), OMG Specification https://www.omg.org/spec/MEF

[MOF] Meta Object Facility (MOF) Core, version 2.5.1, OMG Specification https://www.omg.org/spec/MOF

[SMOF] MOF Support for Semantic Structures (SMOF), OMG Specification https://www.omg.org/spec/SMOF

[SMM] Structured Metrics Meta-Model (SMM), https://www.omg.org/spec/SMM

[OCL] Object Constraint Language, https://www.omg.org/spec/OCL/2.4

3.2 Non-normative References

[BMM] The Business Motivation Model https://www.omg.org/spec/BMM)

[BPMN] The Business Process Model And Notation™ (BPMN™): https://www.omg.org/spec/BPMN.

[CMMN] Case Management Model and Notation https://www.omg.org/spec/CMMN

[DMN] Decision Model Notation https://www.omg.org/spec/DMN

[ODM] Ontology Definition Metamodel, https://www.omg.org/spec/ODM

[OWL] OWL 2 Web Ontology Language Document Overview (Second Edition) ~~Web Ontology Language (OWL),~~ ~~https://www.w3.org/OWL/~~ https://www.w3.org/TR/2012/REC-owl2-overview-20121211/ and documents referenced therein

[SPARQL] SPARQL 1.1 Overview https://www.w3.org/TR/sparql11-overview/ and documents referenced therein

[RDF] ~~Resource Definition Framework (RDF),~~ RDF 1.1 Concepts and AbstractSyntax https://www.w3.org/TR/2014/REC-rdf11-concepts-20140225/

[RDF*] Foundations of an Alternative Approach to Reification in RDF https://arxiv.org/abs/1406.3399

[SBVR] Semantics of Business Vocabulary and Rules™ (SBVR™) https://www.omg.org/spec/SBVR.

[UAF] Unified Architecture Framework Profile (UAF) https://www.omg.org/spec/UAF.

[VDML] The Value Delivery Modeling Language (VDML) https://www.omg.org/spec/VDML.

Commented [JR2]: Issue BACM-27 resolved by BACM-86
Issue BACM-28 resolved by BACM-53
Issue BACM-15 resolved by BACM-107

4 Terms and Definitions

The terms used to label metaelements in this specification and their definitions are contained in Annex A:

The term "M1" has been previously used in OMG specifications to designate a model that is properly derived from a metamodel (typically designated by the term "M2"). In this specification, the term "M1" designates a model that is properly derived from the metamodel defined in this specification. Elements of an M1 model are instances of the metaclasses and meta-associations of the metamodel, and these instances will have metaclasses and meta-associations as their metaclasses.

Commented [JR3]: Issue BACM29 resolved by BACM-57

5 Symbols and Abbreviations

The specification employs UML symbols and diagrams to present the metamodel.

Various abbreviations, acronyms and symbols are used in this document as a terse form of reference to references contained in section 3 of this document. They are not repeated here.

Commented [JR4]: Issue BACM-15 resolved by BACM-107

6 Additional Information

6.1 Changes to Adopted OMG Specifications [optional]

No changes are proposed to any adopted OMG specifications by this specification.

6.2 Acknowledgements

The following companies submitted this specification:

- Business Architecture Guild
- Mega Corporation
- Trisotech
- Model Driven Solutions
- Tactical Strategy Group
- Capsifi USA

The following companies supported this specification:

- VDMbee
- Thematix Partners
- Airbus
- Boeing

The following individuals contributed to this specification:

- Jim Rhyne
- Antoine Lonjon
- Henk de Man
- Fred Cummins
- Lloyd Dugan
- Hermann Schlamann
- Michel Sauvage
- Chalon Mullins

6.3 IPR Mode

The IPR mode of this specification is “non-assert”.

6.4 Document Style Conventions

The following stylistic conventions apply to text about the Clause 7 (Metamodel):

Italicized names in the descriptive text refer to the corresponding named elements in the diagrams and in the element syntax definitions. In general, such terms can be taken as referring to instances of the named metaclasses and meta-associations. Where necessary, an ambiguity will be resolved by using the metamodel element label followed by the “metaclass” or “meta-association” term.

7 Business Architecture Core Metamodel

7.1 Overview of the Metamodel (non-normative)

The metamodel is specified as a collection of packages containing metaclasses and meta-association that refer to metaclasses and meta-associations in other packages. The metamodel is intended to define an abstract syntax for BACM models that are instances of the overall metamodel. The packaging is a convenience and should not be construed by implementers as specifying a modeling palette structure or any other characteristic of model presentation except for the names of the metaclasses and meta-associations.

Many meta-associations in the metamodel are given a <<class>> stereotype. This stereotype should be interpreted as meaning that these associations can have properties, be specialized and participate in associations. Some associations are n-ary; these associations are sometimes represented as classes with an <<association>> stereotype and sometimes as a UML n-ary association. In either case, these associations should be able to have properties, be specialized and participate in associations.

The <<shortcut>> stereotype is sometimes applied to an association in the metamodel. This stereotype indicates that the association must be consistent with other details that may or may not be elaborated in the metamodel. For example, a business architect may wish to assert that a value stream is intended to satisfy the values of a set of customers (represented as a customer) without immediately specifying the details of value propositions, customer journeys and customer segments. This assertion would be modeled as an instance of a <<shortcut>> stereotyped meta-association. The assertions associated with shortcuts are represented in the MOF-compliant XMI as OCL constraints.

The model instances of the meta-classes and meta-associations represent types or sets of entities that would be found in a real or imagined business. Some of these entities will be tangible (occupying time and space) while others will be intangible (conventions of thought). The model instances have potentially intensional and extensional semantics and are not required to have disjoint extensions; for example, a *BusinessObject* instance, AssemblyRobot, may in a different context be an instance of *Performer* or an instance of *Resource*. This may create a problem for tool implementations that do not allow an instance to have multiple metaclasses. The OMG specification MOF Support for Semantic Structures – SMOF [SMOF] provides such a facility for MOF metamodels and the implementation of the MOF metamodel of this specification will also require implementation of SMOF.

7.1.1 Capability Package

The Capability package specifies abstract syntax for *Capability*, *Outcome*, *BusinessObject* and *InformationItem* and their related metaclasses. It also specifies associations that link these metaclasses together. *Capability* is an abstraction of a unit of work that does not specify how the work is done. In effect, a *Capability* is specified by its *Outcomes* that are states of *BusinessObjects* or *InformationItems*. A *Capability* produces *Outcomes* and needs *Outcomes*. An *Outcome* that is produced by a *Capability* and seen by an entity outside *theBusiness* corresponds to an external event or state; typically such Outcomes would be experienced by stakeholders such as customers and regulators. An *Outcome* that is needed by a *Capability* and not produced by any *Capability* is effectively a triggering event that occurs outside the business, such as receipt of an order.

Outcomes effectively externalize the modeled state of a *BusinessObject* or *InformationItem*. This allows the modeler to define a *BusinessObject* or *InformationItem* without having to define its state variables, properties or characteristic associations; these can be specified separately as *Outcomes*. The resulting abstract model is more complex but allows a *BusinessObject* or *InformationItem* to be represented in the model in multiple states in the structural model of the business. The alternative, internalized states, requires the separate specification of state machines that control the state behavior and tie it to *Capabilities*.

Capabilities are also associated with *Role* instances that are abstract specifications of a type of work that may be accomplished by the *Capability* while producing an *Outcome*. *Roles* are useful for defining *Capabilities* that can be used to manage behavioral variation in a business. There are two types of *Roles* that can be instantiated in a model:

PerformerRoles and *ResourceRoles*. *PerformerRoles* specify a kind of skill. *ResourceRoles* specify actions that may be performed with or on a *Resource*.

Capabilities must be tied to an operating model of a business to be useful for analysis of the business. The BACM Capability package provides two metaclasses, *CapabilityBehavior* and *CapabilityImplementation* as intermediaries that can be tied to a business operating model. *CapabilityBehavior* represents specific behaviors of a *Capability* (that might be described in a BPMN or VDML model). *CapabilityImplementation* instances represent a specification of *Performers* and *Resources* that can be assigned to *Roles* of a *CapabilityBehavior*. These instances can represent specifications of project resourcing for planning purposes, or they can represent actual elements of an organization for purposes of analysis.

InformationItems can be used to control decisions and other behaviors of *Capabilities* and *CapabilityBehaviors*. *InformationItems* can also represent metadata (is_about) about a *BusinessObject*. *InformationItems* are typically intangible but may also represent a tangible such as a report or a dataset. *BusinessObjects* are typically tangible but may also represent collections of tangible and intangible things.

Capabilities are also associated with the production of value by *ValueStreams*. The abstract syntax in the *CapabilityValue* diagram shows that *Capabilities* support *ValueStreamStages* and *Outcomes* are valued by *ValueItems*. In effect, the *Capabilities* supporting *ValueStreamStages* represent abilities that the business must have to produce values that are experienced by *Customers* (and other stakeholders). The *ValueStreams*, *ValueStreamStages*, *ValueItems* and *ValuePropositions* create a value perspective on the underlying *Capabilities* and *Outcomes*. The Customer package provides additional details.

7.1.2 Customer Package

The Customer package defines abstract syntax for *Customer*, *CustomerSegment*, *CustomerJourney*, *JourneyStage* and *Touchpoint*. The *Customer* identifies a customer (or any value-receiving stakeholder) but does not describe the customer/stakeholder. Descriptions are held in *CustomerSegments* associated with a *Customer*. The *CustomerSegments* would describe a *Customer* in terms of needs and avoidances as well as information that would allow targeting the customer type (e.g. demographic information). A *Customer* owns all of the *CustomerSegments* associated with it; *CustomerSegments* cannot exist independently of a *Customer*. A *Customer* is also defined relative to a *ProductOffering* (see the Product package) targeting the *Customer*.

A Customer may be associated with a *CustomerJourney*, consisting of several *JourneyStages* that usually represent important decision and interaction points the *Customer* experiences in the course of finding, acquiring and using a product type. The *CustomerJourney* is a view of customer behavior that is relevant to the objectives of the business and *CustomerJourneys* are usually created by the business, not by customers. *CustomerSegments* are also associated with *JourneyStages* and *Touchpoints*; they describe the needs and avoidances of the *Customer* at the associated *JourneyStage* or *Touchpoint*.

Customers, CustomerSegments, ValuePropositions, ValueItems and *ValueCharacteristics* can be ~~categorized~~ tagged ~~by a common set of *ValueCategories*~~a framework of tags provided by MEF or its equivalent. These ~~categories~~ tags typically define a framework for analyzing types of delivered value, analyzing the satisfaction ("fit") the customer has with the *ValueProposition* and its components. For example, ~~*ValueCategories* with labels~~*value framework tags with values* such as "uses", "pains" and "gains" could be used to ~~categorize~~ tag the aforementioned elements and support different kinds of value analysis based on the categories.

Commented [JR5]: Issue BACM-72 resolved by BACM-96 Additional changes in generated material. See also MEF compliance statements.

The *CustomerPackage* also defines *ValueStream, ValueStreamStage, ValueProposition and ValueItem*. These element types represent values the business believes it is offering the *Customer* and how those values are accumulated. The *ValueProposition* is "of" a *ProductOffering*. These believed values may match the needs and avoidances of the Customer or they may not. The degree to which the *ValueProposition* and its components match or fit the Customer needs and avoidances is captured by the *ValueCharacteristic*. This fit is typically a complex set of measures.

ValueStreamStages represent the accumulation of value leading to a *ValueProposition*. Consequently, the definition of the *ValueStreamStages* by the modeler determines the relationship between *Capabilities* and components of the *ValueProposition* by way of the *ValueStreamStage*.

7.1.3 Organization Package

The Organization package defines abstract syntax for *Performer* and *Resource*. A *Performer* is an *OrgUnit* (the humans) or a *System* (IT system or robot). A *Performer* is described by a set of abilities that match the skills required by a

PerformerRole to which the *Performer* is assigned. A *Resource* is described by the things that are allowed to be done to or done with the *Resource*. *Resources* and *Performers* should not be considered disjoint at the M0 (real) level; an assembly robot may be considered a *Resource* by an equipment management *Capability* and as a performer by an assembly *Capability*.

An *OrgUnit* can be a *LegalEntity*. The *LegalEntity* is characterized by being in the *legal_jurisdiction* of one or more Jurisdictions. The *legal_jurisdiction* concept includes regulatory oversight as well as the location of the business and represents taxation, operating policy regulation and criminal and civil statutes. The *Jurisdiction* elements represents the authority to regulate, tax or create criminal and civil statutes and to adjudicate disputes in such authorities.

7.1.4 Process Package

The Process package defines a basic model for processes that is like Input-Process-Output (IPO) but adds *Outcome* connectors between activities. The *Outcome* connectors convey stateful objects between activities that typically change the state of objects. Process and capability models of a business are complementary perspectives on the business. Process models reveal end-to-end flows of information and materials, while capability models reveal common things a business must do independently of the organization of the business. Both capability and process models share information, business objects, resources, and performers. The Process package defines abstract syntax for *Activities*, *Processes* and reuses *Capability::Outcome*. *Activities* are un-decomposed. *Processes* are groups of Activities. *Outcomes* are input from *Processes* and *Activities* and output to other *Processes* and *Activities*. The capability models of a business and the process models of the same business are linked through the Outcomes.

Because representing the creation of delivered value (in the form of a *ValueProposition*) is important, *Processes* and *Activities* can implement *ValueStreams*. However, *Processes* and *Activities* may also implement *ValueStreamStages* when it is useful to represent process detail for a *ValueStreamStage*. The *Process* metamodel provides the *implements* association between *ValueStreamStages* and *Processes*/*Activities*. This complex set of associations to a *ValueStream* define the *Processes* and *Activities* that produce the *Outcomes* that are valued as *ValueItems* and compose the *ValueProposition*.

Processes and *Activities* also share roles (*PerformerRoles* and *ResourceRoles*) with *Capabilities*, allowing the same assignments of *Performers* and *Resources* that *Capabilities* permit. *Activities* and *Processes* are scoped differently from *Capabilities*, so the roles will be associated differently as well. In addition, some roles that are associated with a *Capability* may not appear in a process model because they are not used in the process.

7.1.5 Product Package

The Product package defines abstract syntax for *ProductOffering*, representing the description of a product or product family, including terms and conditions pertaining to the acquisition and/or use of the product. *ProductOffering* has four subtypes:

- Merchandise Offering – a *ProductOffering* that includes one or more BusinessObjects for sale/lease to and use by the Customer;
- Service Offering – a *ProductOffering* that promises to deliver a result (Outcomes) to a Customer.
- OutsourcedServiceOffering – a *ProductOffering* that is a solicitation for a service to be performed for the business by another business.
- ProcurementOffering – a *ProductOffering* that is a solicitation by the business to acquire products from another business

A *ProductOffering* is a *BusinessObject* or *InformationItem* and inherits the properties and associations of these model elements.

7.1.6 Strategy Package

The abstract syntax defined in the Strategy package is premised on the need by analysts to compare and evaluate strategy options. The package defines *StrategyChoices*, a container of *StrategyModels*, to satisfy this need. A StrategyModel represents a complete strategy, consisting of *Means* and *Ends*. *Ends* represent the desired results of the StrategyModel and are often changes to the value offered to the customer (*ValuePropositions* and *ValueItems*) or the fit of the offered value to the customer needs and avoidances (*ValueCharacteristic*). Sometimes *Ends* will represent an outreach to a new

customer type (*Customer, CustomerSegment, CustomerJourney, CustomerJourneyStage, Touchpoint*). The model element types noted are all abstractly represented by the AbstractValueModel metaclass.

The *Means* represent ways or approaches that are expected to produce the *Means*. The *Means* are associated with the *Ends* by the expects association. This association must be instanced as an association classifier to allow the modeler to express the influence of environmental factors, risks and to provide a rational for the expectation.

The *Ends* also represent expectations of change to results of business operations (*Outcomes*). The *Outcomes* associated with *Ends* represent a baseline operating state of the business and the *Ends* describe the hoped for operating state of the business (and are thus effectively future *Outcomes*).

The *Means* represent changes to the operating structure and behavior of the business (*Capabilities, CapabilityBehaviors, CapabilityImplementations* and *Role* assignments). These changes impact the corresponding BACM model elements. Recording the impacts helps strategists and planners deal with collaboration and conflict in the execution of business strategies.

Businesses need to track the implementation of strategies for several reasons: 1) to determine if strategy implementations (*Initiatives*) are on the expected trajectory; 2) to understand the impact of a change in strategy to ongoing or planned implementations; 3) to analyze and predict the impact of variances in execution on the delivered value of the business. The Initiatives represent in-process, planned, or recently completed strategy implementation efforts. These efforts should implement the general strategy *Means* of the adopted StrategyModel.

Initiatives are expected to produce Changes to elements of the types in the *AbstractValueModel* and the *AbstractOperatingModel*. These Changes should implement the *Ends* of the chosen StrategyModel. The expects association connecting *Initiatives* to *Changes* must be consistent with the expects association connecting the *Means* and *Ends* being implemented by the *Initiatives* and *Changes*.

The *Initiatives* and *Changes* elements are intended for use as gateways to actual planning documents such as project objectives, staffing, schedules and work breakdowns. These alignments allow the upward flow of information into the BACM model for analysis and management of the strategy execution. They also support change management of ongoing and planned strategy executions when strategy changes are made.

7.1.7 BACM Package

The BACM package includes two sub-packages that define abstract syntax for BACM models and foundational elements, along with importing the SMM metamodel and specializing some of its classes._1_.

7.1.7.1 The BACM_Model package

The BACM_Model package defines *BACMElement* as the base metaclass. It provides for a name and description of each element as well as providing multiple, ~~categorized~~ tagged Annotation elements to be associated with any *BACMElement* concrete subclass instance.

Commented [JR6]: Issue BACM-72 resolved by BACM-96

BusinessElement is a specialization of *BACMElement* that is the base metaclass for all metaclasses representing business entities and relationships. *BusinessElement* can be associated with *ExternalRelationship* and *ExternalData*.allowing the architect to record a relationship to an external model or document. This metamodel structure is adapted from the metamodel structure defined in the SysML V2 API and Services submission.

The BACM_Model package also defines BACM_Model as the root element in a BACM model. This element holds associations to SMM *MeasureLibraries*, *StrategyChoices* and all *BusinessElements*.

7.2 Interpreting and Implementing the Metamodel (normative)

7.2.1 Interpreting the UML metamodel and generated XMI

UML visual modeling is used in this specification as a visual notation for an underlying graphical predicate model. The underlying model can be given a concrete form in MOF, ~~RDF~~[RDF*]~~ star~~ ~~[RDF star]~~ or a property graph language ~~(e.g. [OpenCypher]~~. Most of the semantics of the metamodel (except for shortcuts and co-occurrence constraints) can be specified in [OWL]~~ 2~~.

Commented [JR7]: Issue BACM-27 resolved by BACM-86

An implementation of the specification must conform to the metamodel expressed in the normative XMI file that is part of the specification. The diagrams in this document make use of stereotypes to eliminate

detail that is present in the normative XMI file and make the diagrams more readable. The following paragraphs and subsections in this document explain how to interpret these stereotypes and how they are translated in the MOF-compliant, normative XMI file. In any case where the diagram and the interpretation rules appear to disagree with the normative XMI, the normative XMI is the authoritative source."~~For an implementation of the metamodel, the normative XMI that is part of this specification is intended to be an unambiguous and precise way to create an implementation that is equivalent to the underlying graphical predicate model~~.

Commented [JR8]: Issue BACM-41 resolved by BACM-42

The normative, MOF-compliant XMI can be generated from the model represented in the class diagrams of this specification in the following way:

7.2.1.1 Un-stereotyped class translation

An un-stereotyped class in a diagram becomes a class in MOF. When such a class inherits from "BusinessElement", a generalization association is added to specialize the "BACMPlainEntity" abstract class. These specializations are presented in diagram 7.3.1.3.

7.2.1.2 Un-stereotyped association translation

An un-stereotyped association between classes that specialize "BusinessElement" in a diagram becomes an association in MOF, except when such an association is a leg association of an <<association>> stereotyped class – see below. All other associations are translated into MOF associations.

7.2.1.3 <<class>> stereotyped binary association translation

A binary, directed association in a diagram with a <<class>> stereotype is translated into a MOF class and two binary MOF associations. Navigability is ignored and the implementation must provide bidirectional navigation for both the generated, binary, directed MOF associations. The MOF class represents a relationship and the two associations specify the types of elements that can participate in the relationship. By convention, the cardinality of the association end opposite the MOF class is 0..1, representing the notion that instances of the MOF class contain single valued properties (the owned ends) that reference a single instance of the defined type. The cardinality of the association end at the MOF class is the cardinality of the origin binary association. Since there are two associations, each one represents an end of the origin association. To preserve directionality, a naming convention is used; the name of the MOF association representing the starting association end is prefixed with "from_" and the name of the MOF association representing the ending association end is prefixed with "to_". The MOF class is given the name of the origin association. The generated ownedEnds resulting from this translation are given names that are the names of the MOF association prefixed with "src_" and "dst_" respectively to preserve the directionality of these associations (from "src" to "dst"). Thus the origin association "produces" (see Diagram 7.3.2.1) is translated into a MOF class named "produces" and two associations: "from_produces" with ownedEnds "src_from_produces" and "dst_from_produces", and "to_produces" with ownedEnds "src_to_produces" and "dst_to_produces".

The generated MOF class specializes the "BACMBinDirRelation" abstract class and redefines the ownedEnds: "from_bacm_entity", "from_bacm_relation", "to_bacm_entity" and ""to_bacm_relation". This specialization and the redefinitions are created in the translation and are not shown or described in this document. The specialization permits MOF reflection to distinguish binary directed relationship instances from other types of instances.

The lifecycle semantics of the configuration of MOF class and MOF associations is equivalent to the lifecycle of the origin association. In particular, if an instance coupled to the "dst_" prefixed ownedEnd is deleted, then the corresponding instance of the class and the other association instance must also be deleted from the model.

7.2.1.4 <<association>> stereotyped origin class translation

A class in a diagram with an <<association>> stereotype is translated into a MOF class and each un-stereotyped association whose starting ownedEnd is at this class is effectively a component of an n-ary relationship that is represented by the class. The term "leg" is used in this document section to refer to such associations. Note that this allows an origin <<association>> class to participate in other associations where it is the "dst" of such an association that is often stereotyped with <<class>>. Such a configuration (i.e. an <<association>> stereotyped class and some number of leg associations) is translated directly into MOF as a MOF class and MOF associations, but without the <<association>> stereotype on the class. In this case, the class and leg association names remain unchanged in the MOF metamodel as do the ownedEnd names. The ownedEnd cardinalities are also directly translated into MOF.

In the MOF translation, the MOF class specializes "BACMRelation", allowing MOF reflection to distinguish that instances of the MOF class represent n-ary relations and to identify the associations that represent legs of the relationship.

The lifecycle semantics of the configuration of instances of such a MOF class and instances of its leg associations obey the same rule as for the translated binary directed associations with the <<class>> stereotype. If an participating instance

that is referenced by the “dst” slot of the link instance of a leg association is deleted from the model, then the class instance and all other leg association link instances must be deleted from the model.

7.2.1.5 <<shortcut>> stereotyped class and association translation

The basic translation is as if the class was stereotyped <<association>> or the association was stereotyped <<class>>. In addition, the MOF class representing the <<class>> stereotyped association or the <<association>> stereotyped class carries an ownedRule represented by an OpaqueExpression that is specified both in OCL and in a path language whose interpretation is equivalent to the OCL representation. This OCL expression may be invoked by the business architecture modeler to determine if additional model information is available that implies the existence of an instance of the <<shortcut>> element. The shortcut mechanism is described in section 8.1 of this specification. The language type of the alternative path expression is “BACMPathLanguage” and is intended for implementors who are based on RDF (the expression can be directly translated into a SPARQL query) or a graph language.

7.2.1.6 <<individual>> stereotype translation

The specification has a single metaclass, *theBusness* with this stereotype. The concept represents the particular business being modeled and its purpose is to designate *Performers* that *belong_to* this business (i.e. are employees or contract workers). There should be at most one instance of this metaclass in a model. In translation to MOF, the stereotype is removed and an OCL constraint is added that at most one instance has *theBusiness* as its metaclass.

~~The non-normative XMI that is provided with the specification must be interpreted according to a set of rules to create a conforming implementation that is not based on MOF.~~

~~In general, metamodel classes in the diagrams in this document will become meta-classes (class prototypes or templates) in an implementation. However, classes stereotyped as “association” will become associationclasses. These entities are binary or n-ary associations that can be specialized (from other meta-associationclasses), have features, and participate in other associations. UML binary associations with a <<class>> stereotype should be implemented as binary meta-associationclasses. UML does not require that associations be uniquely named; as noted above, some UML associations are translated into MOF a class and association pattern and in this case the class names should be unique. Consequently, the UML model adopts a suffixing convention to uniquely name associations. In this convention, the business meaning of the association is defined by a prefix term followed by an underscore and a distinguishing number. All associations with the same prefix should be understood as having the same general business meaning, even though the classes they associate may differ.~~

~~The implemented meta-associationclasses are presumed to have “legs” that represent roles in the association part (and argument positions in an equivalent predicate expression of the association). For convenience, each leg is assumed to have a distinct role name in the context of the association. For binary, directed meta-asssociationclasses, these names are assumed to be “src” and “tgt” snd the direction of the association is “src” to “tgt”. Where an n-ary association is displayed in the UML model, the legs are represented as un-stereotyped binary associations whose names are the leg names. The leg names are defined in the model and in the meta-class-association template. Instances of the meta-class-association template must have the same set of legs and preserve the leg names of the template. These derived instance leg names may not be modified by the business architecture modeler.~~

~~A leg may have a quantification expression applied to the target end of the leg. Such expressions, as in UML, restrict the number of instances allowed as targets in an instance model. These expressions consist of an upper and lower bound that a non-negative integers. A “*” symbol in the visual representation (and a “*” in the XMI) indicate no upper bound.~~

~~An instance of an association some of whose legs may have more than one targets should be taken to represent a set of tuples created by taking the cross-product of the sets of targets. For example, P(a:{x}, b:{p,q}, c:{r,s}) would generate the tuple set {(x,p,r),(x,p,s),(x,q,r),(x,q,s)}.~~

~~The specification does not provide a way to specify complex or co-occurrence constraints on the targets of a leg or on targets of two or more legs of a meta-class-association instance. However, many query/constraint languages specified for RDF* or property graphs will be able to express such constraints either by signaling a constraint violation or by producing a non-empty result set of a query.~~

~~When producing an instance of an element defined in the specification metamodel, the implementation should note the meta-class template the instance is created from. Features and legs of the meta-element should be replicated in the instance and may not be changed by the business architecture modeler, except that the values of features and the targets of legs may be changed, along with an instance label and description (defined as property features name and description in the metamodel—see the BACM_element). The exception to this rule is any UML n-ary association or <association>> stereotyped class, with a single leg labelled “related”. In this case, instances may be created with an arity specified by the~~

~~business architecture modeler and with instance leg names specified by the business architecture modeler. These meta-associations are intended for use in representing relationships between instance elements of the same meta-element other than generalization and aggregation. The business architecture modeler is allowed to add property features to instances and define their names and types, subject to type restrictions that may be provided by the implementation. The business architecture modeler may also indicate that one instance generalizes another, but the implementation is not obligated to determine that the instance model is consistent.~~

Commented [JR9]: Issue BACM-43 resolved by BACM-44
Issue BACM-34 resolved by BACM-39

7.2.2 Unique naming of associations

UML does not require that associations be uniquely named; as noted above, some UML associations are translated into MOF as a class and association pattern and in this case the class names should be unique. Consequently, the UML model adopts a suffixing convention to uniquely name associations. In this convention, the business meaning of the association is defined by a prefix term followed by an underscore and a distinguishing number. All associations with the same prefix should be understood as having the same general business meaning, even though the classes they associate may differ.

Commented [JR10]: Issue BACM-98 resolved by BACM-9

7.2.3 Model elements (instances) represent sets and individuals

~~7.2.2 Meta-class Instances as classes~~

A business architecture model represents entity and relational concepts of the business. These concepts typically represent sets of things in a business. For example, an instance of a *BusinessObject* labeled as "part bin" represents several hundred actual part bins used by the business. All the part bins can be represented by a single model element because they have identical or similar properties and are used in identical or similar ways. The "part bin" model element needs to describe these similar properties and the similar behaviors the part bins participate in.
Sometimes a business concept represents an individual thing. A metamodeling specification that represents individuals, will typically represent types (classes) to which the individuals belong. In the BACM metamodel, *theBusiness* is a metaclass that should only ever have a single model element and that model element represents an identifiable, individual business (i.e. the one being modeled). Normally, an instance of a BACM metaclass would be interpreted as a class (type). However, in this case the instance of *theBusiness* is to be interpreted as an individual. Expression of this interpretation requires two constraints:

1. The extent of the *theBusiness* metaclass is restricted to 0 or one model elements (instances);
2. The model element that is the sole instance of *theBusiness* represents an individual

Because the second of these constraints involves model extents in the real world, it cannot be enforced except in a model that has classes and individuals as disjoint domains. The BACM model does not have a domain of individuals and the constraint can neither be represented in the model nor enforced. Other modeling languages, such as UAF and SysML, do have classes and individuals as disjoint domains and such a constraint can be specified.
The first constraint can be expressed in OCL as a constraint that no more than one model element may have *theBusiness* as a metaclass. The <<individual>> stereotype is used in the specification document to indicate this constraint. The OCL that expresses the constraint is found in the normative MOF XMI that is part of this specification.
While it is theoretically possible to apply the <<individual>> stereotype to a binary or n-ary association, such a construct is not used in this specification.

~~A business architecture model represents entity and relational concepts of the business. These concepts typically represent sets of things in a business. For example, an instance of a *BusinessObject* labeled as "part bin" represents several hundred actual part bins used by the business. All the part bins can be represented by a single instance because they have identical or similar properties and are used in identical or similar ways. The "part bin" instance needs to describe these similar properties and the similar behaviors the part bins participate in. Consequently, the "part bin" instance is to be implemented as a class, and the business architect must be able to add properties, methods and create structures and behaviors to adequately describe the concept of an abstract part bin.~~

Commented [JR11]: Issue BACM-45 resolved by BACM-6

~~7.2.3~~7.2.4 Meta-model association instances as association classes

The UML 2.5.1 specification allows N-ary associations to be class associations and distinguishes owned features as pertaining to the class and owned ends as pertaining to the association (see [OMG UML] 11.5.3.2). Instances of meta-model associations should be treated similarly, i.e. as a combination of a class and an association. Where applicable, the semantics of class associations should be followed. The metamodel also makes use of metaclasses stereotyped as <<association>>; instances of these metaclasses in M1 models should be implemented as class associations.

Simple associations in the metamodel with a stereotype of <<class>> or <<shortcut>> should also be implemented at the M1 model as binary, directed class associations.

~~7.2.4~~7.2.5 Distinguished association names

These associations are ~~exempted~~exempt from requirement previously stated to implement associations as class-associations or a similar representation permitting associations to have properties and participate in other associations. The meaning and usage of these associations is defined here and not in the generated content of section 7.3. The distinguished association names may consist of a prefix and a suffix separated by an underscore. The prefix designates the semantic interpretation, while the suffix designates a distinct association.

~~7.2.4.1~~7.2.5.1 aggregates

This association name identifies an association type that creates ~~hierarchies of same-typed instances of meta-classes. An example is the use of this association name on a self-association with the *ValueCategory* meta-class. *ValueCategory* eventually specializes *Category*, and *Category* is associated ("aggregates") with *CategoryLibrary*. The semantics of this association in this case are that an instance of *CategoryLibrary* aggregates one or more instances of *ValueCategory* that aggregate other instances of *ValueCategory*.~~

~~The association end cardinalities ensure that each *ValueCategory* instance has a single aggregator, which may be either another instance of *ValueCategory* or an instance of *CategoryLibrary*. This interpretation shall be applied to any other uses of the "aggregates" association in the meta-model. The common use of the "aggregates" label indicates a semantic association type that is specialized by the meta-classes at the association ends, e.g., the "aggregates" self-association of *ValueCategory* specializes the generic "aggregates" to an association between instances of *ValueCategory*.~~a collection semantic between instances of the associated types. Duplicates may appear in the collection and the same instance may appear in more than one collection. Associations with this name may appear multiple times in the diagrams and in the MOF model. They all have the same semantic interpretation, but are distinguished by the meta-classes they associate. In the BusinessElement diagram, *BusinessElements* may *aggregate* other *BusinessElements* as long as the elements being aggregated have the same, concrete metaclass (this is enforced by an OCL constraint). In the ValueStream diagram, an *aggregates* association allows *ValuePropositions* to aggregate *ValueItems*. This aggregates association has the same semantic, but is restricted in the end types it allows.

Commented [JR12]: Issue BACM-72 resolved by BACM-9
Issue BACM-83 resolved by BACM-90

~~7.2.4.2~~7.2.5.2 generalizes

The instances of this association create a generalization semantic relationship between the meta-class instances at the association ends. The association is restricted to 1) self-association of a concrete meta-class; 2) association between concrete meta-classes such that one meta-class eventually specializes the other. In case 2), the instance of this association may not contradict the generalization relationship between the meta-classes. The restriction to instances of the same metaclass is defined in theBusinessElement diagram by an OCL constraint on BusinessElement,

~~7.2.4.3~~7.2.5.3 owns

The instances of this association carry the semantic of exclusive ownership. The target of the association may not exist separately from the source.

~~7.2.4.4~~7.2.5.4 related

Some meta-classes stereotyped as associations should be realized in models as n-ary relations, whose arity is determined by the architect. These meta-classes have a single association, *related*, to a target meta-class. When realized in a model, multiple instances of the *related* association may be created by the architect and given distinct labels to distinguish them. ~~The category mechanism can be used to indicate that one or more instances of these n-ary associations are representatives of a type identified by the category.~~

Commented [JR13]: Issue BACM-72 resolved by BACM-9

~~7.2.5~~7.2.6 N-ary Associations reified as Classes and Binary Associations

N-ary associations in this metamodel are represented as classes with an <<association>> stereotype. In the diagrams, the n-ary association class may be represented either by a box or a diamond. The roles of the n-ary association are modeled as binary associations between the n-ary association class and the classes allowed to participate in these roles (i.e. the participants). However, the UML interpretation of this configuration is deficient in some important ways: 1) the UML

specification states that the cardinality specification of a role assumes that the other n-1 role entities are held constant; 2) the specification is unclear about how to interpret optional role participants.

An n-ary association specified in this way in this specification should be interpreted in its extension as a set of n-tuples, possibly with constraints between elements in each tuple and among the tuples, in addition to the requirement that the entries in the k^{th} position of the tuple are instances of the class participating in the k^{th} role. This specification does not determine an implementation, and implementors are free to number the roles of each association as they choose.

Likewise, the specification does not determine a technical language for the specification of constraints. In the specification, prose is used to define constraints.

~~7.2.6 Like-named associations with same meta-class source~~

~~This is a UML notational pattern used to represent that the instance association should have as its target instance classes of one target or the other, but target instances may not a mixture of instances of the targets. For example, in the Process diagram, the *implements* association has as targets *Customer::ValueStream* and *Customer::ValueStreamStage*. At the model level, an *implements* instance can have as targets some instances of *Customer::ValueStream* or some instances of *Customer::ValueStreamStage* but not a mixture of such instances.~~

Commented [JR14]: Issue BACM-100 resolved by BACM-

7.2.7 Application of business architecture frameworks with MEF

The Metamodel Extension Facility (MEF) provides for the definition and application of profiles and stereotypes that can be applied to any MOF-based model elements. The implementation of MEF or its equivalent is a requirement.

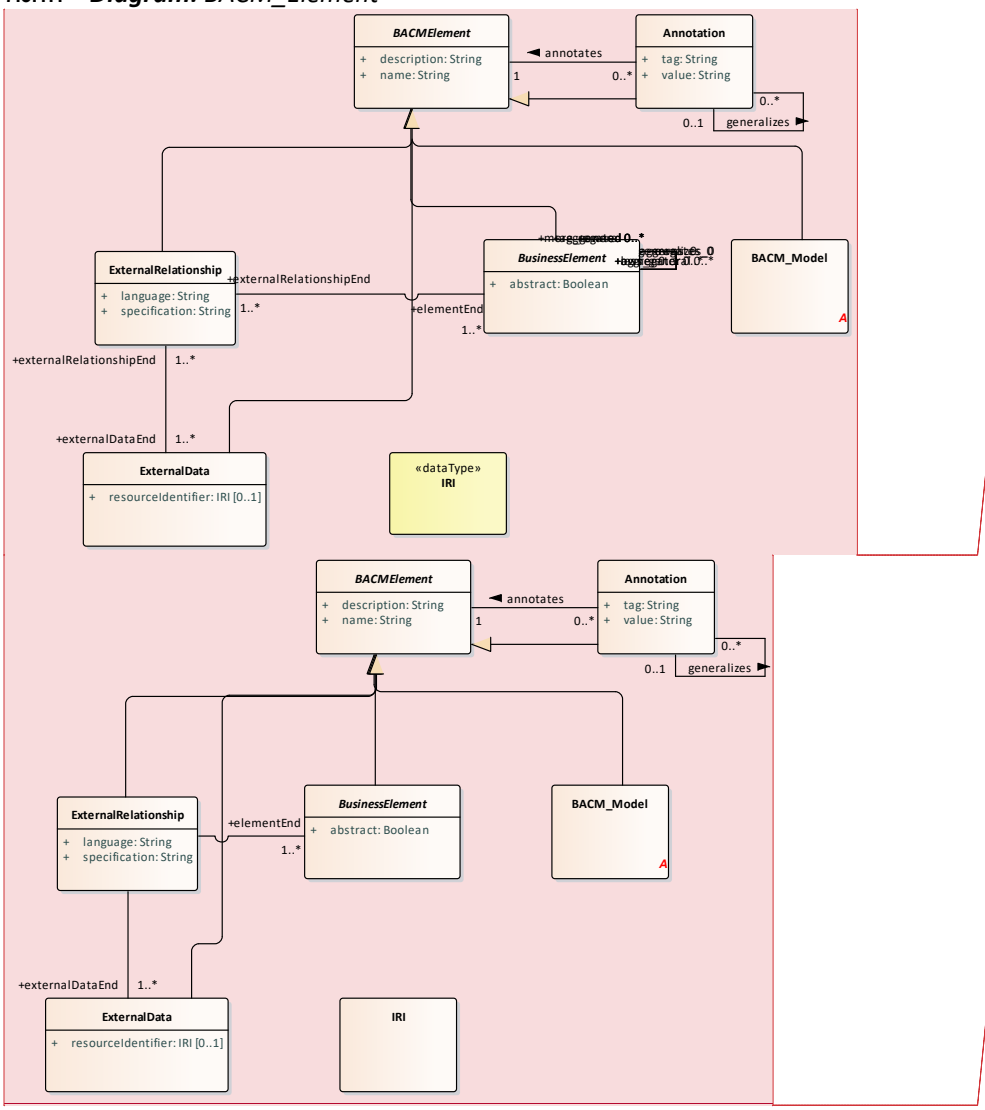
It is recommended that architects encode conceptual frameworks, such as the Value Proposition Canvas [VPC] in a MEF profile and use the stereotypes to characterize model elements, such as ValueItems and CustomerSegments according to the principles of the Value Proposition Canvas by applying stereotypes, such as “pains”, “gains” and “uses” to the model elements.

7.3 BACM Metamodel (Normative)

The following material describes the classes and associations that comprise the BACM metamodel

7.3.1 **Package:** BACM_Model

7.3.1.1 ***Diagram:*** *BACM_Element*

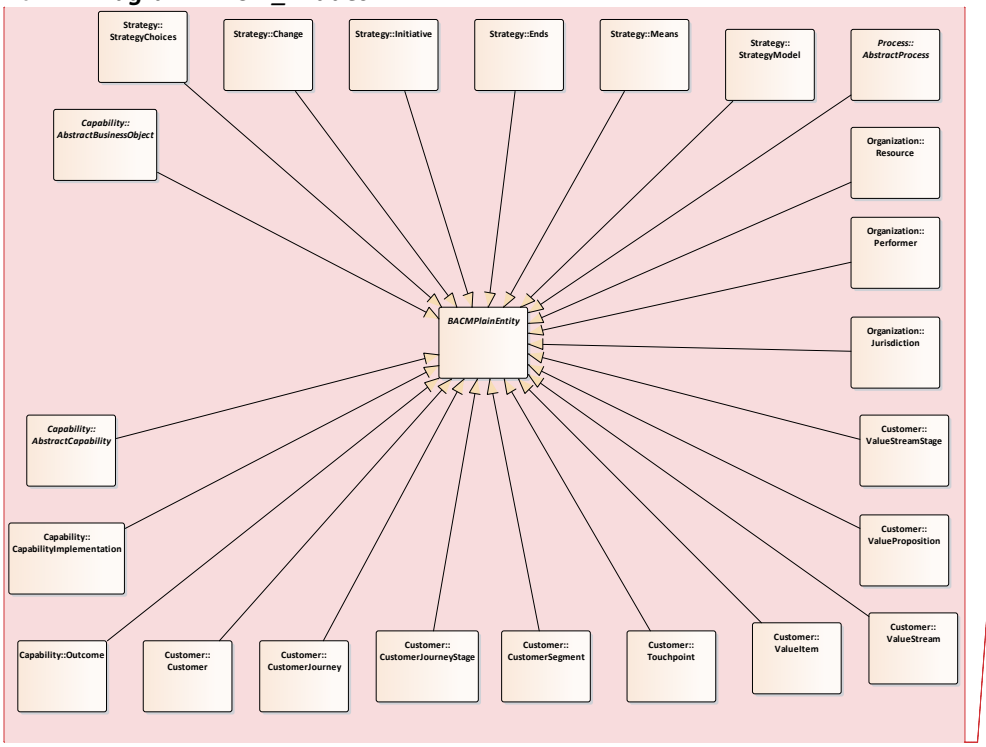


The BACM_Element diagram defines abstract syntax for the *BACMElement* and for *Annotation*.
BACMElement is an abstract class that provides annotation, description and name to all classes used to represent concepts of the business being modeled.
The *BusinessElement* abstract class provides a boolean feature allowing modelers to specify whether an instance is abstract or concrete. *BusinessElement* also provides an *ExternalRelationship* that allows the modeler to specify *ExternalData* that is associated with the *BusinessElement*

Commented [JR15]: Issue BACM-112 resolved by BACM-

Commented [JR16]: Original diagram from dtc_22-06-01

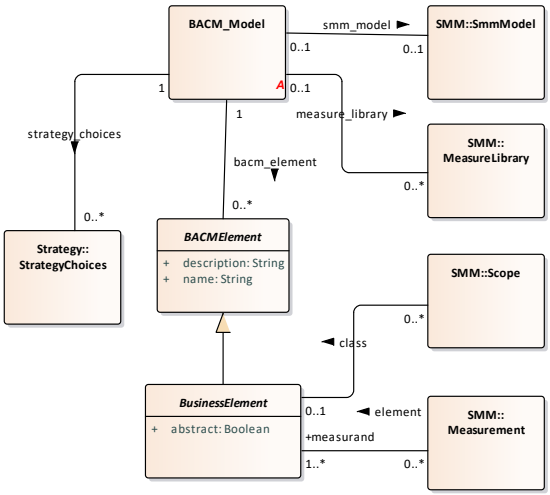
7.3.1.2 ***Diagram:*** *BACM_Entities*



The BACM_Entities diagram displays the specializations of BACMPlainEntity as model classes. These specializations are not transformed in the production of the MOF-compliant XMI model

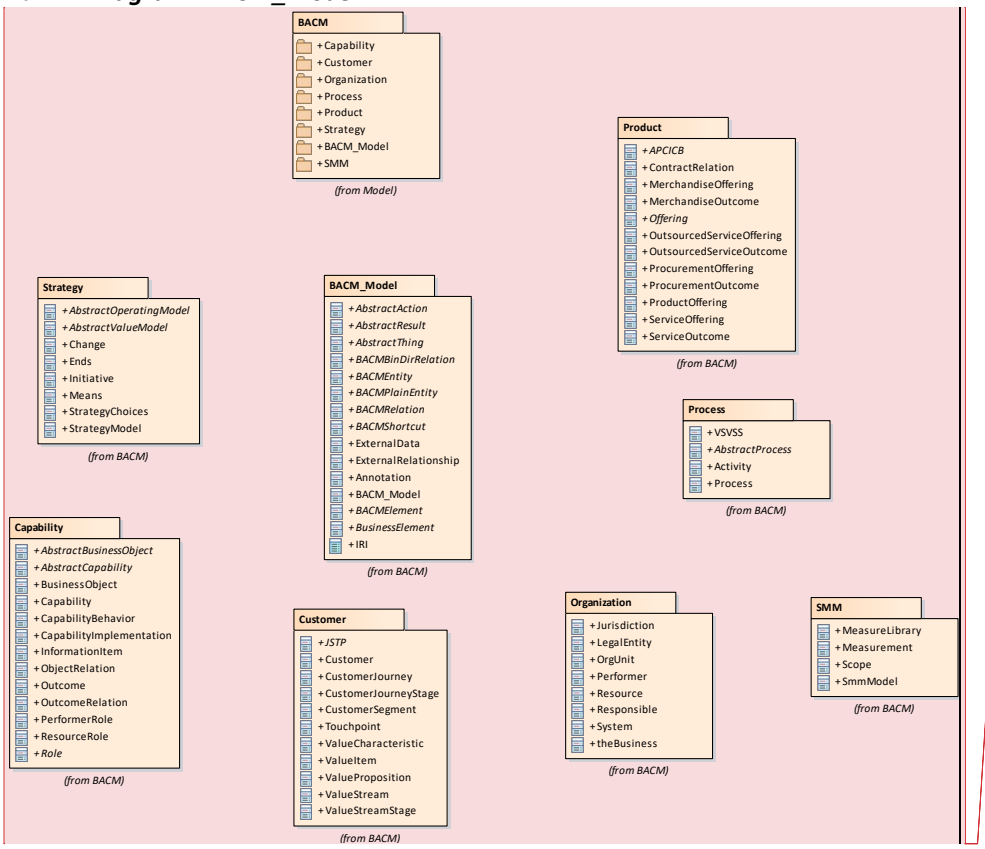
Commented [JR17]: Issue BACM-1 resolved by BACM-4

7.3.1.3 ***Diagram:*** *BACM_Model*

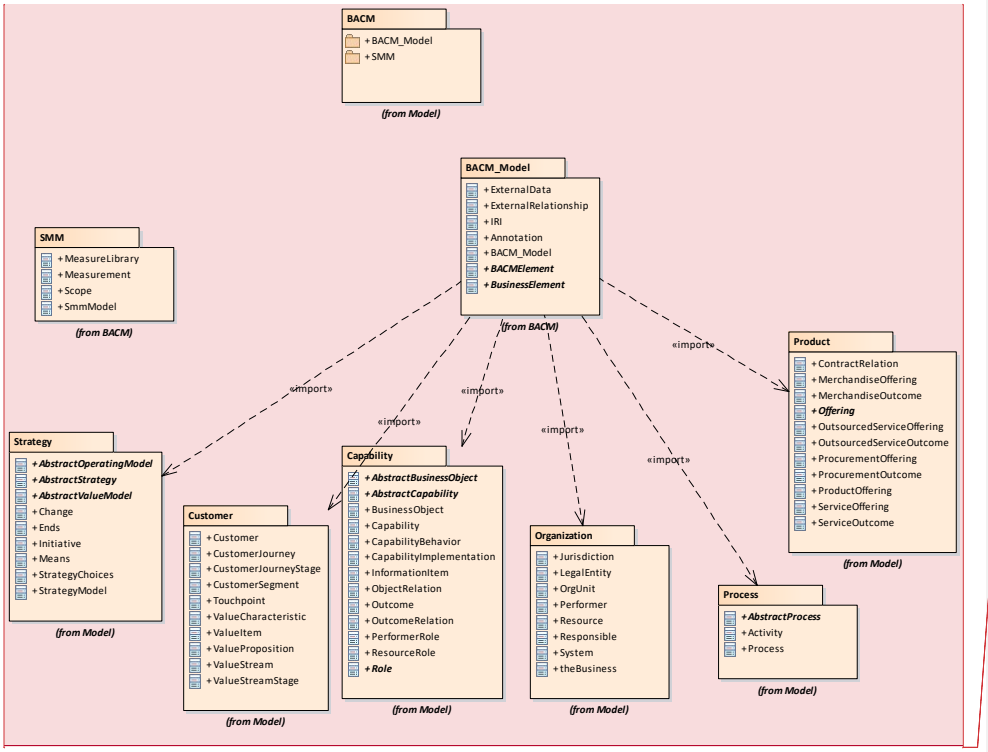


The BACM_Model diagram defines abstract syntax for *BACM_Model*, whose instance is the root element for a BACM model.
The *BACM_Model* element is a container for all *BusinessElements* in the model.
The *BACM_Model* is associated with a single *StrategyChoices* (which may contain several alternative *StrategyModels*)
Finally, the BACM_Model contains an *SMMModel* element and a selected set of SMM *MeasureLibraries*. The integration with SMM allows any instance of *BusinessElement* to be the *measurand* of a SMM *Measurement*. The BACM specification effectively imports at least the SMM 1.2 specification.

7.3.1.4 ***Diagram:*** *BACM_Model*



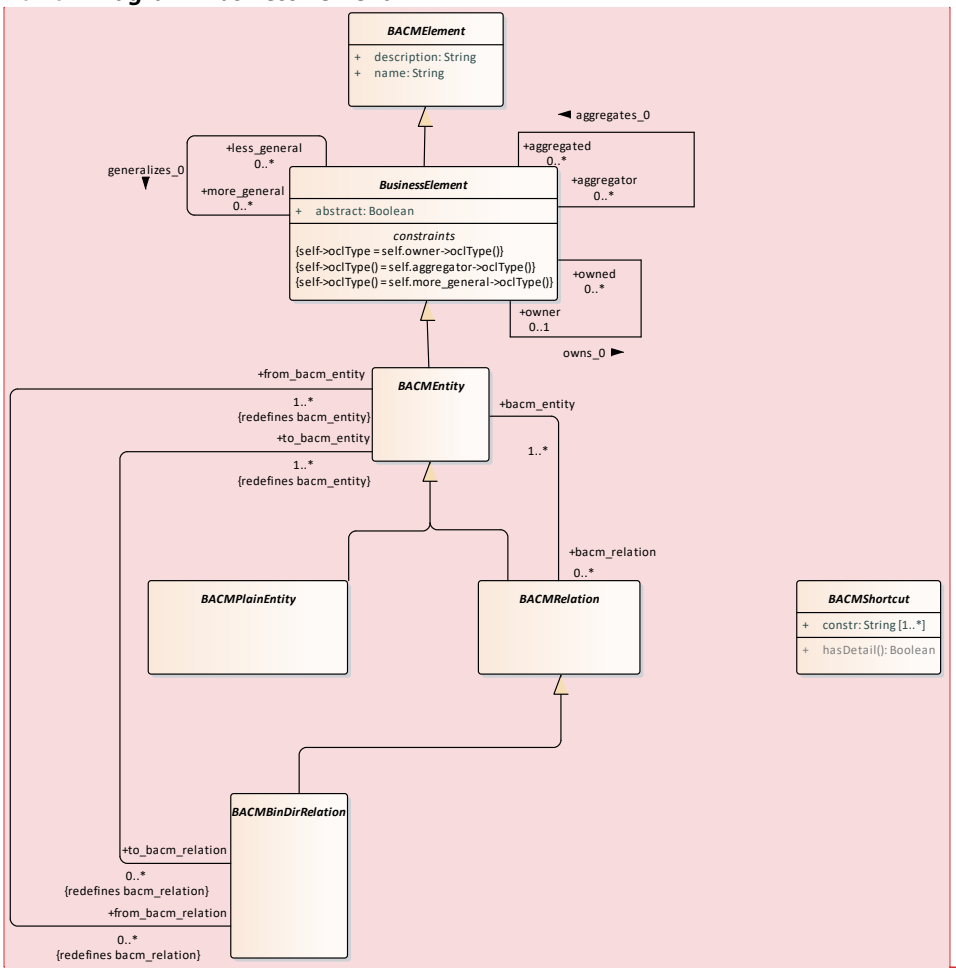
Commented [JR18]: Issue BACM-2 resolved by BACM-10



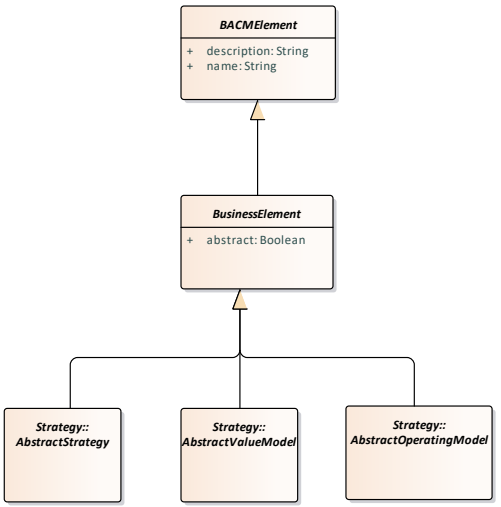
The package diagram shows the inclusion relationships between the BACM package and the sub-packages that contain the metamodel classes and associations. The packaging is define for convenience in managing the metamodel and should not be construed as defining domains of business architecture concepts.

Commented [JR19]: Original diagram from beta specificatio

7.3.1.5 *Diagram: BusinessElement*

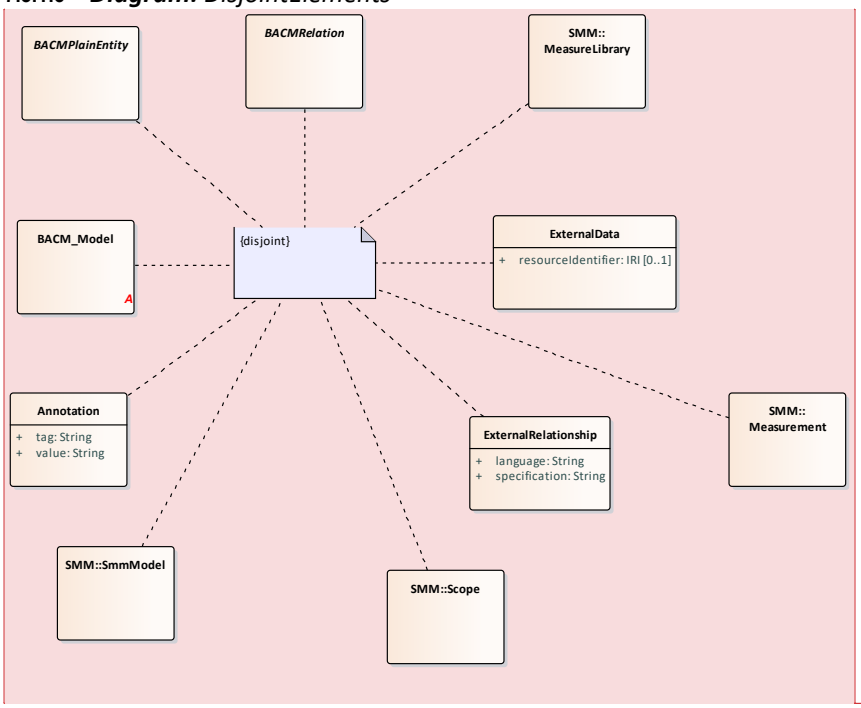


Commented [JR20]: Issue BACM-1 resolved by BACM-4
Issue BACM-83 resolved by BACM-90
Issue BACM-43 resolved by BACM-44



The BusinessElement diagram defines abstract syntax for *BusinessElement*, the abstract base class for all metaclasses whose instances represent business entities. Refer to the normative XMI file for details.
This diagram also defines specializations of BusinessElement that are used to support the transformation of the XMI for this model to a MOF compliant XMI. These specializations are BACMEntity, BACMRelation, BACMPlainEntity, BACMBinDirRelation and BACMShortcut.
BACMPlainEntity is the generalization of all BACM classes representing concepts of the business being modeled that are not stereotyped and not transformed in the production of MOF-compliant XMI (see the BACM_Entities diagram and the normative MOF XMI file for details).

7.3.1.6 ***Diagram:*** *DisjointElements*

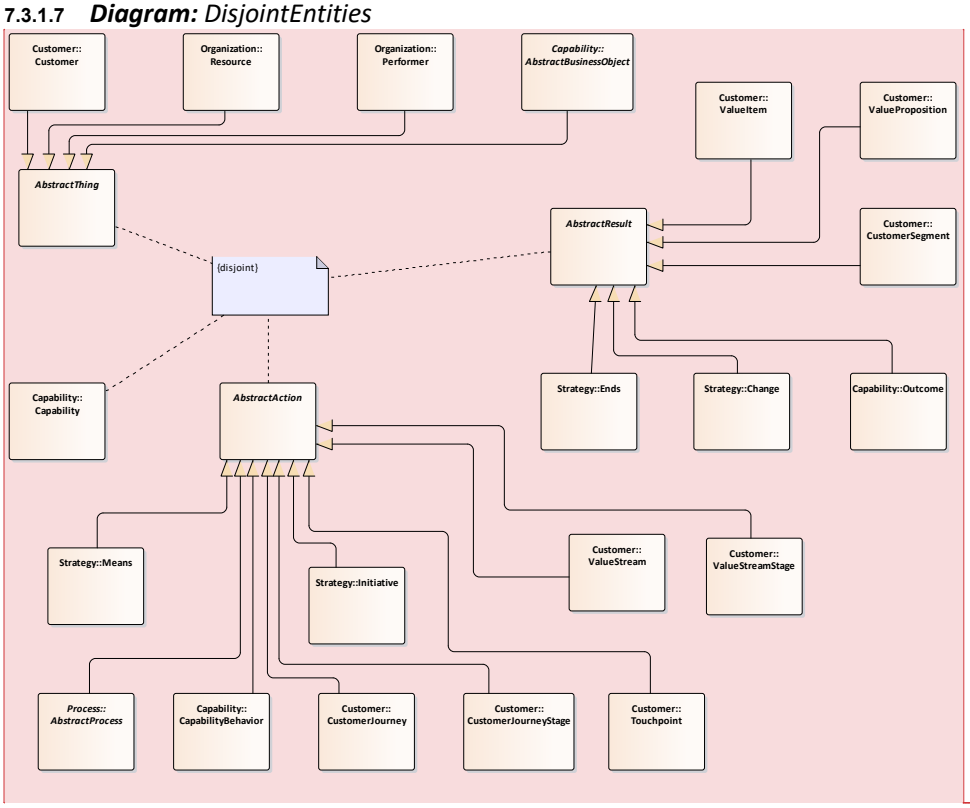


The BACM metamodel is based on SMOF, not MOF. Consequently, the assumption of disjointness of concrete classifiers does not hold and explicit assertions of disjointness must be made. The DisjointElements diagram asserts that the set of elements shown are pairwise disjoint (i.e. no object can have two or more of these classes as its metaclass).

Commented [JR21]: Issue BACM-84 resolved by BACM-1

Commented [JR22]: Issue BACM-84 resolved by BACM-1

7.3.1.7 *Diagram: DisjointEntities*



The BACM metamodel is based on SMOF, not MOF. Consequently, the assumption of disjointness of concrete classifiers does not hold and explicit assertions of disjointness must be made. The DisjointEntities diagram asserts that the set of elements shown are pairwise disjoint (i.e. no object can have two or more of these classes as its metaclass).

Commented [JR23]: Issue BACM 84 resolved by BACM-1

Commented [JR24]: Issue BACM-84 resolved by BACM-1

7.3.1.8 *Class Name: AbstractAction Class Type: Class Stereotype:*

Base Classes:

AbstractAction is used to classify entities that should be disjoint from *Capability*, *AbstractResult* and *AbstractThing*. It is not used for any other purpose in the metamodel.

7.3.1.8.1 Attributes, Methods and Connectors:

Association Name: Association Type: Generalization **Stereotype:**
Source Class: ValueStreamStage [] **Target Class:** AbstractAction []

Association Name: Association Type: Generalization **Stereotype:**
Source Class: AbstractProcess [] **Target Class:** AbstractAction []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Initiative [] **Target Class:** AbstractAction []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CustomerJourneyStage [] **Target Class:** AbstractAction []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CustomerJourney [] **Target Class:** AbstractAction []

Association Name: **Association Type:** NoteLink **Stereotype:**
Source Class: Constraint [] **Target Class:** AbstractAction []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Means [] **Target Class:** AbstractAction []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Touchpoint [] **Target Class:** AbstractAction []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityBehavior [] **Target Class:** AbstractAction []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStream [] **Target Class:** AbstractAction []

7.3.1.9 ***Class Name:*** *AbstractResult* ***Class Type:*** *Class* ***Stereotype:***

Base Classes:
AbstractResult is used to classify entities that should be disjoint from *Capability*, *AbstractAction* and *AbstractThing*. It is not used for any other purpose in the metamodel.

7.3.1.9.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueProposition [] **Target Class:** AbstractResult []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Ends [] **Target Class:** AbstractResult []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueItem [] **Target Class:** AbstractResult []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CustomerSegment [] **Target Class:** AbstractResult []

Association Name: **Association Type:** NoteLink **Stereotype:**
Source Class: Constraint **[]** **Target Class:** AbstractResult **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Outcome **[]** **Target Class:** AbstractResult **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Change **[]** **Target Class:** AbstractResult **[]**

7.3.1.10 *Class Name:* *AbstractThing* *Class Type:* *Class* ***Stereotype:***

Base Classes:
AbstractThing is used to classify entities that should be disjoint from *Capability*, *AbstractResult* and *AbstractAction* . It is not used for any other purpose in the metamodel.

7.3.1.10.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractBusinessObject **[]** **Target Class:** AbstractThing **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Customer **[]** **Target Class:** AbstractThing **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Resource **[]** **Target Class:** AbstractThing **[]**

Association Name: **Association Type:** NoteLink **Stereotype:**
Source Class: Constraint **[]** **Target Class:** AbstractThing **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Performer **[]** **Target Class:** AbstractThing **[]**

7.3.1.11 *Class Name:* *Annotation* *Class Type:* *Class* ***Stereotype:***

Base Classes: BACMElement
Definition: *Annotation* provides the modeler an ability to associate tag/value pairs to any *BACMElement* in a BACM model.
Usage: *Annotations* may be annotated. *Annotations* may also be specialized in a BACM model to add additional attributes.

7.3.1.11.1 Attributes, Methods and Connectors:

Attribute Name: tag **Attribute Type:** String
Definition: The *property* identifies the intended meaning of the *value* property.

Attribute Name: value **Attribute Type:** String
Definition: The *value* property holds the value of the annotation. The meaning of this value is provided by the *tag* property.

Association Name: annotates **Association Type:** Association **Stereotype:**
Source Class: Annotation [0..*] **Target Class:** BACMElement [1]
Definition: The *annotates* association links an *Annotation* to the *BACMElement* being annotated.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Annotation [] **Target Class:** BACMElement []

Association Name: generalizes **Association Type:** Association **Stereotype:**
Source Class: Annotation [0..1] **Target Class:** Annotation [0..*]

Association Name: generalizes **Association Type:** Association **Stereotype:**
Source Class: Annotation [0..1] **Target Class:** Annotation [0..*]

Association Name: **Association Type:** NoteLink **Stereotype:**
Source Class: Constraint [] **Target Class:** Annotation []

7.3.1.12 *Class Name: BACM_Model* *Class Type: Class* *Stereotype:*

Base Classes: BACMElement
Definition: The *BACMModel* represents the root element of a BACM model (i.e. the element from which a tool or person can navigate to every other element in the model)
Usage: A single instance of this class must exist in an instance model.

7.3.1.12.1 Attributes, Methods and Connectors:

Association Name: strategy_choices **Association Type:** Association **Stereotype:**
Source Class: BACM_Model [1] **Target Class:** StrategyChoices [0..*]
Definition: *strategy_choices* links a set of *StrategyChoices* to a *BACMModel*.
Usage: To facilitate reuse of the BACM model in different strategy situations, multiple *StrategyChoices* may be associated with a *BACMModel*.

Association Name: measure_library **Association Type:** Association **Stereotype:**
Source Class: BACM_Model [0..1] **Target Class:** MeasureLibrary [0..*]
Definition: The *measure_library* association links an SMM measure library to the BACM model.

Association Name: smm_model **Association Type:** Association **Stereotype:**
Source Class: BACM_Model [0..1] **Target Class:** SmmModel [0..1]
Definition: The *smm_model* association links an SMM model to the BACM model.

Association Name: bacm_element **Association Type:** Association **Stereotype:**
Source Class: BACM_Model [1] **Target Class:** BACMElement [0..*]
Definition: *bacm_element* links the *BACM_Model* to all of the *BACMElements* contained in a model.
Usage: This association should be interpreted to include all n-ary associations, associations stereotyped <class>> and classes stereotyped <<association>>. The translation of this model to MOF creates classes representing these types of associations that are not allowed in MOF and these classes specifically inherit from *BusinessElement*.
This association is exclusive; *BACMElements* are not allowed to be shared in different *BACM_Models*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BACM_Model [] **Target Class:** BACMElement []

Association Name: **Association Type:** NoteLink **Stereotype:**
Source Class: Constraint [] **Target Class:** BACM_Model []

7.3.1.13 *Class Name: BACMBinDirRelation* *Class Type: Class* *Stereotype:*

Base Classes: BACMRelation
Definition: *BACMBinDirRelation* is an abstract class that generalizes the classes resulting from the transformation of model associations stereotyped as <<class> or <<shortcut>>. It specializes *BACMRelation* to represent binary directed relations and redefines the association between *BACMRelation* and *BACMEntity* to designate the start (*from_bacm_entity*) and end (*to_bacm_entity*) of the relation direction

7.3.1.13.1 Attributes, Methods and Connectors:

Association Name: BACMRelToEntity **Association Type:** Association **Stereotype:**
Source Class: BACMBinDirRelation [0..*] **Target Class:** BACMEntity [1..*]

Association Name: BACMRelFromEntity **Association Type:** Association **Stereotype:**
Source Class: BACMBinDirRelation [0..*] **Target Class:** BACMEntity [1..*]

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BACMBinDirRelation [] **Target Class:** BACMRelation []

7.3.1.14 *Class Name: BACMElement* *Class Type: Class* *Stereotype:*

Base Classes:
Definition: The *BACMElement* represents the class of all elements in a BACM model. It provides elements with a name and description and allows elements to be annotated.
Usage: *BACMElement* is an abstract class and cannnot be instantiated in a model.

7.3.1.14.1 Attributes, Methods and Connectors:

Attribute Name: description **Attribute Type:** String
Definition: The *description* property provides a description of the *BACMElement*.
Usage: Typically the *description* states what business concept or entity the *BACMElement* is intended to represent.

Attribute Name: name **Attribute Type:** String
Definition: The *name* property provides a term that indicates what the *BACMElement* represents in the BACM model.
Usage: The *description* property should provide a more detailed description of the represented business concept or entity.

Association Name: annotates **Association Type:** Association **Stereotype:**
Source Class: Annotation [0..*] **Target Class:** BACMElement [1]

Definition: The *annotates* association links an *Annotation* to the *BACMElement* being annotated.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ExternalData **[]** **Target Class:** BACMElement **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ExternalRelationship **[]** **Target Class:** BACMElement **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Annotation **[]** **Target Class:** BACMElement **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BusinessElement **[]** **Target Class:** BACMElement **[]**

Association Name: bacm_element **Association Type:** Association **Stereotype:**
Source Class: BACM_Model **[**1**]** **Target Class:** BACMElement **[**0..*]
Definition: *bacm_element* links the *BACM_Model* to all of the *BACMElements* contained in a model.
Usage: This association should be interpreted to include all n-ary associations, associations stereotyped <class>> and classes stereotyped <<association>>. The translation of this model to MOF creates classes representing these types of associations that are not allowed in MOF and these classes specifically inherit from *BusinessElement*.
This association is exclusive; *BACMElements* are not allowed to be shared in different *BACM_Models*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BACM_Model **[]** **Target Class:** BACMElement **[]**

7.3.1.15 *Class Name: BACMEntity Class Type: Class Stereotype:*

Base Classes: BusinessElement
Definition: *BACMEntity* is an abstract class that is characterized by participating in relationships defined by *BACMRelation* and *BACMBinDirRelation*. *BACMEntity* is also a generalization of all classes intended to represent concepts of the modeled business. See the normative XMI file for details.
Usage: Both *BACMRelation* and *BACMBinDirRelation* are specializations of *BACMEntity* allowing these relationships to participate in other relationships

7.3.1.15.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BACMEntity **[]** **Target Class:** BusinessElement **[]**

Association Name: BACMRelToEntity **Association Type:** Association **Stereotype:**
Source Class: BACMBinDirRelation **[**0..*] **Target Class:** BACMEntity **[**1..*]

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BACMRelation **[]** **Target Class:** BACMEntity **[]**

Association Name: BACMRelEntity **Association Type:** Association **Stereotype:**
Source Class: BACMRelation **[**0..*] **Target Class:** BACMEntity **[**1..*]

Association Name: BACMRelFromEntity **Association Type:** Association **Stereotype:**
Source Class: BACMBinDirRelation **[**0..*] **Target Class:** BACMEntity **[**1..*]

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BACMPlainEntity **[]** **Target Class:** BACMEntity **[]**

7.3.1.16 *Class Name: BACMPlainEntity* *Class Type: Class* *Stereotype:*

Base Classes: BACMEntity
Definition: *BACMPlainEntity* is an abstract class disjoint from *BACMRelation* that classifies all BACM classes representing concepts of the modeled business that are not specializations of *BACMRelation*.
Usage: *BACMPlainEntity* and *BACMRelation* distinguish classes intended to represent entities from those intended to represent associations.

7.3.1.16.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BACMPlainEntity **[]** **Target Class:** BACMEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CustomerJourney **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractBusinessObject **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractCapability **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: StrategyChoices **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractProcess **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueProposition **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** NoteLink **Stereotype:**
Source Class: Constraint **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStreamStage **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Ends [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Jurisdiction [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueItem [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Outcome [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Touchpoint [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStream [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Performer [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Customer [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityImplementation [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CustomerJourneyStage [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Resource [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Means [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Initiative [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CustomerSegment [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: StrategyModel [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Change [] **Target Class:** BACMPlainEntity []

7.3.1.17 *Class Name: BACMRelation* *Class Type: Class* *Stereotype:*

Base Classes: BACMEntity
Definition: *BACMRelation* is an abstract class that models n-ary relations with features and the ability to participate in other specializations and instances of this class as *bacm_entity* ends.
Usage: *BACMRelation* is the generalization of all classes resulting from the transformation of <<association>> stereotyped classes. The model associations determined to be legs of the <<association>> stereotyped classes are transformed to specialize the association with ends *bacm_entity* and *bacm_relation*.

7.3.1.17.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BACMRelation [] **Target Class:** BACMEntity []

Association Name: BACMRelEntity **Association Type:** Association **Stereotype:**
Source Class: BACMRelation [0..*] **Target Class:** BACMEntity [1..*]

Association Name: **Association Type:** NoteLink **Stereotype:**
Source Class: Constraint [] **Target Class:** BACMRelation []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BACMBinDirRelation [] **Target Class:** BACMRelation []

7.3.1.18 *Class Name: BACMShortcut* *Class Type: Class* *Stereotype:*

Base Classes:
Definition: *BACMShortcut* is an abstract class inherited by the transformation of all metamodel classes stereotyped as <<shortcut> and all generated classes that result from the transformation of model classes stereotyped as <<shortcut>>. It declares a string (*constr*) that defines the shortcut constraint and a boolean valued function (*hasDetail*) that evaluates the constraint string and determines whether it is true or false.
Usage: In the normative XMI, the constraint string defined in the model is represented as an OCL function that determines if there is a specified path between the instances at the ends of the association. The modeler is allowed to use the constraint mechanism to define shortcut associations within the instance model. In this case, the *constr* attribute will contain the constraint string and the modeler must provide an implementation of the *hasDetail* function that evaluates the string and returns a boolean result.

7.3.1.18.1 Attributes, Methods and Connectors:

Attribute Name: constr **Attribute Type:** String

Method Name: hasDetail

7.3.1.19 *Class Name: BusinessElement* *Class Type: Class* ***Stereotype:***

Base Classes: BACMElement
Definition: *BusinessElement* represents a concept or entity that existing or is planned to exist in the business.
Usage: *BusinessElement* is an abstract base class for all classes whose instances represent business entities.

7.3.1.19.1 Attributes, Methods and Connectors:

Attribute Name: abstract **Attribute Type:** Boolean
Definition: The *abstract* property of a *BusinessElement* has a boolean value and the true value means that the represented business concept is not a tangible entity.
Usage: This property allows a business architect to create a framework through generalization at the M1 level that prevents instances marked as abstract from being included in the instance of the M1 model that is also at the M1 level.

Association Name: aggregates_0 **Association Type:** Association **Stereotype:**
Source Class: BusinessElement **[**0..*] **Target Class:** BusinessElement **[**0..*]
Definition: The *aggregates* association instance defines an undifferentiated and non-exclusive relationship between *BusinessElements* (in contrast with *owns* which is an exclusive relationship).
Usage: The *aggregates* association instance defines an undifferentiated and non-exclusive relationship between instances of *BusinessElement* allowing a *BusinessElement* instance to be a collection of other *BusinessElement* instances.
Constraint: The *aggregates* association is restricted to *BusinessElement* concrete subtypes that are of the same type (see *BusinessElement*).

Association Name: generalizes_0 **Association Type:** Association **Stereotype:**
Source Class: BusinessElement **[**0..*] **Target Class:** BusinessElement **[**0..*]
Definition: The *generalizes* association classifies links with the semantic that the *less_general* end of the link is less general than the *more_general* end of the link.
Usage: Instances of this association are used to create a generalization relationship between instances.
Constraint: The *generalizes* association is restricted to instances of the same type (see *BusinessElement*).

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BusinessElement **[]** **Target Class:** BACMElement **[]**

Association Name: owns_0 **Association Type:** Association **Stereotype:**
Source Class: BusinessElement **[**0..1] **Target Class:** BusinessElement **[**0..*]
Definition: The *owns* association instance defines an undifferentiated and exclusive relationship between *BusinessElements* (in contrast with *aggregates* which is a non-exclusive relationship).
Usage: The *owns* association instance defines an undifferentiated and exclusive relationship between instances of *BusinessElement* allowing a *BusinessElement* instance to be a container of other *BusinessElement* instances.
Constraint: The *owns* association is restricted to *BusinessElement* concrete subtypes that are of the same type (see *BusinessElement*).

Association Name: aggregates_0 **Association Type:** Association **Stereotype:**
Source Class: BusinessElement **[**0..*] **Target Class:** BusinessElement **[**0..*]
Definition: The *aggregates* association instance defines an undifferentiated and non-exclusive relationship between *BusinessElements* (in contrast with *owns* which is an exclusive relationship).
Usage: The *aggregates* association instance defines an undifferentiated and non-exclusive relationship between instances of *BusinessElement* allowing a *BusinessElement* instance to be a collection of other *BusinessElement* instances.
Constraint: The *aggregates* association is restricted to *BusinessElement* concrete subtypes that are of the same type (see *BusinessElement*).

Association Name: nature **Association Type:** Association **Stereotype:**
Source Class: Responsible [0..*] **Target Class:** BusinessElement [0..*]
Definition: The *nature* leg of the *Responsible* designates a *BusinessElement* that helps define the scope and/or nature of the *Responsible* association.

Association Name: class **Association Type:** Association **Stereotype:**
Source Class: Scope [0..*] **Target Class:** BusinessElement [0..1]
Definition: The *class* association provides the *SMM::Scope* element with a scoping reference to one or more *BusinessElements*.

Association Name: BusEleExtRel **Association Type:** Association **Stereotype:**
Source Class: ExternalRelationship [1..*] **Target Class:** BusinessElement [1..*]

Association Name: generalizes_0 **Association Type:** Association **Stereotype:**
Source Class: BusinessElement [0..*] **Target Class:** BusinessElement [0..*]
Definition: The *generalizes* association classifies links with the semantic that the *less_general* end of the link is less general than the *more_general* end of the link.
Usage: Instances of this association are used to create a generalization relationship between instances.
Constraint: The *generalizes* association is restricted to instances of the same type (see *BusinessElement*).

Association Name: element **Association Type:** Association **Stereotype:**
Source Class: Measurement [0..*] **Target Class:** BusinessElement [1..*]
Definieion: The *measurand* association specializes the *SMM::measurand* association to associate a *SMM::Measurement* with a *BusinessElement*.
Usage: Any n-ary association, class stereotyped as <<association>> or association stereotyped as <<class>> should be treated as a *BusinessElement* target of this association.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BACMEntity [] **Target Class:** BusinessElement []

Association Name: owns_0 **Association Type:** Association **Stereotype:**
Source Class: BusinessElement [0..1] **Target Class:** BusinessElement [0..*]
Definition: The *owns* association instance defines an undifferentiated and exclusive relationship between *BusinessElements* (in contrast with *aggregates* which is a non-exclusive relationship).
Usage: The *owns* association instance defines an undifferentiated and exclusive relationship between instances of *BusinessElement* allowing a *BusinessElement* instance to be a container of other *BusinessElement* instances.
Constraint: The *owns* association is restricted to *BusinessElement* concrete subtypes that are of the same type (see *BusinessElement*).

7.3.1.20 *Class Name: ExternalData Class Type: Class Stereotype:*

Base Classes: BACMElement
Definition: *ExternalData* is a class that wraps an IRI. An *ExternalRelationship* instance may be associated with multiple *ExternalData* instances.

7.3.1.20.1 Attributes, Methods and Connectors:

Attribute Name: resourceIdentifier **Attribute Type:** IRI

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ExternalData [] **Target Class:** BACMElement []

Association Name: externalRelData **Association Type:** Association **Stereotype:**
Source Class: ExternalRelationship **[**1..*] **Target Class:** ExternalData **[**1..*]

Association Name: **Association Type:** NoteLink **Stereotype:**
Source Class: Constraint **[]** **Target Class:** ExternalData **[]**

7.3.1.21 *Class Name: ExternalRelationship* *Class Type: Class* *Stereotype:*

Base Classes: BACMElement
Definition: *ExternalRealtionship* represents a relationship between a *BusinessElement* in a provider tool or repository to *ExternalData* in another tool or Repository. The external data may be a *BusinessElement* (or a linked collection of *BusinessElements*) or some other element (or linked collection of elements) from a model that is not a BACM model. The IRI must identify a resource to which the specification String can be applied to identify the element (or linked set of elements) in that resource. The language attribute of the *ExternalRelationship* identifies the language of the specification String.
Note that *BusinessElement* classifies all BACM classes and associations that are intended to represent business concepts (as opposed to model concepts or analysis concepts).
Usage: The tool provider may elect to provide services to dereference the *ExternalData* and apply the specification to allow the architect to view and interact with the results. However, a compliant implementation may just implement, import and export the *ExternalRelationship*, the *ExternalData* and the links connecting them and connecting the *ExternalRelationship* to the *BusienssElement*.
If the *language* string is the string "Natural" or a string that identifies a natural language. then the *specification* Strong will be a natural language description of the alignment mapping

7.3.1.21.1 Attributes, Methods and Connectors:

Attribute Name: language **Attribute Type:** String

Attribute Name: specification **Attribute Type:** String

Association Name: externalRelData **Association Type:** Association **Stereotype:**
Source Class: ExternalRelationship **[**1..*] **Target Class:** ExternalData **[**1..*]

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ExternalRelationship **[]** **Target Class:** BACMElement **[]**

Association Name: BusEleExtRel **Association Type:** Association **Stereotype:**
Source Class: ExternalRelationship **[**1..*] **Target Class:** BusinessElement **[**1..*]

Association Name: **Association Type:** NoteLink **Stereotype:**
Source Class: Constraint **[]** **Target Class:** ExternalRelationship **[]**

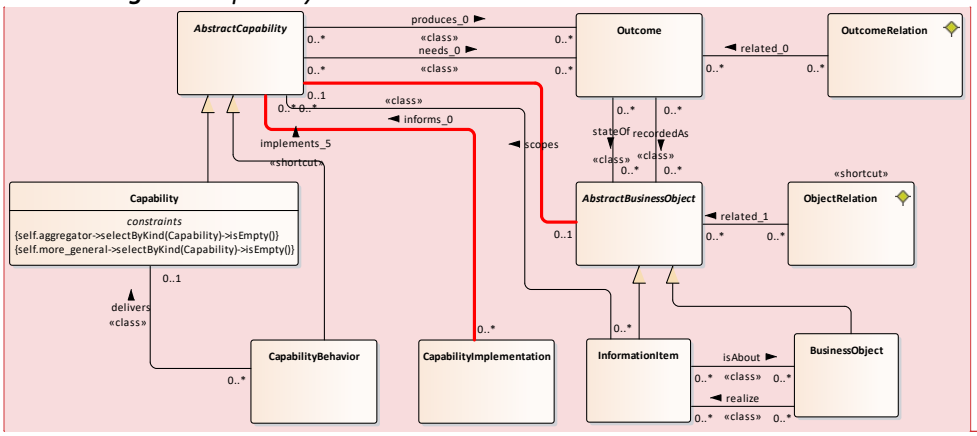
7.3.1.22 *Class Name: IRI* *Class Type: DataType* *Stereotype:*

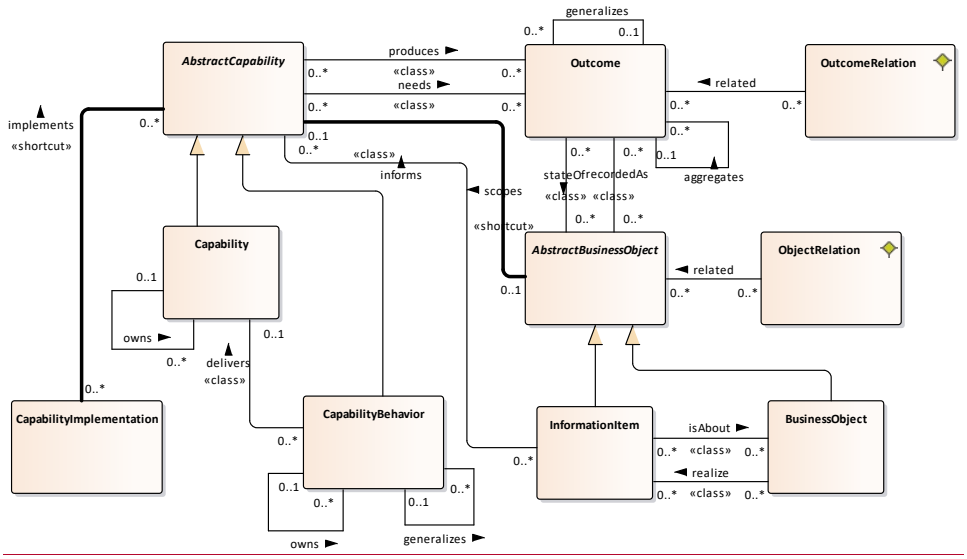
Base Classes:

7.3.1.22.1 Attributes, Methods and Connectors:

7.3.2 **Package:** Capability

7.3.2.1 ***Diagram:*** *Capability*





Commented [JR25]: Issue BACM-83 resolved by BACM-9 removed owns, aggregates and specializes and added OCL2 constraints to Capability

The Capability diagram defines abstract syntax for *Capability* and *CapabilityBehavior* classes. Both metaclasses inherit from *AbstractCapability* which allows their instances to produce and need *FlowOutcomes* and to be informed by *InformationItems* (e.g. a decision or action associated with the *Capability* is influenced by the *InformationItems*).

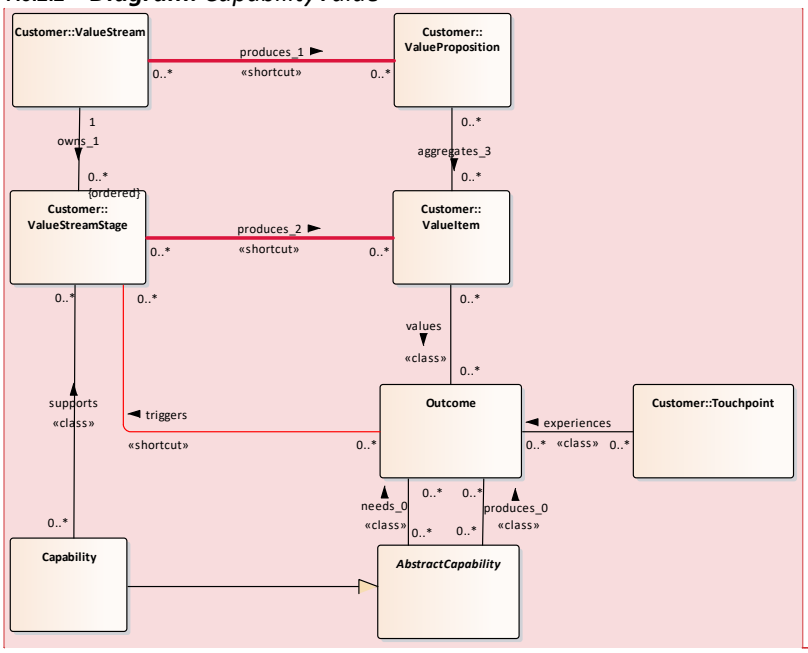
While *Capability* represents an ability to produce a *FlowOutcone*, *CapabilityBehavior* represents a particular way, process or manner of producing that *FlowOutcome*. A *CapabilityBehavior* that delivers a *Capability* must *produce* and/or *need FlowOutcomes* that are equivalent to, specialize, or contribute parts to the *Outcomes* produced by the *Capability*. A *CapabilityBehavior* may *produce* and *need FlowOutcomes* not *needed* or *produced* by the Capability it delivers.

The Capability diagram also specifies abstract syntax for *BusinessObjects* and *InformationItems*. *FlowOutcomes* represent the state_of *BusinessObjects* and/or *InformationItems*. The *AbstractBusinessObject* defines associations and properties common to *BusinessObject* and *InformationItem*.

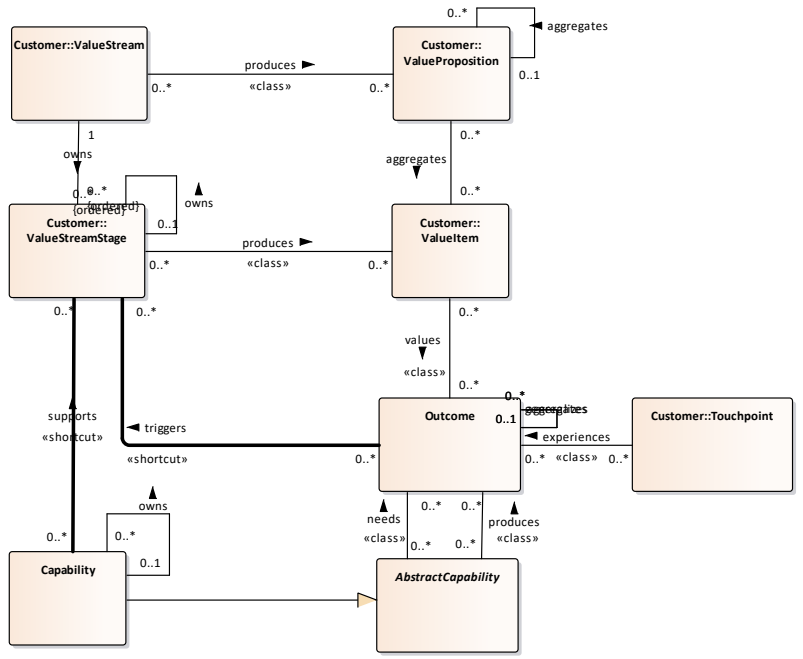
Capabilities may be decomposed by the *owns* association creating a strict hierarchy (i.e. a subCapability may not have multiple owners)
Where a *FlowOutcome* is obvious, the *scopes* shortcut association may be used to omit it from the model. The modeler may later elect to define *FlowOutcomes* that are consistent with the *possess* shortcut association constraint.

A *CapabilityImplementation* represents actual or planned role occupants (see Roles diagram) implementing a *Capability* and/or *CapabilityBehavior*. The modeler may also specify *Roles* and *assignments* to these *Roles* that are consistent with the constraint defined in the *implements* shortcut association.
See also the Process diagram in the Process package.

7.3.2.2 ***Diagram:*** *CapabilityValue*



Commented [JR26]: Issue BACM-83 resolved by BACM-9



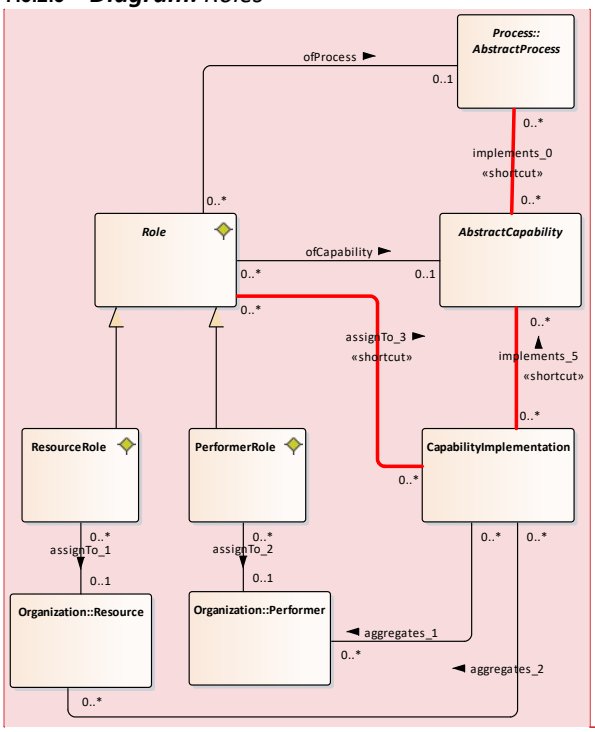
The CapabilityValue diagram extends the abstract syntax defined by the Capability diagram to show the relationship between *Capability/Outcome* and *ValueStreamStage/ValueItem*. The business architecture core metamodel recognizes that different stakeholders may place different values on the same Outcome. The metamodel provides the *ValueItem* as a model element to represent value beliefs. Refer to the document section on the Customer package for a full description of the model elemnts for representing customers (and other stakeholders) and value beliefs.

The *supports* association between *Capability* and *ValueStreamStage* represents the business capabilities needed to produce the *Outcomes* that are valued by the *Customer* to whom the *ValueProposition* is directed.

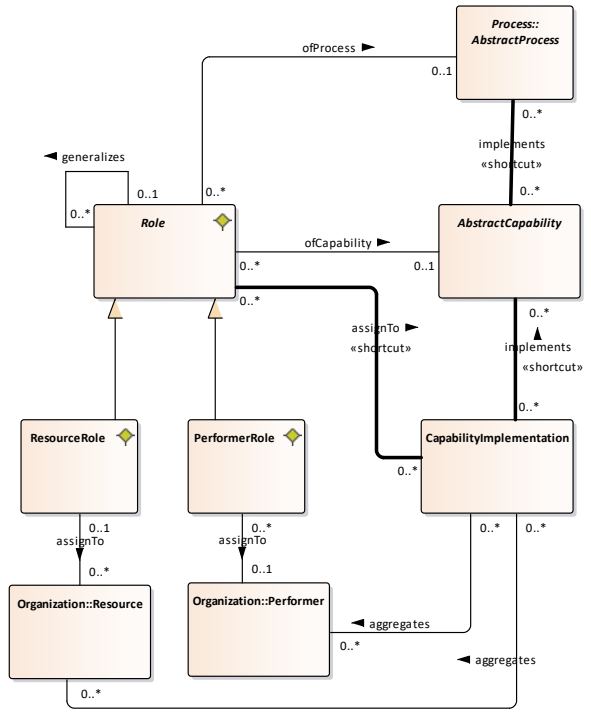
Not all *Outcomes* that are produced by *Capabilities* are experienced by the *Customer*. The *Outcomes* that are experienced by the *Customer* are associated with a *Touchpoint* representing an interaction between the business and the customer. The *Outcomes* experienced by the *Customer* at a *Touchpoint* should have *ValueItems*.

Most of the *Outcomes* in a business architecture model will be internal to the business, not experienced by the *Customer* and should not have *ValueItems*, unless they represent intermediate *Outcomes* that contribute to a *ValueProposition*. For example, a design capability following an "ease of use" design principle, and a test capability for testing "ease of use" with a prototype produce an "ease of use" outcome that is realized in the final product. The "ease of use" *ValueItem* can value the design *Outcome*, the test *Outcome* and the customer use *Outcome*.

7.3.2.3 *Diagram: Roles*



Commented [JR27]: Issue BACM-83 resolved by BACM-9



The Roles diagram defines the abstract syntax for roles and role assignments. *Roles* define how *Performers* and *Resources* participate in *Capabilities* and *CapabilityBehaviors*.

The *Role* acts as a ternary association that represents assignments of *Performers* and *Resources* to *PerformerRoles* and *ResourceRoles* that are role associated to *Capabilities* and *CapabilityBehaviors*.

A *Role* may not exist except in a role association to a *Capability* and/or *CapabilityBehavior*.
Assignment of Resource or Performer to their respective Roles is optional.

A *CapabilityImplementation* represents a bundling of (aggregates) *Resources* and *Performers* to implement a *Capability* and/or *CapabilityBehavior*. A *CapabilityImplementation* may be empty and contain an annotation suggesting future contents.

The *Implements* shortcut association allows a *CapabilityImplementation* to be associated with a *Capability* and/or a *CapabilityBehavior* without having to specify the *Roles* or the *Performers* and/or *Resources* or the associations that link them together. The modeler may subsequently add these details consistent with the implements shortcut association constraints.

The *assignmment* shortcut association allows a *CapabilityImplementation* to be assigned to selected *Roles* without having to specify the details about *Performers* and *Resources* in the *CapabilityImplementation* and how they have assignments to these *Roles*.

7.3.2.4 *Class Name: AbstractBusinessObject Class Type: Class* ***Stereotype:***

Base Classes: AbstractOperatingModel, AbstractThing, BACMPlainEntity
Definition: *AbstractBusinessObject* represents *BusinessObjects* or *InformationItems*.
Usage: *AbstractBusinessObject* cannot be instanced or specialized in a business arcitecture model. The *AbstractBusinessObject* metaclass has two concrete subclasses:

- *BusinessObject* - instances represent tangible things of importance to the business.
- *InformationItem* - instances represent intangible (mental) concepts important to the business.

The *AbstractBusinessObject* metaclass provides its concrete specializations with the *state_of* association to *Outcomes* and the *scopes* association to *Capability* and *CapabilityBehavior*.
AbstractBusinessObject also provides for *ObjectRelations* that may relate any collection of *BusinessObjects* and *InformationItems*.

7.3.2.4.1 Attributes, Methods and Connectors:

Association Name: Association Type: Generalization **Stereotype:**
Source Class: AbstractBusinessObject **[]** **Target Class:** AbstractThing **[]**

Association Name: scopes **Association Type:** Association **Stereotype:** «shortcut»
Source Class: AbstractBusinessObject **[**0..1] **Target Class:** AbstractCapability **[**0..1]
Definition: The scopes shortcut association allows a Capability and/or CapabilityBehavior to be associated with some BusinessObjects and.or an InformationItems without defining Outcomes produced or needed by the Capability and/or CapabilityBehavior.
Usage: The modeler may elect to subsequently define such Outcomes, which must be consistent with the constraint specified by the scopes shortcut association.
Constraint: Let BO1 be a BusinessObject and C1 be a Capability that are associated by scopes s1. Then there should existin the model an Outcome O1 such that C1 produces O1 and O1 is a stateOf BO1.

Association Name: Association Type: Generalization **Stereotype:**
Source Class: AbstractBusinessObject **[]** **Target Class:** BACMPlainEntity **[**]

Association Name: Association Type: Generalization **Stereotype:**
Source Class: AbstractBusinessObject **[]** **Target Class:** AbstractOperatingModel **[]**

Association Name: related_1 **Association Type:** Association **Stereotype:**
Source Class: ObjectRelation **[**0..*] **Target Class:** AbstractBusinessObject **[**0..*]
Definition: The *related* leg of the *ObjectRelation* association links an *ObjectAssociation* to *BusinessObjects* and/or *InformationItems* that participate in the *ObjectAssociation*.
Usage: The *ObjectRelation* association does not have a fixed number of legs. The *related* leg may be instanced multiple times as long as the name given to each instance is distinct. The *related* leg may be given a label that defines a role the *BusinessObject* or *InformationItem* plays in the *ObjectAssociation*.

Association Name: object_1 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ProcurementOffering **[**0..*] **Target Class:** AbstractBusinessObject **[**0..*]
Definition: The *object* shortcut association asserts that the *ProcurementOffering* incorporates unspecified *Outcomes* describing the states of *AbstractBusinessObjects*.
Usage: This association allows the business architect to omit the *Outcome* in the procurement of some *AbstractBusinessObjects* for use by *theBusiness* when those *Outcomes* are obvious or irrelevant to the purposes of the analysis that is using the business architecture model.
Constraint: Let POf1 be a ProcurementOffering and BO1 be a BusinessObject associated by o1 an "object" association. Then POf1 should incorporate ProcurementOutcomes {POj} that represent either the change of ownership of BO1 or the establishment of a limited right to use BO1.

Association Name: Association Type: Generalization **Stereotype:**

Source Class: Offering [] **Target Class:** AbstractBusinessObject []

Association Name: recordedAs **Association Type:** Association **Stereotype:** «class»
Source Class: Outcome [0..*] **Target Class:** AbstractBusinessObject [0..*]

Association Name: stateOf **Association Type:** Association **Stereotype:** «class»
Source Class: Outcome [0..*] **Target Class:** AbstractBusinessObject [0..*]
The "state_of" meta-association applies a state to an AbstractBusinessObject instance. For example, a passenger may be transported from one location to another by a Capability, and the Outcome resulting from the Capability execution represents the fact that the passenger is now in the destinationlocation.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: InformationItem [] **Target Class:** AbstractBusinessObject []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BusinessObject [] **Target Class:** AbstractBusinessObject []

Association Name: object_0 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: MerchandiseOffering [0..*] **Target Class:** AbstractBusinessObject [0..*]
Definition: The *object* association represents a shortcut relationship between a *MerchandiseOffering* and a *BusinessObject* or *InformationItem* offered for sale or lease to the *Customer*.
Usage: This shortcut implies that there is an unspecified *MerchandiseOutcome* of the *AbstractBusinessObject* that would describe the terms of ownership/use incorporated in the *MerchandiseOffering*.
Constraint: Let MOf1 be a MerchandiseOffering and BO1 be a BusinessObject associated by o1 an "object" association. Then MOf1 should incorporate MerchandiseOutcomes {MOj} that represent either the change of ownership of BO1 or the establishment of a limited right to use BO1.

7.3.2.5 *Class Name: AbstractCapability Class Type: Class Stereotype:*

Base Classes: AbstractOperatingModel, BACMPlainEntity
Definition: *AbstractCapability* is not intended to represent a business concept. It is a metamodeling device to provide relationships to *Capability* and *CapabilityBehavior* that would otherwise be duplicated.
Usage: The *AbstractCapability* metaclass has two concrete specializations: *Capability* and *CapabilityBehavior*. Only the specializations can be instanced in models.
AbstractCapability provides the following to its concrete specializations:
1. to represent the production of an *Outcome*;
2. to represent the need for an *Outcome*;
3. to represent the ability of an *InformationItem* to inform the behavior of a *Capability* and/or *CapabilityBehavior*;
4. to represent the ability of a *CapabilityImplementation* to implement a *Capability* and/or a *CapabilityBehavior*;
5. to represent the notion that a *BusinessObject* and/or an *InformationItem* scopes a *Capability* and/or a *CapabilityBehavior*

7.3.2.5.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractCapability [] **Target Class:** AbstractOperatingModel []

Association Name: needs_0 **Association Type:** Association **Stereotype:** «class»
Source Class: AbstractCapability [0..*] **Target Class:** Outcome [0..*]

Definition: The *needs* association represents the assertion that a *Capability* and/or *CapabilityBehavior* needs, desires or requires a particular *Outcome* representing a state of an *BusinessObject* or *InformationItem*.

Association Name: produces_0 **Association Type:** Association **Stereotype:** «class»
Source Class: AbstractCapability **[**0..*] **Target Class:** Outcome **[**0..*]
Definition: The *produces* association represents that a *Capability* and/or *CapabilityBehavior* may produce the *Outcome*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractCapability **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: ofCapability **Association Type:** Association **Stereotype:**
Source Class: Role **[**0..*] **Target Class:** AbstractCapability **[**0..1]
Definition: The *ofCapability* leg of the *Role* association links the *Role* to the *AbstractCapability*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Capability **[]** **Target Class:** AbstractCapability **[]**

Association Name: object_2 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ServiceOffering **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: the *object* shortcut association designates an *AbstractCapability* possessed by *theBusiness* that is intended to produce the *ServiceOutcome incorporated* into the *ServiceOffering*.
Constraint: Let SOf1 be a ServiceOffering and C1 be a Capability that is associated by o1 an object association. Then there should exist a ServiceOutcome SO1 such that SO1 is incoporated in SOf1 and SO1 is produced by C1.

Association Name: scopes **Association Type:** Association **Stereotype:** «shortcut»
Source Class: AbstractBusinessObject **[**0..1] **Target Class:** AbstractCapability **[**0..1]
Definition: The scopes shortcut association allows a Capability and/or CapabilityBehavior to be associated with some BusinessObjects and.or an InformationItems without defining Outcomes produced or needed by the Capability and/or CapabilityBehavior.
Usage: The modeler may elect to subsequently define such Outcomes, which must be consistent with the constraint specified by the scopes shortcut association.
Constraint: Let BO1 be a BusinessObject and C1 be a Capability that are associated by scopes s1. Then there should existin the model an Outcome O1 such that C1 produces O1 and O1 is a stateOf BO1.

Association Name: implements_5 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: CapabilityImplementation **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: The *implements* association represents a relationship meaning that the *CapabilityImplementation* provides *Performers* and *Resources* to implement a *Capability* or *CapabilityBehavior*.
Usage: The *implements* association is a shortcut linking a *CapabilityImplementation* to a *Capability* or *CapabilityBehavior*. It carries a constraints that Performers and Resources in the *CapabilityImplementation* should be assigned to *Roles* of the *Capability* or *CapabilityBehavior*.
Constraint: Given a CapabilityImplementation CI1 and a Capability C1, if an impliements association I1 exists between CI1 and C1, then paths should exist between CI1 and C1 such that for some subset of the Performers {Pi} aggregated by CI1 and some subset of the Resources {Ri} aggregated by CI1, the Pi are assignTo PerformerRoles PRj and assignTo ResourceRoles RRj ofCapability C1

Association Name: require_1 **Association Type:** Association **Stereotype:** «class»
Source Class: Initiative **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: The *require* association represents that a *Capability* and/or *CapabilityBehavior* is required for performance of the *Initiative*.
Usage: Definition of this association in an M1 level model allows the business architect to record and analyze such requirements.

Association Name: **Association Type:** Generalization **Stereotype:**

Source Class: CapabilityBehavior **[]** **Target Class:** AbstractCapability **[]**

Association Name: implements_0 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: AbstractProcess **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: The *implements* shortcut represents that a *CapabilityBehavior* and an *AbstractProcess* have related *Outcomes*
Usage: It could also be justified by a common *Performer* playing a role in the *CapabilityBehavior* and the *AbstractProcess*
Constraint: Let P1 be a Process and C1 be a capability associated by an implements association. Then there should exist Outcomes O1 and O2 such that O1 is produced by (needed by) C1 and O2 is output (input) by P1 and O1 and O2 are related such that they are the same Outcome or one is in the extended aggregation of the other or one is the extended specialization of the other or any chain of relationships connecting the two where the chain consists exclusively of being aggregated by or being a specialization of the predecessor Outcome.

Association Name: informs_0 **Association Type:** Association **Stereotype:** «class»
Source Class: InformationItem **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: The *informs* association represents the influence of information (represented by *InformationItem*) on a *Capability* or a *CapabilityBehavior*.
Usage: Information, such as weather, production targets, and results of a business analysis project will change how a business behaves and how a Capability or CapabilityBehavior performs.

Association Name: require_0 **Association Type:** Association **Stereotype:** «class»
Source Class: Means **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: The *require* association represents that a *Capability* and/or *CapabilityBehavior* is required for performance of the *Means*.
Usage: Definition of this association in an M1 level model allows the business architect to record and analyze such requirements.

7.3.2.6 ***Class Name:*** *BusinessObject* ***Class Type:*** *Class* ***Stereotype:***

Base Classes: AbstractBusinessObject
Definition: *BusinessObject* represents a tangible thing that is of significance to a business.
Usage: *BusinessObjects* may also overlap with other classes in the model; for example a *BusinessObject* may also be a *Resource* used by a *Capability*.
Typically, the *BusinessObject* represents tangible things that are acted on by the *Capabilities* of a business to create a new *Outcome* that defines a new state of the *BusinessObject*. An assembly robot may be a Performer associated with an assembly *Capability*. The same assembly robot may be a *BusinessObject* when it is no longer needed and is sold.

7.3.2.6.1 Attributes, Methods and Connectors:

Association Name: contains **Association Type:** Association **Stereotype:** «class»
Source Class: BusinessObject **[**0..*] **Target Class:** System **[**0..*]
Definition: The *contains* association represents that *BusinessObjects* may contain *System*.
Usage: In some cases, a *BusinessObject* and a *System* may represent different aspects of the same entity; since meta-classes in this meta-model are not assumed disjoint, an instance may have both *BusinessObject* and *System* as metaclasses. However, a *BusinessObject* may contain several *Systems* and other *BusinessObjects* as well. In this case, the Systems are not aspects of the primary *BusinessObject*, and the contains association allows the architect to represent this. An example of this latter case is a primary *BusinessObject* that is a computer and the System is a software package hosted on that computer (along with other software packages). The software package may be an instance of a *System* and also an instance of a *BusinessObject* (i.e. the code)

Association Name: realize **Association Type:** Association **Stereotype:** «class»
Source Class: BusinessObject **[**0..*] **Target Class:** InformationItem **[**0..*]

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: BusinessObject **[]** **Target Class:** AbstractBusinessObject **[]**

Association Name: isAbout **Association Type:** Association **Stereotype:** «class»
Source Class: InformationItem **[**0..*] **Target Class:** BusinessObject **[**0..*]
The is about association represents the coupling of information to a business object where the information represents some aspects or characterizations of the business object.
For example, a business object that is a car may have a "digital twin", i.e. a collection of information that describes the state of being of the car. Such a "digital twin" is more accessible for controlling and auditing the business than the actual catr.

7.3.2.7 *Class Name: Capability Class Type: Class* ***Stereotype:***

Base Classes: AbstractCapability
Definition: *Capability* represents generalization over variations in behavior and variations in structure applied to the behavior where the same general *Outcome* is produced by the behavior.. A *Capability* represents the ability a business has to produce an *Outcome* without specifying how that *Outcome* is produced.
Usage: *Capability* is defined in this way to allow executives to analyze variation in business behaviors and structures that all produce the same or similar outcomes.
In addition, observing problems or successes that recur in most or all of the variations of a *Capability* is a clue that the business has a systemic problem with respect to the capability. For example, if all behavior variants and implementations of a *Capability* are underperforming, then one might wish to understand why.
Capabilities may be decomposed in a strict hierarchy, but are not allowed to be specialized. The *CapabilityBehavior* that delivers a *Capability* is used to represent behavioral variants of a *Capability*.
A *Capability* may be implemented by a *CapabilityImplementation*, a collection of *Resources* and *Performers* that are assigned *Roles* in the *Capability*.
The modeler may use any of the following patterns:
1. *Capability* is defined without *CapabilityBejaviors* or *CapabilityImplementations*;
2. *Capability* is defined with *CapabilityImplementations* annotated with proposed resources and performers but without *Roles*, *Resources* and *Performers*;
3. *Capability* is defined with *Roles*, *CapabilityImplementations*, *Performers*, *Resources* where the *Performers* and *Resources* are aggregated to the *CapabilityImplementation* and are assigned to *Roles* of the *Capability*;
4. *Capability* is defined as in 3. and *CapabilityBehaviors* are defined delivering the *Capability* with *Role* assignments to CapabilityBehavior compatible with the assignments to *Capability Roles*;
5. *Capability* is defined with delivering *CapabilityBehaviors* but no *CapabilityImplementation*;
6. *Capability* is defined with *Roles* and delivering *CapabilityBehaviors* are defined with consistent *Roles*;
7. All other configurations are disallowed.

Constraint: *Capability* instances may *own* other *Capability* instances but may not *aggregate* or *generalize* them.

7.3.2.7.1 Attributes, Methods and Connectors:

Association Name: supports **Association Type:** Association **Stereotype:** «class»
Source Class: Capability **[**0..*] **Target Class:** ValueStreamStage **[**0..*]
Definition: The *supports* association represents the relationship between a *Capability* and a *ValueStreamStage* that means that the *Capability* is needed in the *ValueStreamStage*.
Usage: For example, an important stage in the creation of value for a manipulation puzzle such as Rubik's Cobe is the production of a manufacturable design of the puzzle. A failure here can result in a puzzle that cannot be manufactured or is not attractive to purchasers.
Outcomes providing value are:
- a positive maniufacturability review;
- a positive customer reaction in a focus group.

The *Capabilities* needed to produce these Outcomes are: product design, manufacturability analysis, focus group management. For this example, the previous three *Capability* instances would be associated with the "Design Ready" *ValueStreamStage*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Capability [] **Target Class:** AbstractCapability []

Association Name: delivers **Association Type:** Association **Stereotype:** «class»
Source Class: CapabilityBehavior [0..*] **Target Class:** Capability [0..1]
Definition: The *delivers* association represents a *CapabilityBehavior* that produces or is intended to produce *Outcomes* that satisfy the *Outcomes* produced by the *Capability*.
Usage: A *CapabilityBehavior* that delivers a *Capability* must provide at least the set of *Roles* provided by the *Capability*.

Association Name: **Association Type:** NoteLink **Stereotype:**
Source Class: Constraint [] **Target Class:** Capability []

7.3.2.8 *Class Name: CapabilityBehavior Class Type: Class Stereotype:*

Base Classes: AbstractAction, AbstractCapability, APCICB
Definition: *CapabilityBehavior* represents a behavior description or specification, such as process diagrams, procedures manuals and other means of recording and publishing expected business practices.
Usage: *CapabilityBehavior* also represents rules, regulations and policies that constrain behavior, whether imposed by statute, regulators or business executives.
CapabilityBehaviors deliver a Capability, indicating that the set *CapabilityBehaviors* associated to a Capability are variant ways of producing the same or similar *Outcomes*.
CapabilityBehaviors may have associated *Roles*. These *Roles* define how *Performers* and *Resources* may participate in the described or specified behavior.
CapabilityBehavior is a subtype of *AbstractCapability* and inherits associations with the *Outcomes* of *Capabilities*. These associations represent the ability of a behavior to produce an *outcome*. The *Outcomes* produced by a *CapabilityBehavior* are usually more specific than *Outcomes* produced by the *Capability*. Often the *Outcome* of a *CapabilityBehavior* will include side-effects that result from the particular behavior, such as resources consumed in executing the behavior or time taken by the execution.
CapabilityBehaviors are not decomposable, but may be associated with Processes, which are decomposable.

7.3.2.8.1 Attributes, Methods and Connectors:

Association Name: delivers **Association Type:** Association **Stereotype:** «class»
Source Class: CapabilityBehavior [0..*] **Target Class:** Capability [0..1]
Definition: The *delivers* association represents a *CapabilityBehavior* that produces or is intended to produce *Outcomes* that satisfy the *Outcomes* produced by the *Capability*.
Usage: A *CapabilityBehavior* that delivers a *Capability* must provide at least the set of *Roles* provided by the *Capability*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityBehavior [] **Target Class:** APCICB []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityBehavior [] **Target Class:** AbstractCapability []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityBehavior [] **Target Class:** AbstractAction []

7.3.2.9 *Class Name: CapabilityImplementation Class Type: Class Stereotype:*

Base Classes: AbstractOperatingModel, APCICB, BACMPlainEntity
Definition: The *CapabilityImplementation* represents a collection of *Resources* and *Performers* that may be used to implement a *Capability* or *CapabilityBehavior* (see the Roles diagram).
Usage: The *Resources* and *Performers* are optional; the modeler may create instances of *CapabilityImplementation* annotated with a description of proposed or planned resources and performers and subsequently add the *Performers* and *Resources*..

7.3.2.9.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityImplementation **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: implements_3 **Association Type:** Association **Stereotype:** «class»
Source Class: CapabilityImplementation **[**0..*] **Target Class:** Initiative **[**0..*]
Definition: The *implements* association represents an assertion that one or more *CapabilityImplementations* are required to perform the *initiative*.
Usage: Definition of this association in an M1 level model allows the business arcitect to record that specific *CapabilityImplementations* are needed to perform the Initiative.

Association Name: aggregates_1 **Association Type:** Association **Stereotype:**
Source Class: CapabilityImplementation **[**0..*] **Target Class:** Performer **[**0..*]

Association Name: implements_5 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: CapabilityImplementation **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: The *implements* association represents a relationship meaning that the *CapabilityImplementation* provides *Performers* and *Resources* to implement a *Capability* or *CapabilityBehavior*.
Usage: The *implements* association is a shortcut linking a *CapabilityImplementation* to a *Capability* or *CapabilityBehavior*. It carries a constraints that Performers and Resources in the *CapabilityImplementation* should be assigned to *Roles* of the *Capability* or *CapabilityBehavior*.
Constraint: Given a CapabilityImplementation CI1 and a Capability C1, if an impliements association I1 exists between CI1 and C1, then paths should exist between CI1 and C1 such that for some subset of the Performers {Pi} aggregated by CI1 and some subset of the Resources {Ri} aggregated by CI1, the Pi are assignTo PerformerRoles PRj and assignTo ResourceRoles RRj ofCapability C1

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityImplementation **[]** **Target Class:** APCICB **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityImplementation **[]** **Target Class:** AbstractOperatingModel **[]**

Association Name: aggregates_2 **Association Type:** Association **Stereotype:**
Source Class: CapabilityImplementation **[**0..*] **Target Class:** Resource **[**0..*]

Association Name: assignTo_3 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: Role **[**0..*] **Target Class:** CapabilityImplementation **[**0..*]

Definition: The *assignment* shortcut association represents that a *CapabilityImplementation* provides *Performers* and *Resources* that can be assigned to *ResourceRoles* and *PerformerRoles* respectively of a *Capability*, *CapabilityBehavior*, *Process* or *Activity*.
Constraint: Let CI1 be a CapabilityImplementation and PR1 be a PerformerRole, then some subset of the Performers {pj} aggregated by CI1 are assignTo PR1. Let CI1 be a CapabilityImplementation and RR1 be a ResourceRole, then some subset of the Performers {pj} aggregated by CI1 are assignTo RR1.

7.3.2.10 *Class Name: InformationItem Class Type: Class Stereotype:*

Base Classes: AbstractBusinessObject
Definition: The *InformationItem* represents a kind of information.
Usage: The same *InformationItem* may represent a thought or piece of knowedge and a physical manifestation of that thought or knowledge as a document or a dataset.

7.3.2.10.1 Attributes, Methods and Connectors:

Association Name: informs_1 **Association Type:** Association **Stereotype:** «class»
Source Class: InformationItem **[**0..*] **Target Class:** AbstractProcess **[**0..*]
Definition: The *informs* association represents the influence of information (represented by *InformationItem*) on a *Process* or *Activity*.
Usage: Information, such as weather, production targets, and results of a business analysis project will change how a business behaves and how a *Process* or *Activity* performs.

Association Name: isAbout **Association Type:** Association **Stereotype:** «class»
Source Class: InformationItem **[**0..*] **Target Class:** BusinessObject **[**0..*]
The is about association represents the coupling of information to a business object where the information represents some aspects or characterizations of the business object.
For example, a business object that is a car may have a "digital twin", i.e. a collection of information that describes the state of being of the car. Such a "digital twin" is more accessible for controlling and auditing the business than the actual catr.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: InformationItem **[]** **Target Class:** AbstractBusinessObject **[]**

Association Name: informs_0 **Association Type:** Association **Stereotype:** «class»
Source Class: InformationItem **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: The *informs* association represents the influence of information (represented by *InformationItem*) on a *Capability* or a *CapabilityBehavior*.
Usage: Information, such as weather, production targets, and results of a business analysis project will change how a business behaves and how a Capability or CapabilityBehavior performs.

Association Name: realize **Association Type:** Association **Stereotype:** «class»
Source Class: BusinessObject **[**0..*] **Target Class:** InformationItem **[**0..*]

7.3.2.11 *Class Name: ObjectRelation Class Type: Class Stereotype: «association»*

Base Classes: AbstractOperatingModel
Definition: *ObjectRelation* represents any relationship of any arity among *BusinessObjects* and *InformationItems*.
Usage: The architect may use *ObjectRelation* to indicate that two *BusinessObjects* are joined together or that one *BusinessObject* is part of another.

7.3.2.11.1 Attributes, Methods and Connectors:

Association Name: related_1 **Association Type:** Association **Stereotype:**
Source Class: ObjectRelation **[**0..*] **Target Class:** AbstractBusinessObject **[**0..*]
Definition: The *related* leg of the *ObjectRelation* association links an *ObjectAssociation* to *BusinessObjects* and/or *InformationItems* that participate in the *ObjectAssociation*.
Usage: The *ObjectRelation* association does not have a fixed number of legs. The *related* leg may be instanced multiple times as long as the name given to each instance is distinct. The *related* leg may be given a label that defines a role the *BusinessObject* or *InformationItem* plays in the *ObjectAssociation*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ObjectRelation **[]** **Target Class:** AbstractOperatingModel **[]**

7.3.2.12 *Class Name:* Outcome *Class Type:* Class *Stereotype:*

Base Classes: AbstractOperatingModel, AbstractResult, BACMPlainEntity
Definition: An *Outcome* represents a fact or collection of facts about an experienced state of affairs pertaining to one or more *BusinessObjects* and/or *InformationItems*. *Outcomes* are produced/needed by Iand outputs/inputs of *AbstractProcesses*.
Usage: For example, a *Capability* to attach wheels to a vehicle being manufactured would require that a vehicle without wheels be available and that wheels be available. This requirements would be modeled as two *Outcomes*:
1. A vehicle without wheels is available to the *Capability*, and
2. A set of wheels is available to the *Capability*.
The result of the *Capability* is another *Outcome* in which the wheels are no longer separate but are attached to the vehicle.
Separating the state of a *BusinessObject* or *InformationItem* from the *BusinessObject* or *InformationItem* allows the model to represent many possible states of the *BusinessObject* or *InformationItem* and associate each state with the *Capabilities* and/or *CapabilityBehaviors* that produce the states.
Outcome and its *AbstractBusinessObjects* must represent a single, consistent set of facts whether viewed from the capability perspective or the process perspective. However, the facts represented by a *Outcome* may not be at the same level of detail when viewed in a capability perspective as when viewed in a process perspective. For example, a process perspective may represent the wheel assembly activities in greater detail, specifying the additional tools and parts needed to attach the wheels to the vehicle with intermediate *Outcomes* representing the stages of mounting the wheels to the hubs, attaching the nuts to the hub bolts, and tightening them to the required torque specification. The beginning and end of this sequence of *Outcomes* are the same in the process perspective and in the capability perspective. Other semantic relationships provided for *Outcome* are generalization and aggregation.

7.3.2.12.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Outcome **[]** **Target Class:** AbstractResult **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Outcome **[]** **Target Class:** AbstractOperatingModel **[]**

Association Name: recordedAs **Association Type:** Association **Stereotype:** «class»
Source Class: Outcome **[**0..*] **Target Class:** AbstractBusinessObject **[**0..*]

Association Name: stateOf **Association Type:** Association **Stereotype:** «class»
Source Class: Outcome **[**0..*] **Target Class:** AbstractBusinessObject **[**0..*]

The "state_of" meta-association applies a state to an AbstractBusinessObject instance. For example, a passenger may be transported from one location to another by a Capability, and the Outcome resulting from the Capability execution represents the fact that the passenger is now in the destinationlocation.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Outcome [] **Target Class:** BACMPlainEntity []

Association Name: triggers **Association Type:** Association **Stereotype:** «shortcut»
Source Class: Outcome [0..*] **Target Class:** ValueStreamStage [0..*]
Definition: The *triggers* association represents that the Outcome allows or initiates the *ValueStreamStage*.
Usage: It is often useful in analysis to record the *Outcomes* that constitute the important beginning events of a *ValueStreamStage* The *triggers* association allows the architect to record these relationships.
Constraint: Let O1 be an Outcome experienced at a Touchpoint T1 and VSS1 be a ValueStreamStage where O1 triggers VSS1, then there should exist a ValueItem VI1 that values O1 and is produced by VSS1.

Association Name: output **Association Type:** Association **Stereotype:** «class»
Source Class: AbstractProcess [0..*] **Target Class:** Outcome [0..*]
Definition: The *output* association represents that the *AbstractProcess outputs* the *Outcome*.
Usage: The *output* association in the process perspective corresponds to the *produces* association in the capability perspective. While it is possible that the same *Outcome* is *output* from a process and *produced* by a capability, it will usually be the case that a process *outputs* an *Outcome* that is related by generalization or aggregation (or another relation between *Outcomes*) to an Outcome *produced* by a capability. The process and capability in this case are semantically related by the relationship between their *Outcomes*.
For example, a CustomerInformationManagement *Capability* may *produce* CustomerInformation_is_current and CustomerInformation_is_correct *Outcomes.* A process that updates the CustomerAddress (a component of CustomerInformation) may *produce* CustomerAddress_is_current and CustomerAddress_is_correct *Outcomes*, that are related to the other *Outcomes* by aggregation.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: OutsourcedServiceOutcome [] **Target Class:** Outcome []

Association Name: values **Association Type:** Association **Stereotype:** «class»
Source Class: ValueItem [0..*] **Target Class:** Outcome [0..*]
Definition: The *values* association links a *ValueItem* to an *Outcome* and provides a valuation of that *Outcome*. An *Outcome* may have several *ValueItems*, reflecting the ways in which different stakeholders perceive the *Outcome*. Likewise, a *ValueItem* may value multiple *Outcomes* that must be valued as a group.
Usage: The Outcome may be present in the business architecture model without an associated ValueItem, but ValueItems may not exist without being associated to an Outcome.

Association Name: experiences **Association Type:** Association **Stereotype:** «class»
Source Class: Touchpoint [0..*] **Target Class:** Outcome [0..*]
Definition: The *experiences* relation represents a relationship between an *Outcome* and a *Touchpoint* meaning that the *Customer* will experience the *Outcome* at the *Touchpoint*.
Usage: A *Touchpoint* experiences an *Outcome*:
1. when that *Outcome* is provided as a service or
2. when the *Outcome* is associated with acceptance of the *ProductOffering* (e.g. the customer is happy with the contract of sale), or
3. when the customer receives information that resolves a question, or
4. when the customer makes use of a business object that is provided as an *Outcome* of an exchange transaction

Association Name: needs_0 **Association Type:** Association **Stereotype:** «class»
Source Class: AbstractCapability [0..*] **Target Class:** Outcome [0..*]
Definition: The *needs* association represents the assertion that a *Capability* and/or *CapabilityBehavior* needs, desires or requires a particular *Outcome* representing a state of an *BusinessObject* or *InformationItem*.

Association Name: **Association Type:** Generalization **Stereotype:**

Source Class: MerchandiseOutcome [] **Target Class:** Outcome []

Association Name: produces_0 **Association Type:** Association **Stereotype:** «class»
Source Class: AbstractCapability [0..*] **Target Class:** Outcome [0..*]
Definition: The *produces* association represents that a *Capability* and/or *CapabilityBehavior* may produce the *Outcome*.

Association Name: related_0 **Association Type:** Association **Stereotype:**
Source Class: OutcomeRelation [0..*] **Target Class:** Outcome [0..*]
Definition: The *relatedOutcome* leg of the *OutcomeRelation* association identifies an *Outcome* that is related to one or more other *Outcomes*.
Usage: The *OutcomeRelation* association does not have a fixed number of legs when instanced. The architect may define any number of instances of the *relatedOutcome* leg wen instancing the *OutcomeRelation* as long as each leg is given a unique name.

Association Name: input **Association Type:** Association **Stereotype:** «class»
Source Class: AbstractProcess [0..*] **Target Class:** Outcome [0..*]
Definition: The *input* association represents that the *AbstractProcess inputs* (requires or can use) the *Outcome*.
Usage: The *input* association in the process perspective corresponds to the *needs* association in the capability perspective. While it is possible that the same *Outcome* is *input* to a process and *needed* by a capability, it will usually be the case that a process *inputs* an *Outcome* that is related by generalization or aggregation (or another relation between *Outcomes*) to an Outcome *needed* by a capability. The process and capability in this case are semantically related by the relationship between their *Outcomes*.
For example, a CustomerInformationManagement *Capability* may *need* CustomerInformation_change_pending *Outcome.* A process that updates the CustomerAddress (a component of CustomerInformation) may *input* CustomerAddress_change_pending *Outcome*, that is related to the other *Outcome* by aggregation.

Association Name: incorporates_0 **Association Type:** Association **Stereotype:** «class»
Source Class: ProductOffering [0..*] **Target Class:** Outcome [0..*]
Definition: The *incorporates* association represents that an *Outcome* is included in a *ProductOffering*.
Usage: It may be implied that the *BusinessObject* whose state is represented by the *Outcome* is also included in the *ProductOffering*. In the case of a service offering, the *Outcome* instance represents the intended result of performing the capability as a service for a customer (as opposed to performing the capability for the immediate benefit of the business).

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ProcurementOutcome [] **Target Class:** Outcome []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ServiceOutcome [] **Target Class:** Outcome []

7.3.2.13 *Class Name: OutcomeRelation Class Type: Class Stereotype: «association»*

Base Classes: AbstractOperatingModel
Definition: *OutcomeRelation* represents any kind of semantic relationship between *Outcomes*.
Usage: The architect may create instances of any arity to define semantic relationships between *Outcomes*. For example, two *Outcomes* may be specified as alternative that cannot both be produced by a *Capability* or *Process* in a single execution.

7.3.2.13.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: OutcomeRelation **[]** **Target Class:** AbstractOperatingModel **[]**

Association Name: related_0 **Association Type:** Association **Stereotype:**
Source Class: OutcomeRelation **[**0..*] **Target Class:** Outcome **[**0..*]
Definition: The *relatedOutcome* leg of the *OutcomeRelation* association identifies an *Outcome* that is related to one or more other *Outcomes*.
Usage: The *OutcomeRelation* association does not have a fixed number of legs when instanced. The architect may define any number of instances of the *relatedOutcome* leg wen instancing the *OutcomeRelation* as long as each leg is given a unique name.

7.3.2.14 *Class Name: PerformerRole Class Type: Class Stereotype: «association»*

Base Classes: Role
Definition: *PerformerRole* represents skills, knowledge and willingness to use these in the production of the *Outcomes* of a *Capability*.
Usage: *PerformerRole* represents roles that must be fulfilled by human or automation actors.

7.3.2.14.1 Attributes, Methods and Connectors:

Association Name: assignTo_2 **Association Type:** Association **Stereotype:**
Source Class: PerformerRole **[**0..*] **Target Class:** Performer **[**0..1]
Definition: The *assignment* leg of the *PerformerRole* association represents that a *Performer* is assigned to the *PerformerRole*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: PerformerRole **[]** **Target Class:** Role **[]**

7.3.2.15 *Class Name: ResourceRole Class Type: Class Stereotype: «association»*

Base Classes: Role
Definition: *ResourceRole* represents the set of roles that must be fulfilled by business entities that are passive participants in the *Capability*, *CapabilityBehavior*, *Process* or *Activity*. This includes tools, locations and materials that are used in the behavior but do not become incorporated into the *Outcome* of the behavior. Any materials or entities that are incorporated into a *BusinessObject* or *InformationItem* whose *Outcomes* are produced by the *Capability* or *CapabilityBehavior* should be represented as *BusinessObjects* or *InformationItems* associated with *Outcomes* needed by the *Capability* and not represented as *Resources* in this context.
Usage:

7.3.2.15.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ResourceRole **[]** **Target Class:** Role **[]**

Association Name: assignTo_1 **Association Type:** Association **Stereotype:**
Source Class: ResourceRole **[**0..*] **Target Class:** Resource **[**0..1]
Definition: The *assignTo* leg of the *ResourceRole* association represents that a *Resource* has been assigned to a *ResourceRole*.

7.3.2.16 *Class Name:* Role *Class Type:* Class *Stereotype:* «association»

Base Classes: AbstractOperatingModel
Definition: *Role* represents a specified way for an entity to participate in producing the *Outcome* of a *Capability* or a *Process*. However, only the concrete subclasses of *Role* may be used in a model.
Usage: *Role* is an abstract association meta-class used to model relationships between *Performers* and *Resources* and *Capabilities* and *Processes*. It represents how *Performers* and *Resources* participate in behavior descriptions as represented by *CapabilityBehaviors* and/or in *Capabilities*. The *Role* meta-class is stereotyped as an association and its concrete instances are effectively class associations.
Specifically, the *Role* meta-class acts as an n-ary association with three predominant patterns:
1. A *Capability* is associated with a *Performer*;
2. A *CapabilityBehavior* is associated with a *Performer*, or a choice of an *OrgUnit* or a *System*;
3. A *CapabilityImplementation* is associated with a *CapabilityBehavior* and a choice of an *OrgUnit* or a *System*.
These three patterns represent:
1. An abstract view of the business capability with detail added by the Role instance indicating the type of activity to be performed. Since a *Capability* may have multiple associated *Roles*, this implies that the *Capability* incorporates multiple activities.
2. An intermediate view of the business used in planning where details about the specific behaviors of a capability and the type of performer entity (*OrgUnit* or *System*) are specified, but the actual or planned assignment of real *OrgUnits* or *Systems* has not occurred.
3. A more detailed planning/implementation view of the business in which specific performers and resources have been or are planned to be allocated to a *Capability* and its *CapabilityBehaviors* by way of a set of *CapabilityImplementations*.
Neither *ResourceRoles* nor *PerformerRoles* may exist without being linked to a *Capability* or a *CapabilityBehavior* or a *Process* or an *Activity* with the role link.
A *Capability* and a *CapabilityBehavior* may share a *Role*, but an assignment to that Role will be the same for both the *Capability* and the *CapabilityBehavior*. To indicate that a *CapabilityBehavior* and a *Capability* have related roles, the modeler should create a specialization ot the *Capability Role* for each *CapabilityBehavior* that delivers the *Capability* and link the specialized *Role* to the *CapabilityBehavior*.
A *Process* and an *Activity* may not share a *Role*.
A *Role* may be shared between a *Capability* and/or a *CapabilityBehavior*, and either a *Process* or an *Activity*. In this case, any assignment to the *Role* is an assignment to both the *Capability/CapabilityBehavior* and the *Process/Activity*
PerformerRoles and *ResourceRoles* may be linked to *CapabilityImplementations* with the assignment shortcut association. *Performers* and *Resources* aggregated in the *CapabilityImplementation* should be assigned to these roles.

7.3.2.16.1 Attributes, Methods and Connectors:

Association Name: assignTo_3 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: Role **[**0..*] **Target Class:** CapabilityImplementation **[**0..*]
Definition: The *assignment* shortcut association represents that a *CapabilityImplementation* provides *Performers* and *Resources* that can be assigned to *ResourceRoles* and *PerformerRoles* respectively of a *Capability*, *CapabilityBehavior*, *Process* or *Activity*.
Constraint: Let CI1 be a CapabilityImplementation and PR1 be a PerformerRole, then some subset of the Performers {pj} aggregated by CI1 are assignTo PR1. Let CI1 be a CapabilityImplementation and RR1 be a ResourceRole, then some subset of the Performers {pj} aggregated by CI1 are assignTo RR1.

Association Name: ofCapability **Association Type:** Association **Stereotype:**
Source Class: Role **[**0..*] **Target Class:** AbstractCapability **[**0..1]
Definition: The *ofCapability* leg of the *Role* association links the *Role* to the *AbstractCapability*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Role **[]** **Target Class:** AbstractOperatingModel **[]**

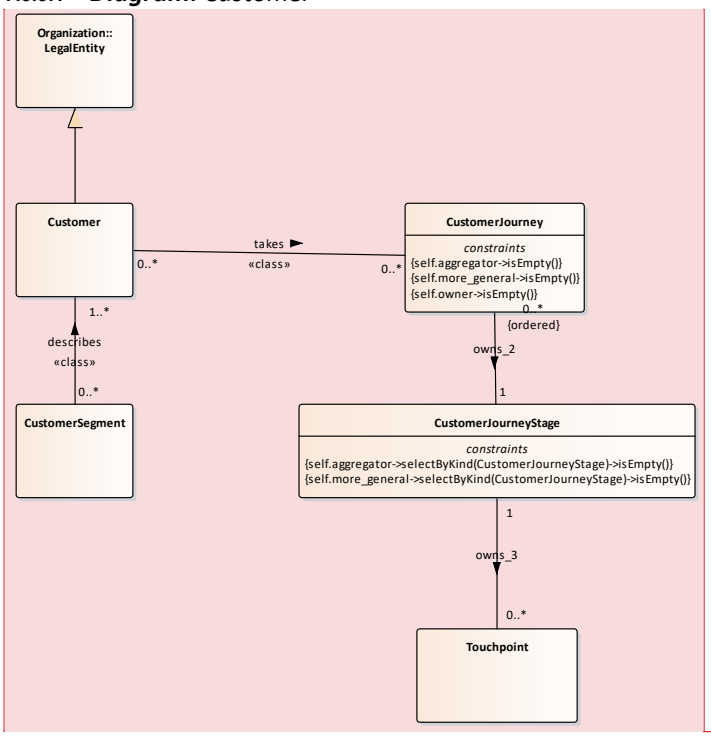
Association Name: ofProcess **Association Type:** Association **Stereotype:**
Source Class: Role **[**0..*] **Target Class:** AbstractProcess **[**0..1]
Definition: The *ofProcess* leg of the *Role* association links a *PerformerRole* or *ResourceRole* to a *Process* or *Activity*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ResourceRole [] **Target Class:** Role []

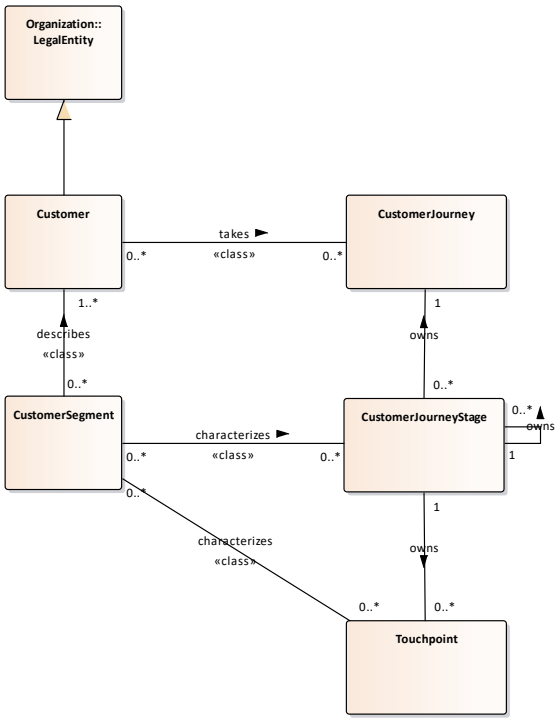
Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: PerformerRole [] **Target Class:** Role []

7.3.3 **Package:** Customer

7.3.3.1 ***Diagram:*** *Customer*

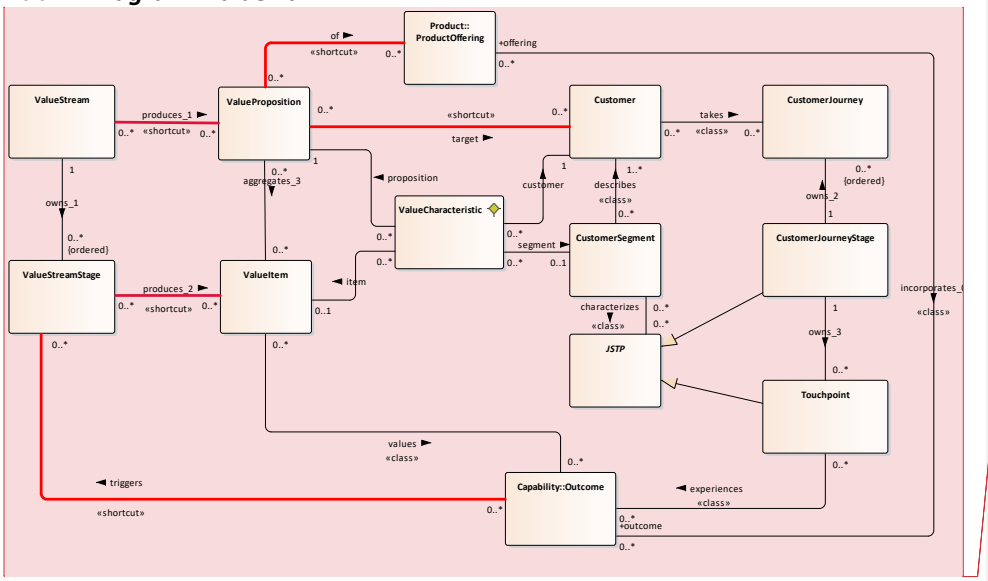


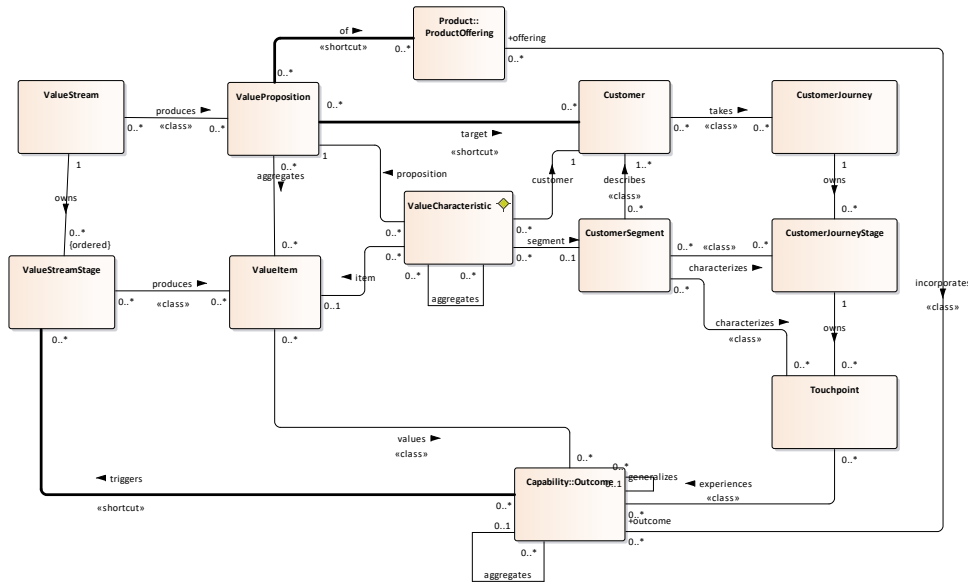
Commented [JR28]: Issue BACM-83 resolved by BACM-9



The Customer diagram expresses the abstract syntax of elements that collectively describe the customer, the customer's interactions with the business or its products and services, and the customer's state of mind at these interactions.
The CustomerJourney is a reusable tree that decomposes a journey into CustomerJourneyStages and CustomerJourneyStages into Touchpoints. This tree is reusable in that it allows multiple Customers to take the same CustomerJourney. It also allows a Customer to take different Journeys.
The CustomerSegment describes customer characteristics and/or state of mind at CustomerJourneyStages and Touchpoints of a CustomerJourney. The CustomerSegments are associated with CustomerJourneyStages and Touchpoints, but are effectively owned by the Customer taking the CustomerJourney. Separating the customer characteristics and state of mind from the CustomerJourneyStage and Touchpoint allows the CustomerJourneyStage and Touchpoint to be associated with different Customers.
Touchpoint differs from CustomerJourneyStage in experiencing Outcomes that may be incorporated in a ProductOffering. Such Outcomes might include the sale of a product item, the performance of a service or the customer's use of a product item after the sale. At each such Touchpoint, the customer characteristics and state of mind are described in a CustomerSegment.

7.3.3.2 ***Diagram:*** *ValueFit*

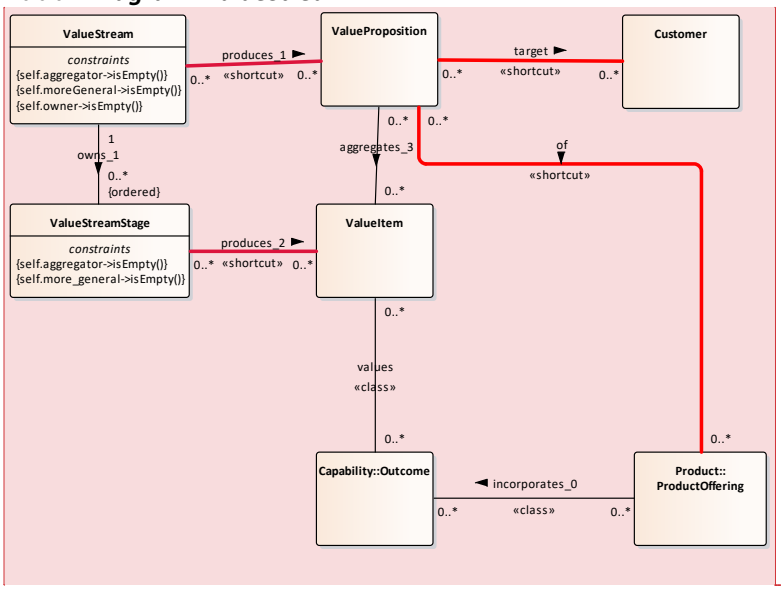


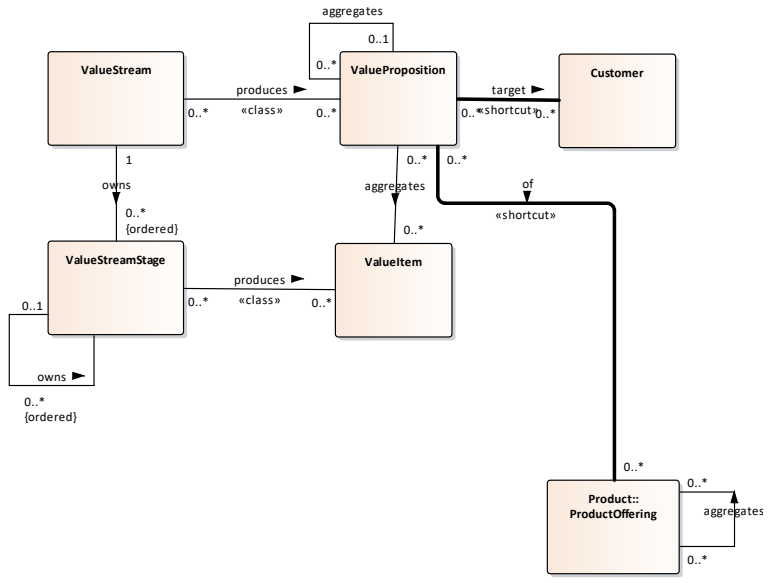


The ValueFit diagram defines abstract syntax for an analysis of how well the *ValuePropositions* meet the *Customer* expectations. The *ValueCharacteristic* holds an assessment of the fit of the *ValueProposition* (and its constituent *ValuePropositions* and *ValueItems*) to the *CustomerSegments* associated with the targeted *Customer*

Commented [JR29]: Issue BACM-83 resolved by BACM-9
Issue BACM-100 resolved by BACM-101

7.3.3.3 ***Diagram:*** *ValueStream*





Commented [JR30]: Issue BACM-83 resolved by BACM-9
Issue BACM-91 resolved by BACM-92 - produces now shortcut

The ValueStream diagram defines abstract syntax for models incorporating ValueStreams. The ValueStream owns ValueStreamStages representing business significant stages in the composition of value for a customer. The ValueStream itself produces ValuePropositions that aggregates other ValuePropositions and ValueItems.
ValueStreams are abstractly realized by Capabilities that support ValueStreamStages. These Capabilities produce Outcomes that are Valued by ValueItems. Some of these Outcomes are incorporated into the ProductOffering (e.g. sale price, warranty).
ValuePropositions target a Customer, who is also the target of the ProductOffering. The ValueProposition is of the ProductOffering.
The product shortcut association links a ValueStream to a ProductOffering, allowing the modeler to defer details of the ValueProposition.

7.3.3.4 *Class Name: Customer Class Type: Class Stereotype:*

Base Classes: AbstractThing, AbstractValueModel, BACMPlainEntity, LegalEntity
Definition: *Customer* represents a customer type or a class of customers. *Customer* also represents partner businesses and other forms of contracted business relationships.
Usage: *Customer* effectively owns a set of *CustomerSegments*, each of which contains a partial description of the *Customer*. The *CustomerSegments* of a *Customer* may characterize *CustomerJourneyStages* or *Touchpoints* (i.e. they describe the *Customer* characteristics and state of mind at the *CustomerJourneyStage* or *Touchpoint*. When this is the case, the Customer should take the *CustomerJourney* owning the *CustomerJourneyStages* and *Youchpoints*.
The *Customer* is an *acceptor* of one or more *ProductOfferings* and *target* of the *ValuePropositions* of these *ProductOfferings*.

7.3.3.4.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Customer **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Customer **[]** **Target Class:** AbstractThing **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Customer **[]** **Target Class:** LegalEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Customer **[]** **Target Class:** AbstractValueModel **[]**

Association Name: takes **Association Type:** Association **Stereotype:** «class»
Source Class: Customer **[**0..*] **Target Class:** CustomerJourney **[**0..*]
Definition: The *takes* association represents a relationship between a *Customer* and a *CustomerJourney* asserting that the *Customer* is likely to take the *CustomerJourney*.

Association Name: target **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ValueProposition **[**0..*] **Target Class:** Customer **[**0..*]
Definition: The *target* shortcut association asserts that the *ValueProposition* is intended to target the *Customer*.
Usage: This shortcut allows the architect to assert that a *ValueProposition* targets a *Customer* and imply that there is an unspecified *ValueCharacteristic* that represents the value fit analysis of the *ValueProposition* and *Customer*.
Constraint: Let VP1 be a ValueProposition and Cu1 be a Customer associated by t1, a target association. Then there should be a ValueCharacteristic VC1 with VP1 as its proposition and Cu1 as its customer. Also,

there should be ValueItems {VIj} aggregated by VP1 that value Outcomes {Oj} incorporated in ProductOfferings {POj} accepted by LegalEntities {LEj} that are also the Customer Cu1.
Note that it is commonly the case that the set of individuals represented intensionally by the Customer element are also LegalEntities.

Association Name: describes **Association Type:** Association **Stereotype:** «class»
Source Class: CustomerSegment **[**0..*] **Target Class:** Customer **[**1..*]
Definition: The *describes* association represents the relationship between a *CustomerSegment* and a *Customer* asserting that the *Customer* is partially described by the *CustomerSegment*
Usage: If there is no *CustomerJourney* associated with a *Customer*, then the set of all *CustomerSegments* that *describe* the *Customer* represent the total customer description.
If the *Customer* takes a *CustomerJourney*, then the *CustomerSegments* that *describe* the *Customer* may be qualified by the *characterizes* association to a *CustomerJourneyStage* or *Touchpoint*, indicating that the *CustomerSegment* partially *describes* the *Customer* at that *CustomerJourneyStage* or *Touchpoint*.

Association Name: customer **Association Type:** Association **Stereotype:**
Source Class: ValueCharacteristic **[**0..*] **Target Class:** Customer **[**1]
Definition: The *customer* leg of the *ValueCharacteristic* association identifies the *Customer* participating in the value fit analysis represented by the *ValueCharacteristic*.
Usage: The *ValueCharacteristic* may define specific *CustomerSegments*, *JourneyStages* and *Touchpoints* as having weigts in the value fit analysis. The meta-model does not provide direct support for asserting such facts, but they can be recorded in *Annotations* associated with the *ValueCharacteristic*.

7.3.3.5 *Class Name: CustomerJourney* *Class Type: Class* *Stereotype:*

Base Classes: AbstractAction, BACMPlainEntity
Definition: A *CustomerJourney* represents a sequence of stages through which a *Customer* may pass with respect to a *ProductOffering* and its *ValueProposition*. The *CustomerJourneyStages* of the *CustomerJourney* capture the notion that the customer experience is cumulative.

7.3.3.5.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CustomerJourney **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CustomerJourney **[]** **Target Class:** AbstractAction **[]**

Association Name: owns_2 **Association Type:** Association **Stereotype:**
Source Class: CustomerJourneyStage **[**1] **Target Class:** CustomerJourney **[**0..*]

Association Name: takes **Association Type:** Association **Stereotype:** «class»
Source Class: Customer **[**0..*] **Target Class:** CustomerJourney **[**0..*]
Definition: The *takes* association represents a relationship between a *Customer* and a *CustomerJourney* asserting that the *Customer* is likely to take the *CustomerJourney*.

7.3.3.6 *Class Name: CustomerJourneyStage* *Class Type: Class* *Stereotype:*

Base Classes: AbstractAction, BACMPlainEntity, JSTP

Definition: The *CustomerJourneyStage* represents a significant stage in the *CustomerJourney*. An example of the stages of a customer journey would be: awareness, seeking a solution, weighting alternatives, acquiring the solution, using the solution, disposing the solution. **Usage:** *CustomerJourneyStages* are often associated with decisions by the customer to proceed to the next stage or abandon the journey. However, the *CustomerJourney* is not a process and has no alternative sequences or paths.

7.3.3.6.1 Attributes, Methods and Connectors:

Association Name: owns_3 **Association Type:** Association **Stereotype:**
Source Class: CustomerJourneyStage **[**1] **Target Class:** Touchpoint **[**0..*]

Association Name: owns_2 **Association Type:** Association **Stereotype:**
Source Class: CustomerJourneyStage **[**1] **Target Class:** CustomerJourney **[**0..*]

Association Name: Association Type: Generalization **Stereotype:**
Source Class: CustomerJourneyStage **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: Association Type: Generalization **Stereotype:**
Source Class: CustomerJourneyStage **[]** **Target Class:** JSTP **[]**

Association Name: Association Type: Generalization **Stereotype:**
Source Class: CustomerJourneyStage **[]** **Target Class:** AbstractAction **[]**

7.3.3.7 *Class Name: CustomerSegment Class Type: Class Stereotype:*

Base Classes: AbstractResult, AbstractValueModel, BACMPlainEntity
Definition: The *CustomerSegment* represents a characteristic of the *Customer* or a component of customer state of mind. *CustomerSegments* are owned by the Customer they describe.
Usage: When the owning *Customer* takes a *Customerjourney*, *CustomerSegments* should be created for each *CustomerJourneyStage* and *Touchpoint* in the *CustomerJourney*. These *CustomerSegments* characterize the customer or the customer's state of mind at the *CustomerJourneyStage* or *Touchpoint*.

7.3.3.7.1 Attributes, Methods and Connectors:

Association Name: characterizes **Association Type:** Association **Stereotype:** «class»
Source Class: CustomerSegment **[**0..*] **Target Class:** JSTP **[**0..*]
Definition: The *characterizes* association represents a relationship between a *CustomerSegment* and a *Touchpoint* meaning that the *CustomerSegment* partially describes the state of mind or capability of the *Customer* at the *Touchpoint* interaction.
Usage: This *characterizes* association represents the same kind of relationship as the *characterizes* association between the *CustomerSegment* and the *CustomerJourneyStage*. The range of the association is the union of *CustomerJourneyStage* and *Touchpoint*.

Association Name: Association Type: Generalization **Stereotype:**
Source Class: CustomerSegment **[]** **Target Class:** AbstractResult **[]**

Association Name: Association Type: Generalization **Stereotype:**
Source Class: CustomerSegment **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: describes **Association Type:** Association **Stereotype:** «class»
Source Class: CustomerSegment **[**0..*] **Target Class:** Customer **[**1..*]
Definition: The *describes* association represents the relationship between a *CustomerSegment* and a *Customer* asserting that the *Customer* is partially described by the *CustomerSegment*
Usage: If there is no *CustomerJourney* associated with a *Customer*, then the set of all *CustomerSegments* that *describe* the *Customer* represent the total customer description.
If the *Customer* takes a *CustomerJourney*, then the *CustomerSegments* that *describe* the *Customer* may be qualified by the *characterizes* association to a *CustomerJourneyStage* or *Touchpoint*, indicating that the *CustomerSegment* partially *describes* the *Customer* at that *CustomerJourneyStage* or *Touchpoint*.

Association Name: Association Type: Generalization **Stereotype:**
Source Class: CustomerSegment **[]** **Target Class:** AbstractValueModel **[]**

Association Name: segment **Association Type:** Association **Stereotype:**
Source Class: ValueCharacteristic **[**0..*] **Target Class:** CustomerSegment **[**0..1]

7.3.3.8 *Class Name: JSTP Class Type: Class Stereotype:*

Base Classes:
usage: This abstract class provides a union type for CustomerJourneyStage and Touchpoint, allowing the characterizes association to link instances of any concrete subclass of these classes.

7.3.3.8.1 Attributes, Methods and Connectors:

Association Name: characterizes **Association Type:** Association **Stereotype:** «class»
Source Class: CustomerSegment **[**0..*] **Target Class:** JSTP **[**0..*]
Definition: The *characterizes* association represents a relationship between a *CustomerSegment* and a *Touchpoint* meaning that the *CustomerSegment* partially describes the state of mind or capability of the *Customer* at the *Touchpoint* interaction.
Usage: This *characterizes* association represents the same kind of relationship as the *characterizes* association between the *CustomerSegment* and the *CustomerJourneyStage*. The range of the association is the union of *CustomerJourneyStage* and *Touchpoint*.

Association Name: Association Type: Generalization **Stereotype:**
Source Class: Touchpoint **[]** **Target Class:** JSTP **[]**

Association Name: Association Type: Generalization **Stereotype:**
Source Class: CustomerJourneyStage **[]** **Target Class:** JSTP **[]**

7.3.3.9 *Class Name: Touchpoint Class Type: Class Stereotype:*

Base Classes: AbstractAction, BACMPlainEntity, JSTP
Definition: The *Touchpoint* represents an interaction between the business and the *Customer*.
Usage: One or more *Outcomes* created by the business are experienced by the *Customer* at the *Touchpoint* (e.g. the customer finds the answer to a question in a brochure created by the business, or the customer receives the business object that was ordered in good condition and on time). Alternatively, one or more *Outcomes* created by customer uses of the business objects contained in the *ProductOffering* are experienced by the customer (e.g. the customer uses the purchased hammer to drive nails).

The analysis of value exchanged at the *Touchpoint* is represented by the *ValueCharacteristic* associated with the *Touchpoint*.

7.3.3.9.1 Attributes, Methods and Connectors:

Association Name: experiences **Association Type:** Association **Stereotype:** «class»
Source Class: Touchpoint **[**0..*] **Target Class:** Outcome **[**0..*]
Definition: The *experiences* relation represents a relationship between an *Outcome* and a *Touchpoint* meaning that the *Customer* will experience the *Outcome* at the *Touchpoint*.
Usage: A *Touchpoint* experiences an *Outcome*:
1. when that *Outcome* is provided as a service or
2. when the *Outcome* is associated with acceptance of the *ProductOffering* (e.g. the customer is happy with the contract of sale), or
3. when the customer receives information that resolves a question, or
4. when the customer makes use of a business object that is provided as an *Outcome* of an exchange transaction

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Touchpoint **[]** **Target Class:** AbstractAction **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Touchpoint **[]** **Target Class:** JSTP **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Touchpoint **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: owns_3 **Association Type:** Association **Stereotype:**
Source Class: CustomerJourneyStage **[**1] **Target Class:** Touchpoint **[**0..*]

7.3.3.10 ***Class Name:*** *ValueCharacteristic* ***Class Type:*** *Class* ***Stereotype:*** *«association»*

Base Classes: AbstractValueModel
Definition: *ValueCharacteristic* represents the fit between the *ValueProposition* of a *ProductOffering* targeted at a *Customer*.
Usage: *ValueCharacteristic* is intended to be used with a semantic tagging mechanism such as that provided by MEF or its equivalent. This allows the creation of tagging frameworks such as the Value Proposition Canvas categories of "use", "pain" and "gain". The *ValuePropositions*, *CustomerSegments* and *ValueItems* should be tagged by these categories. The *ValueCharacteristic* should be similarly tagged and should represent the fit of like tagged *ValuePropositions* and *CustomerSegments*. For example, a *ValueProposition* that relieves a "pain" should be fitted to a *CustomerSegment* that describes the "pain" by a *ValueCharacteristic* tagged as "pain".
Constraints: A top level *ValueCharacteristic* defines a fit value for a relationship between a single *Customer* and a single *ValueProposition*. The *ValueCharacteristic* may be decomposed and account for fit between *ValueItems* and *CustomerSegments* that are part of the top level *ValueProposition* and *Customer*.

7.3.3.10.1 Attributes, Methods and Connectors:

Association Name: segment **Association Type:** Association **Stereotype:**
Source Class: ValueCharacteristic **[**0..*] **Target Class:** CustomerSegment **[**0..1]

Association Name: item **Association Type:** Association **Stereotype:**
Source Class: ValueCharacteristic [0..*] **Target Class:** ValueItem [0..1]

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueCharacteristic [] **Target Class:** AbstractValueModel []

Association Name: customer **Association Type:** Association **Stereotype:**
Source Class: ValueCharacteristic [0..*] **Target Class:** Customer [1]
Definition: The *customer* leg of the *ValueCharacteristic* association identifies the *Customer* participating in the value fit analysis represented by the *ValueCharacteristic*.
Usage: The *ValueCharacteristic* may define specific *CustomerSegments*, *JourneyStages* and *Touchpoints* as having weigts in the value fit analysis. The meta-model does not provide direct support for asserting such facts, but they can be recorded in *Annotations* associated with the *ValueCharacteristic*.

Association Name: proposition **Association Type:** Association **Stereotype:**
Source Class: ValueCharacteristic [0..*] **Target Class:** ValueProposition [1]
Definition: The *proposition* leg of the *ValueCharacteristic* association identifies the *ValueProposition* that is a component of the value fit analysis represented by the *ValueCharacteristic*.
Usage: A *ValueCharacteristic* may identify specific *ValueItems* of the *ValueProposition* and represent weights that these items may have in the analysis, but this information must be placed in an *Annotation* of the *ValueCharacteristic* as there is no direct support for such facts in the meta-model.

7.3.3.11 *Class Name: ValueItem Class Type: Class Stereotype:*

Base Classes: AbstractResult, AbstractValueModel, BACMPlainEntity
Definition: A *ValueItem* represents the business belief that a *Customer* will value one or more *Outcomes* that are experienced by the *Customer*.
Usage: For example, the ability of a sales representative to answer customer questions about a product is deemed to be valuable to the customer. Another example *Outcome* is the exchange of a good for money; the associated *ValueItem* could represent the buyer's feeling of having gotten a good deal.

7.3.3.11.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueItem [] **Target Class:** BACMPlainEntity []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueItem [] **Target Class:** AbstractValueModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueItem [] **Target Class:** AbstractResult []

Association Name: values **Association Type:** Association **Stereotype:** «class»
Source Class: ValueItem [0..*] **Target Class:** Outcome [0..*]
Definition: The *values* association links a *ValueItem* to an *Outcome* and provides a valuation of that *Outcome*. An *Outcome* may have several *ValueItems*, reflecting the ways in which different stakeholders perceive the *Outcome*. Likewise, a *ValueItem* may value multiple *Outcomes* that must be valued as a group.
Usage: The Outcome may be present in the business architecture model without an associated ValueItem, but ValueItems may not exist without being associated to an Outcome.

Association Name: item **Association Type:** Association **Stereotype:**

Source Class: ValueCharacteristic [0..*] **Target Class:** ValueItem [0..1]

Association Name: aggregates_3 **Association Type:** Association **Stereotype:**
Source Class: ValueProposition [0..*] **Target Class:** ValueItem [0..*]
Definition: The *aggregates* association represents the aggregateion of *ValueItems* into a *ValueProposition*. *ValueItems* may be shared with multiple *ValuePropositions*.

Association Name: produces_2 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ValueStreamStage [0..*] **Target Class:** ValueItem [0..*]
Definition: The *produces* association represents the fact of a *ValueItem* being produced by valuing one or more *Outcomes* produced by *Capabilities* that support the *ValueStreamStage* or *Processes* or *Activities* that implement the *ValueStreamStage*.
Usage: The *ValueItems* produced in a *ValueStreamStage* that is part of a *ValueStream* should contribute to the *ValueProposition* produced by the *ValueStream*. The meta-model does not enforce this restriction.
Constraint: The *produces* association is consistent with the *ValueStreamStage* being *supported* by some *Capabilities* that *produce Outcomes* that are valued by the *ValueItem*.

7.3.3.12 *Class Name: ValueProposition Class Type: Class* ***Stereotype:***

Base Classes: AbstractResult, AbstractValueModel, BACMPlainEntity
Definition: The *ValueProposition* represents a collection of values the business believes it is offering to customers, partners and other stakeholders through a *ProductOffering*.

7.3.3.12.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueProposition [] **Target Class:** BACMPlainEntity []

Association Name: of **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ValueProposition [0..*] **Target Class:** ProductOffering [0..*]
Definition: The *of* association links a *VslueProposition* to a *ProductOffering* and represents that is the *ValueProposition* is about the *ProductOffering*.
Constraint: Let VP1 be a ValueProposition and PO1 be a ProductOffering associated by o1, an "of" association. Then for some subset of ValueItems {VIj} aggregated by VP1 such that each VIj values an Outcome O1 that is incorporated in the ProductOffering PO1. Note that the ProductOfferings typically include Outcomes that are experienced by the Customer at a Touchpoint.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueProposition [] **Target Class:** AbstractResult []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueProposition [] **Target Class:** AbstractValueModel []

Association Name: aggregates_3 **Association Type:** Association **Stereotype:**
Source Class: ValueProposition [0..*] **Target Class:** ValueItem [0..*]
Definition: The *aggregates* association represents the aggregateion of *ValueItems* into a *ValueProposition*. *ValueItems* may be shared with multiple *ValuePropositions*.

Association Name: target **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ValueProposition [0..*] **Target Class:** Customer [0..*]
Definition: The *target* shortcut association asserts that the *ValueProposition* is intended to target the *Customer*.

Usage: This shortcut allows the architect to assert that a *ValueProposition* targets a *Customer* and imply that there is an unspecified *ValueCharacteristic* that represents the value fit analysis of the *ValueProposition* and *Customer*.
Constraint: Let VP1 be a ValueProposition and Cu1 be a Customer associated by t1, a target association. Then there should be a ValueCharacteristic VC1 with VP1 as its proposition and Cu1 as its customer. Also, there should be ValueItems {VIj} aggregated by VP1 that value Outcomes {Oj} incorporated in ProductOfferings {POj} accepted by LegalEntities {LEj} that are also the Customer Cu1.
Note that it is commonly the case that the set of individuals represented intensionally by the Customer element are also LegalEntities.

Association Name: produces_1 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ValueStream **[**0..*] **Target Class:** ValueProposition **[**0..*]
Definition: The *produces shortcut* association represents the creation of a *ValueProposition* by a *ValueStream*.
Usage: The *produces* relation effectively aggregates the produces relations between the *ValueStreamStages* that are part of this *ValueStream* and the *ValueItems* that comprise the *ValueProposition* of this *ValueStream*.
Constraint: The *produces* association is implied by some *owned ValueStreamStages* that *produce ValueItems* that are *aggregated* into the *ValueProposition*.

Association Name: proposition **Association Type:** Association **Stereotype:**
Source Class: ValueCharacteristic **[**0..*] **Target Class:** ValueProposition **[**1]
Definition: The *proposition* leg of the *ValueCharacteristic* association identifies the *ValueProposition* that is a component of the value fit analysis represented by the *ValueCharacteristic*.
Usage: A *ValueCharacteristic* may identify specific *ValueItems* of the *ValueProposition* and represent weights that these items may have in the analysis, but this information must be placed in an *Annotation* of the *ValueCharacteristic* as there is no direct support for such facts in the meta-model.

7.3.3.13 *Class Name: ValueStream Class Type: Class* ***Stereotype:***

Base Classes: AbstractAction, AbstractValueModel, BACMPlainEntity, VSVSS
Definition: A *ValueStream* represnts a set of stages that accumulate value represented by the *ValueProposition*.
Usage: The notion that value accumulation can be broken into components has been central to strategic practices such as Michael Porter's value chains and high level, value oriented process architecture. The notion is well established in business architecture and analysis practice.
In some cases, it may be desirable to order the stages in a *ValueStream*. For example, there is a natural order to the design, build, inventory, sell and service stages of a manufacturing business. However, in other cases, such as health care, it is difficult to order the stages of triage, diagnosis, treatment, prevention. Consequently, no strong semantic interpretation should be associated with the ordering of *ValueStreamStages* in a *ValueStream*.
Constraint: A *ValueStream* instance may not *own*, *aggregate* or *generalize* another *ValueStream* instance

7.3.3.13.1 Attributes, Methods and Connectors:

Association Name: owns_1 **Association Type:** Association **Stereotype:**
Source Class: ValueStream **[**1] **Target Class:** ValueStreamStage **[**0..*]
Definition: The *owns* association represents that a *ValueStream* may be composed of *ValueStreamStages*. *ValueStreamStages* cannot be shared with other *ValueStream* instances.
This association may be ordered to facilitate the presentation of *ValueStreamStages*, but no business operating model implications should be assumed based on the ordering of *ValueStreamStages*.
This association effectively specializes the owns association in the BusinessElement diagram to add the ordered constraint.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStream **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStream **[]** **Target Class:** VSVSS **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStream **[]** **Target Class:** AbstractValueModel **[]**

Association Name: produces_1 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ValueStream **[**0..*] **Target Class:** ValueProposition **[**0..*]
Definition: The *produces shortcut* association represents the creation of a *ValueProposition* by a *ValueStream*.
Usage: The *produces* relation effectively aggregates the produces relations between the *ValueStreamStages* that are part of this *ValueStream* and the *ValueItems* that comprise the *ValueProposition* of this *ValueStream*.
Constraint: The *produces* association is implied by some *owned ValueStreamStages* that *produce ValueItems* that are *aggregated* into the *ValueProposition*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStream **[]** **Target Class:** AbstractAction **[]**

7.3.3.14 *Class Name: ValueStreamStage Class Type: Class* ***Stereotype:***

Base Classes: AbstractAction, AbstractValueModel, BACMPlainEntity, VSVSS
Definition: *ValueStreamStages* represent significant points of value creation in a *ValueStream*.
Usage: *ValueStreamStages* are dependent on their containing *ValueStream* and are not shared with other *ValueStreams*. When the business architect intends to represent similar *ValueStreamStages* in different *ValueStreams*, the similarity should be represented by having the same set of relationships with the supporting *Capabilities*.
ValueStreamStages are often defined by analysis and decomposition of the *ValueProposition*. They may also respresent stages of completion of a "build to order" product that are of interest to the *Customer* (e.g. stages where the *Customer* may make changes in specifications of the ordered product).
Constraint: A *ValueStreamStage* may only *own* other *ValueStreamStages* and be *owned* by another *ValueStreamStage* or a *ValueStream*. *ValueStreamStages* may not participate in *generalizes* or *aggregates* associations.

7.3.3.14.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStreamStage **[]** **Target Class:** AbstractAction **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStreamStage **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStreamStage **[]** **Target Class:** VSVSS **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStreamStage **[]** **Target Class:** AbstractValueModel **[]**

Association Name: produces_2 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ValueStreamStage **[**0..*] **Target Class:** ValueItem **[**0..*]

Definition: The *produces* association represents the fact of a *ValueItem* being produced by valuing one or more *Outcomes* produced by *Capabilities* that support the *ValueStreamStage* or *Processes* or *Activities* that implement the *ValueStreamStage*.
Usage: The *ValueItems* produced in a *ValueStreamStage* that is part of a *ValueStream* should contribute to the *ValueProposition* produced by the *ValueStream*. The meta-model does not enforce this restriction.
Constraint: The *produces* association is consistent with the *ValueStreamStage* being *supported* by some *Capabilities* that *produce Outcomes* that are valued by the *ValueItem*.

Association Name: owns_1 **Association Type:** Association **Stereotype:**
Source Class: ValueStream **[**1] **Target Class:** ValueStreamStage **[**0..*]
Definition: The *owns* association represents that a *ValueStream* may be composed of *ValueStreamStages*. *ValueStreamStages* cannot be shared with other *ValueStream* instances.
This association may be ordered to facilitate the presentation of *ValueStreamStages*, but no business operating model implications should be assumed based on the ordering of *ValueStreamStages*.
This association effectively specializes the owns association in the BusinessElement diagram to add the ordered constraint.

Association Name: triggers **Association Type:** Association **Stereotype:** «shortcut»
Source Class: Outcome **[**0..*] **Target Class:** ValueStreamStage **[**0..*]
Definition: The *triggers* association represents that the Outcome allows or initiates the *ValueStreamStage*.
Usage: It is often useful in analysis to record the *Outcomes* that constitute the important beginning events of a *ValueStreamStage* The *triggers* association allows the architect to record these relationships.
Constraint: Let O1 be an Outcome experienced at a Touchpoint T1 and VSS1 be a ValueStreamStage where O1 triggers VSS1, then there should exist a ValueItem VI1 that values O1 and is produced by VSS1.

Association Name: participate **Association Type:** Association **Stereotype:** «shortcut»
Source Class: Performer **[**0..*] **Target Class:** ValueStreamStage **[**0..*]
Definition: The *participate* shortcut asserts that a *Performer* is assigned to an unspecified *PerformerRole* of an unspecified *Capability* hat supports the *ValueStreamStage*.
Constraint: Let P1 be a Performer participating in a ValueStreamStage VSS1. There should exist a PerformerRole PR1 that P1 is assignedTo and PR1 is a PerformerRole ofCapability C1 that produces some Outcme O1 valued by a ValueItem VI1 that is produced by ValueStream VSS1.

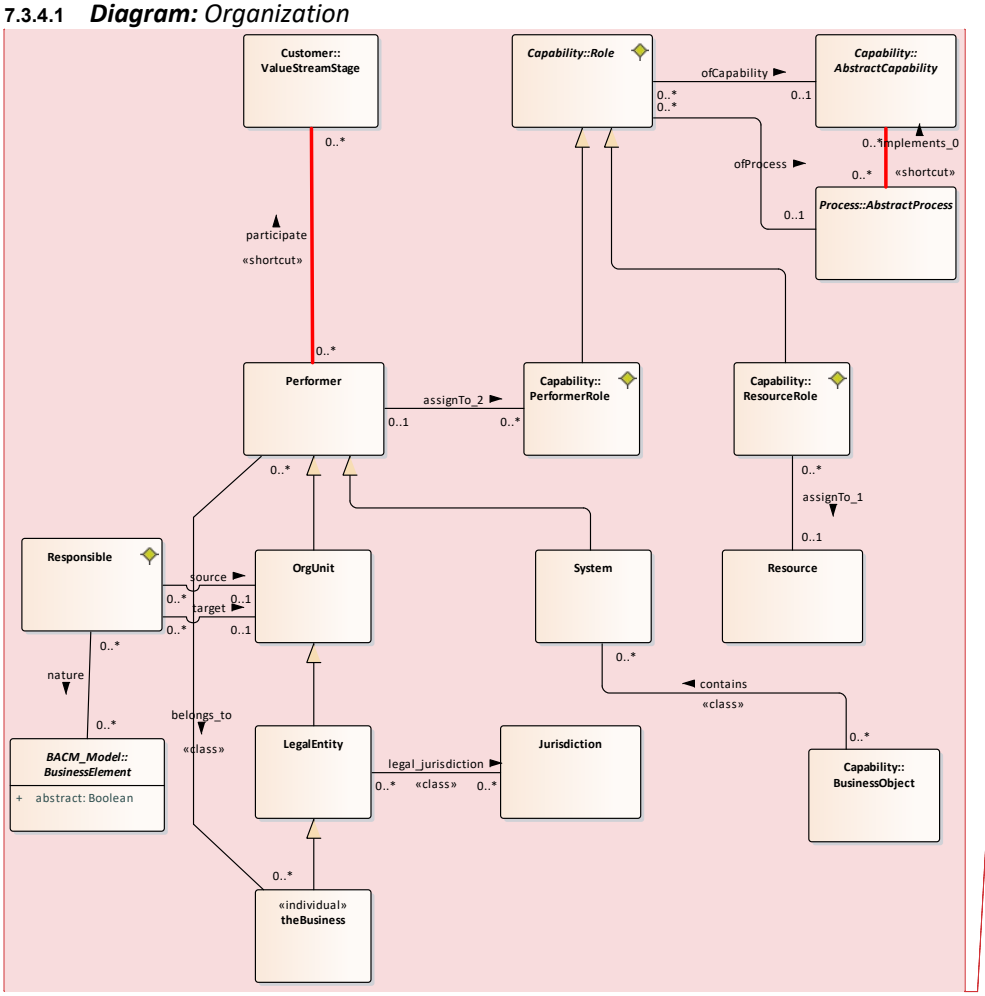
Association Name: supports **Association Type:** Association **Stereotype:** «class»
Source Class: Capability **[**0..*] **Target Class:** ValueStreamStage **[**0..*]
Definition: The *supports* association represents the relationship between a *Capability* and a *ValueStreamStage* that means that the *Capability* is needed in the *ValueStreamStage*.
Usage: For example, an important stage in the creation of value for a manipulation puzzle such as Rubik's Cobe is the production of a manufacturable design of the puzzle. A failure here can result in a puzzle that cannot be manufactured or is not attractive to purchasers.
Outcomes providing value are:

- a positive maniufacturability review;
- a positive customer reaction in a focus group.

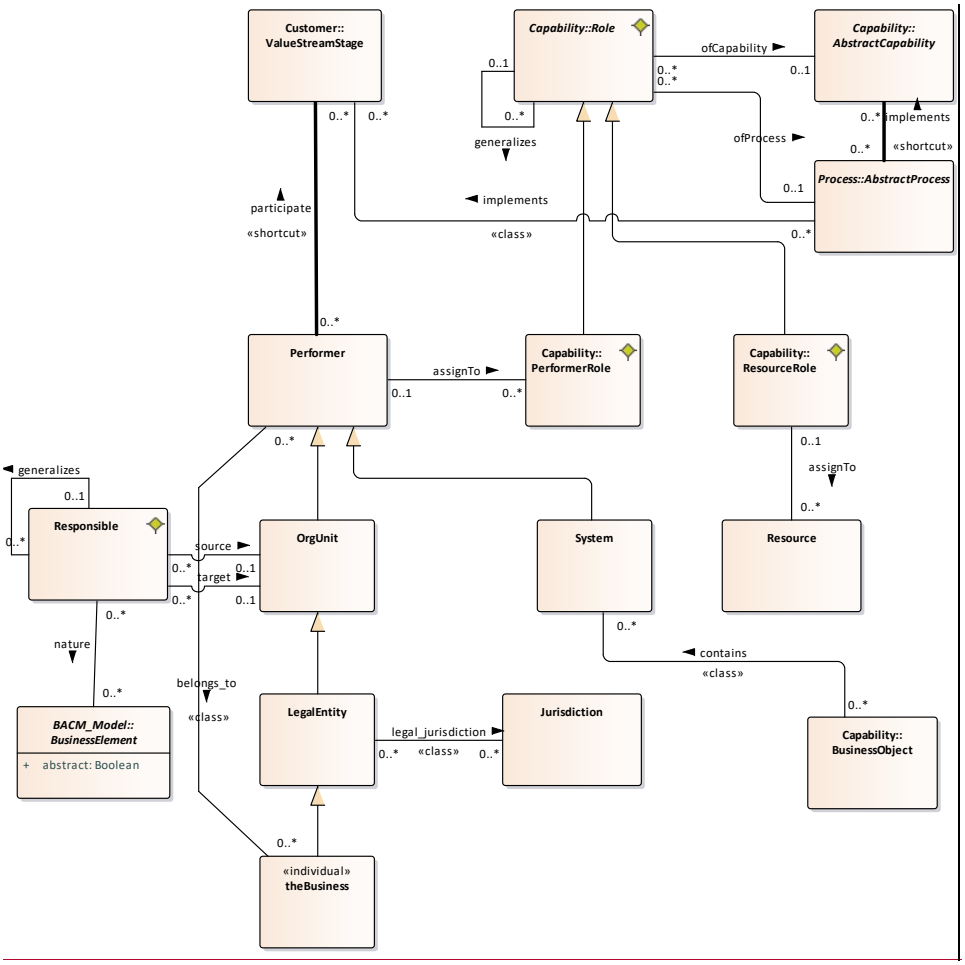
The *Capabilities* needed to produce these Outcomes are: product design, manufacturability analysis, focus group management. For this example, the previous three *Capability* instances would be associated with the "Design Ready" *ValueStreamStage*.

7.3.4 **Package:** Organization

7.3.4.1 ***Diagram:*** *Organization*

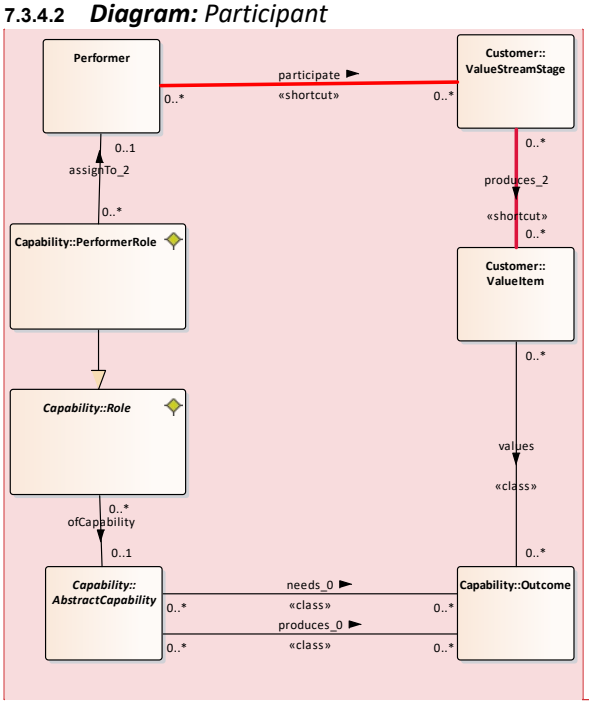


Commented [JR31]: Issue BACM-83 resolved by BACM-9



The Organization diagram defines abstract syntax representing relationships between structural components of the organization (OrgUnits, Systems and Resources) and Capabilities and/or Processes.

7.3.4.2 *Diagram: Participant*



Commented [JR32]: Issue BACM116 resolved by BACM-I

7.3.4.3 *Class Name: Jurisdiction Class Type: Class Stereotype:*

Base Classes: AbstractOperatingModel, BACMPlainEntity
Definition: The *Jurisdiction* represents a legal jurisdictions with powers to charter and/or regulate businesses.

7.3.4.3.1 Attributes, Methods and Connectors:

Association Name: Association Type: Generalization **Stereotype:**
Source Class: Jurisdiction [] **Target Class:** AbstractOperatingModel []

Association Name: Association Type: Generalization **Stereotype:**
Source Class: Jurisdiction [] **Target Class:** BACMPlainEntity []

Association Name: legal_jurisdiction **Association Type:** Association **Stereotype:** «class»
Source Class: LegalEntity [0..*] **Target Class:** Jurisdiction [0..*]
Definition: The "legal_jurisdiction"association instances represent the jurisdiction to which an Enterprise belongs.
Usage: The meta-model allows Enterprise instances to be in multiple jurisdictions (e.g. a business that is subject to local, provincial and stage laws, regulations and processes).

7.3.4.4 *Class Name: LegalEntity Class Type: Class Stereotype:*

Base Classes: OrgUnit
Definition: *LegalEntity* represents a human organization that is subject to the laws and regulations of a *Jurisdiction*..

7.3.4.4.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: LegalEntity **[]** **Target Class:** OrgUnit **[]**

Association Name: provides **Association Type:** Association **Stereotype:** «class»
Source Class: LegalEntity **[**0..*] **Target Class:** Offering **[**0..*]
Definition: The provider relation represents a relationship between a LegalEntity and an Offering created by the LegalEntity that is intended to solicit the business of designated parties identified by the consumer relation.

Association Name: legal_jurisdiction **Association Type:** Association **Stereotype:** «class»
Source Class: LegalEntity **[**0..*] **Target Class:** Jurisdiction **[**0..*]
Definition: The "legal_jurisdiction"association instances represent the jurisdiction to which an Enterprise belongs.
Usage: The meta-model allows Enterprise instances to be in multiple jurisdictions (e.g. a business that is subject to local, provincial and stage laws, regulations and processes).

Association Name: accepts **Association Type:** Association **Stereotype:** «class»
Source Class: LegalEntity **[**0..*] **Target Class:** Offering **[**0..*]
Definition: The acceptor relation represents a relationship between a party external to the business and an Offering intended to solicit business from the acceptor party represented by the Customer..
Usage: Note that offering dies not represent a sale; in a sale, each party gives something of value and receives something of value.

Association Name: recipient_1 **Association Type:** Association **Stereotype:** «class»
Source Class: ServiceOutcome **[**0..*] **Target Class:** LegalEntity **[**0..*]
Definition: The *recipient* association asserts that the *LegalEntity* is the recipient of *ServiceOutcomes* incorporated into a *ServiceOffering*.
Usage: It is not necessarily the case that the recipient *LegalEntity* is the same as the accepting *LegalEntity* of the incorporating *ServiceOffering*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Customer **[]** **Target Class:** LegalEntity **[]**

Association Name: buyer **Association Type:** Association **Stereotype:** «class»
Source Class: MerchandiseOutcome **[**0..*] **Target Class:** LegalEntity **[**0..*]
Definition: The *buyer* association is related to the *accepts* association and asserts that a *LegalEntity* (typically also a *Customer*) is the targeted buyer of the *MerchandiseOutcome*.
Usage: The buyer of the *MerchandiseOutcome* is not necessarily the *LegalEntity* that accepts the *MerchandiseOffering* in the case when the acceptor is acting as an agent for the buyer.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: theBusiness **[]** **Target Class:** LegalEntity **[]**

Association Name: supplier **Association Type:** Association **Stereotype:** «class»
Source Class: ProcurementOutcome **[**0..*] **Target Class:** LegalEntity **[**0..*]

Definition: The *supplier* association asserts that the *LegalEntity* is to be the supplier of the *ProcurementOutcome*.
Usage: The supplier *LegalEntity* is not necessarily the same as the provider *LegalEntity* for the *ProcurementOffering* incorporating the *ProcurementOutcome*.

Association Name: provider_0 **Association Type:** Association **Stereotype:** «class»
Source Class: OutsourcedServiceOutcome [0..*] **Target Class:** LegalEntity [0..*]
Definition: The *provider* association asserts that a *LegalEntity* is the provider of the *OutsourcedServiceOutcome*.
Usage: The provider *LegalEntity* is not necessarily the same *LegalEntity* as the provider of the *OutsourcedServiceOffering*.

7.3.4.5 *Class Name: OrgUnit Class Type: Class Stereotype:*

Base Classes: Performer
Definition: The OrgUnit meta-class represents the various types of human organizations and individuals capable of acting as performers.

7.3.4.5.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: OrgUnit [] **Target Class:** Performer []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: LegalEntity [] **Target Class:** OrgUnit []

Association Name: source **Association Type:** Association **Stereotype:**
Source Class: Responsible [0..*] **Target Class:** OrgUnit [0..1]
Definition: The *source* leg of the *Responsible* association asserts that the source *OrgUnit* is responsible in some way for the target *OrgUnit*.

Association Name: target **Association Type:** Association **Stereotype:**
Source Class: Responsible [0..*] **Target Class:** OrgUnit [0..1]
Definition: The *target* leg of the *Responsible* association asserts that the *OrgUnit* is responsible to another *OrgUnit* determined by the *source* leg of the *Responsible* association.

7.3.4.6 *Class Name: Performer Class Type: Class Stereotype:*

Base Classes: AbstractThing, BACMPlainEntity
Definition: The *Performer* represents entities that are capable of performing *PerformerRoles*. *Performer* has two specializations: *OrgUnit* and *System*, representing a human components of the business or a system.
Usage: The *Performer* is concrete to allow modeling the need for a Performer without committing to a human assignment, a system assignment, or a combination of both. *Performers* are generally described by skills or abilities. The *Performer* and Resource *classes* are not disjoint (i.e. an entity may be a *Resource* with respect to one *Capability* while being a *Performer* with respect to another *Capability*). An entity may not be both a *Performer* and a *Resource* of the same *Capability*.

7.3.4.6.1 Attributes, Methods and Connectors:

Association Name: participate **Association Type:** Association **Stereotype:** «shortcut»
Source Class: Performer [0..*] **Target Class:** ValueStreamStage [0..*]

Definition: The *participate* shortcut asserts that a *Performer* is assigned to an unspecified *PerformerRole* of an unspecified *Capability* hat supports the *ValueStreamStage*.
Constraint: Let P1 be a Performer participating in a ValueStreamStage VSS1. There should exist a PerformerRole PR1 that P1 is assignedTo and PR1 is a PerformerRole ofCapability C1 that produces some Outcme O1 valued by a ValueItem VI1 that is produced by ValueStream VSS1.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Performer **[]** **Target Class:** AbstractThing **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Performer **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: belongs_to **Association Type:** Association **Stereotype:** «class»
Source Class: Performer **[**0..*] **Target Class:** theBusiness **[**0..*]
Definition: belongs_to represents that a Performer belongs to theBusiness.
Usage: In a model, there will typically be semantic overlap between belongs_to and Responsible. However, the metamodel syntax presently does not allow the specification of this overlap. The business architect may choose to use belongs_to in lieu of Responsible or vice versa. It would not be recommended to use both where there is the potential of semantic overlap.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: OrgUnit **[]** **Target Class:** Performer **[]**

Association Name: assignTo_2 **Association Type:** Association **Stereotype:**
Source Class: PerformerRole **[**0..*] **Target Class:** Performer **[**0..1]
Definition: The *assignment* leg of the *PerformerRole* association represents that a *Performer* is assigned to the *PerformerRole*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: System **[]** **Target Class:** Performer **[]**

Association Name: aggregates_1 **Association Type:** Association **Stereotype:**
Source Class: CapabilityImplementation **[**0..*] **Target Class:** Performer **[**0..*]

7.3.4.7 *Class Name:* Resource *Class Type:* Class *Stereotype:*

Base Classes: AbstractThing, BACMPlainEntity
Definition: *Resource* represents an entity that is required or needed by a *ResourceRole* but is not a *Performer* and does not become a part of a *BusinessObject* or *InformationItem* associated with any *Outcome* produced by the *Capability* or *CapabilityBehavior*.
Usage: These relationships are represented by the assignment of structural components of the business to roles of *Capabilities/CapabilityBehaviors* and *Processes/Activities*.

7.3.4.7.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Resource **[]** **Target Class:** AbstractThing **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Resource **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: assignTo_1 **Association Type:** Association **Stereotype:**
Source Class: ResourceRole [0..*] **Target Class:** Resource [0..1]
Definition: The *assignTo* leg of the *ResourceRole* association represents that a *Resource* has been assigned to a *ResourceRole*.

Association Name: aggregates_2 **Association Type:** Association **Stereotype:**
Source Class: CapabilityImplementation [0..*] **Target Class:** Resource [0..*]

7.3.4.8 *Class Name: Responsible Class Type: Class Stereotype: «association»*

Base Classes: AbstractOperatingModel
Definition: *Responsible* represents an unspecified kind of responsibility relationship between a source *OrgUnit* and a target *OrgUnit*. This relationship may also include a *BusinessElement* that defines the nature of the association.
Usage: *Responsible* instances may form generalization hierarchies. The business architect may create these hierarchies to represent particular types of responsibility relationships found in the business. When specializing Responsible instances, the source, target and nature association legs may be subsetted to restrict them to particular types of *OrgUnit* and *BusinessElement*.

7.3.4.8.1 Attributes, Methods and Connectors:

Association Name: source **Association Type:** Association **Stereotype:**
Source Class: Responsible [0..*] **Target Class:** OrgUnit [0..1]
Definition: The *source* leg of the *Responsible* association asserts that the source *OrgUnit* is responsible in some way for the target *OrgUnit*.

Association Name: target **Association Type:** Association **Stereotype:**
Source Class: Responsible [0..*] **Target Class:** OrgUnit [0..1]
Definition: The *target* leg of the *Responsible* association asserts that the *OrgUnit* is responsible to another *OrgUnit* determined by the *source* leg of the *Responsible* association.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Responsible [] **Target Class:** AbstractOperatingModel []

Association Name: nature **Association Type:** Association **Stereotype:**
Source Class: Responsible [0..*] **Target Class:** BusinessElement [0..*]
Definition: The *nature* leg of the *Responsible* designates a *BusinessElement* that helps define the scope and/or nature of the *Responsible* association.

7.3.4.9 *Class Name: System Class Type: Class Stereotype:*

Base Classes: Performer
Definition: The *System* represents the concept of a non-human performer, such as an IT system or a robot. Tools such as jigs and drills are not considered *Perfomers* for the purpose of business architecture. They should be modeled as *Resources*.

7.3.4.9.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: System [] **Target Class:** Performer []

Association Name: contains **Association Type:** Association **Stereotype:** «class»
Source Class: BusinessObject [0..*] **Target Class:** System [0..*]
Definition: The *contains* association represents that *BusinessObjects* may contain *System*.
Usage: In some cases, a *BusinessObject* and a *System* may represent different aspects of the same entity; since meta-classes in this meta-model are not assumed disjoint, an instance may have both *BusinessObject* and *System* as metaclasses. However, a *BusinessObject* may contain several *Systems* and other *BusinessObjects* as well. In this case, the Systems are not aspects of the primary *BusinessObject*, and the contains association allows the architect to represent this. An example of this latter case is a primary *BusinessObject* that is a computer and the System is a software package hosted on that computer (along with other software packages). The software package may be an instance of a *System* and also an instance of a *BusinessObject* (i.e. the code)

7.3.4.10 *Class Name: theBusiness Class Type: Class Stereotype: «individual»*

Base Classes: LegalEntity
Definition: *theBusiness* represents the particular business that is the subject of the business architecture model.
Usage: Only one instance of this metaclass is allowed in a model. This instance should be the sole *provider* of the top level *ProductOffering*, representing that the business is responsible for the entire product offering, parts of which may be provided by business partners represented as *LegalEntities*.

7.3.4.10.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: theBusiness [] **Target Class:** LegalEntity []

Association Name: recipient_0 **Association Type:** Association **Stereotype:** «class»
Source Class: OutsourcedServiceOutcome [0..*] **Target Class:** theBusiness [1]
Definition: The *recipient* association assserts that *theBusiness* is the intended recipient and beneficiary of the *OutsourcedServiceOutcome*.
Usage: The *recipient* is not necessarily the same *LegalEntity* that accepts the *OutsourcedServiceOffering*.

Association Name: seller **Association Type:** Association **Stereotype:** «class»
Source Class: MerchandiseOutcome [0..*] **Target Class:** theBusiness [1]
Definition: The *seller* association asserts that *theBusiness* is the seller of the *MerchandiseOutcome* incorporated in the *MerchandiseOffering*.
Usage: This association does not imply that the *LegalEntity* providing the *MerchandiseOffering* is the same as the seller of the *MerchandiseOutcome*.

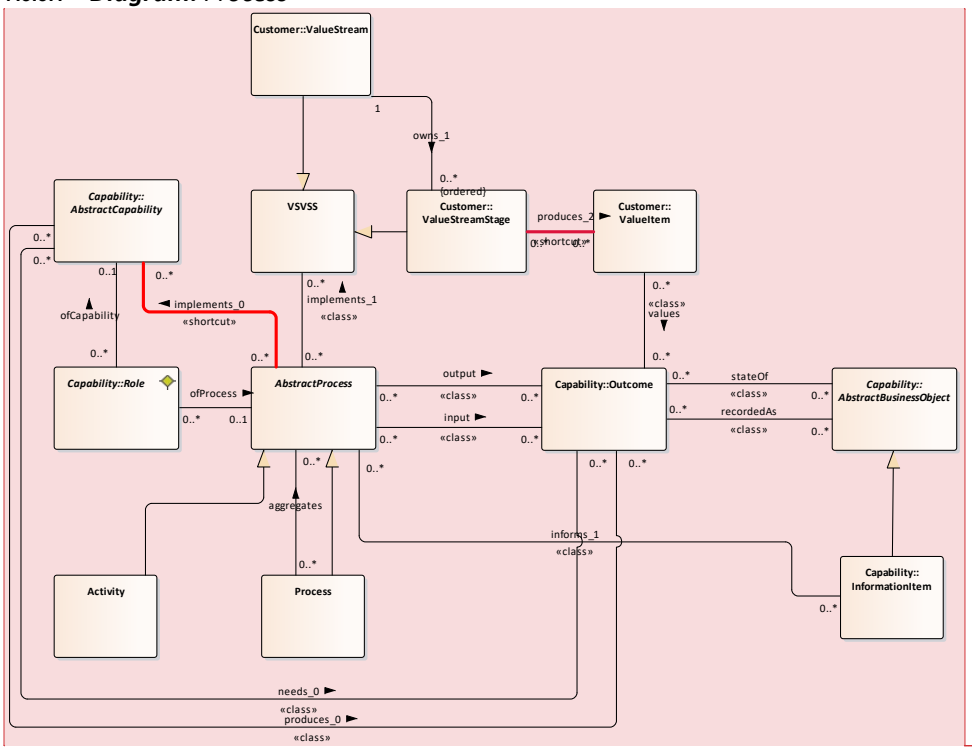
Association Name: provider_1 **Association Type:** Association **Stereotype:** «class»
Source Class: ServiceOutcome [0..*] **Target Class:** theBusiness [0..1]
Definition: The *provider* association asserts that *theBusiness* is the provider of the *ServiceOutcome* incorporated into a *ServiceOffering*.
Usage: The provider *LegalEntity* is not necessarily the same as the *LegalEntity* that provides the *ServiceOffering* that incorporates the *ServiceOutcome*.

Association Name: belongs_to **Association Type:** Association **Stereotype:** «class»
Source Class: Performer [0..*] **Target Class:** theBusiness [0..*]
Definition: belongs_to represents that a Performer belongs to theBusiness.
Usage: In a model, there will typically be semantic overlap between belongs_to and Responsible. However, the metamodel syntax presently does not allow the specification of this overlap. The business architect may choose to use belongs_to in lieu of Responsible or vice versa. It would not be recommended to use both where there is the potential of semantic overlap.

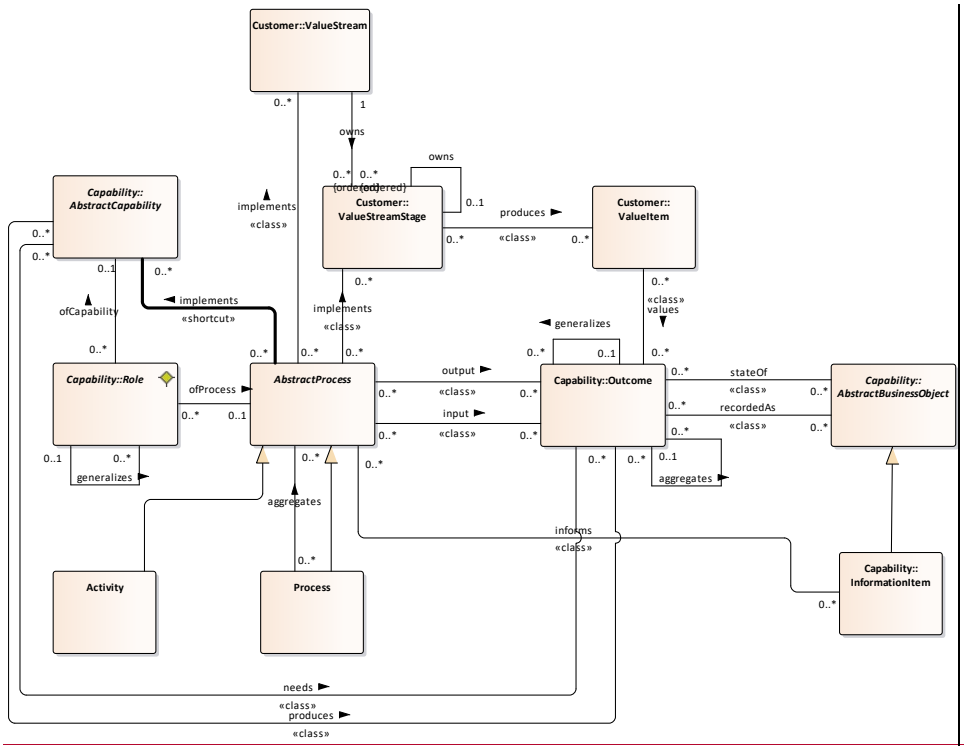
Association Name: procurer **Association Type:** Association **Stereotype:** «class»
Source Class: ProcurementOutcome [0..*] **Target Class:** theBusiness [1]
Definition: The *procurer* association asserts that *theBusiness* is the procurer of the *ProcurementOutcome*
Usage: The procurer *LegalEntity* is not necessarily the acceptor *LegalEntity* of the *ProcurementOffering*

7.3.5 Package: Process

7.3.5.1 *Diagram: Process*



Commented [JR33]: Issue BACM-83 resolved by BACM-9



The Process diagram defines abstract syntax for a high level process model, for representing how components of a process implement a value stream's *ValueStreamStages*, and for relating *Capabilities* and *Processes/Activities* through their related *Outcomes* and the *Outcome* associated *BusinessObjects* and *InformationItems*..
Processes are modeled as *Activities* and *Processes*. A *Process* is an aggregator of other *Processes* and *Activities*.

7.3.5.2 *Class Name:* AbstractProcess *Class Type:* Class ***Stereotype:***

Base Classes: AbstractAction, AbstractOperatingModel, APCICB, BACMPlainEntity
Definition: *AbstractProcess* is not intended to represent a busines concept. It is a metamodeling technical device to share relationships with *Process* and *Activity* that would otherwise need to be duplicated.
Usage: *AbstractProcess* is an abstract meta-class that provides input and output *Outcome* connection abilities to both *Process* and *Activity*. It also provides the *role* link to *PerformerRoles* and *ResourceRoled*. It also provides the *implements* link to a ValueStream or some *ValueStreamStages*. Since *implements* aligns the scope of the *Process* with either a *ValueStreamStage* or a *ValueStream*, it should not link both a *ValueStreamStage* and the *ValueStream* the *ValueStreamStage* belongs to.

7.3.5.2.1 Attributes, Methods and Connectors:

Association Name: Association Type: Generalization **Stereotype:**
Source Class: AbstractProcess [] **Target Class:** APCICB []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractProcess **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: implements_0 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: AbstractProcess **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: The *implements* shortcut represents that a *CapabilityBehavior* and an *AbstractProcess* have related *Outcomes*
Usage: It could also be justified by a common *Performer* playing a role in the *CapabilityBehavior* and the *AbstractProcess*
Constraint: Let P1 be a Process and C1 be a capability associated by an implements association. Then there should exist Outcomes O1 and O2 such that O1 is produced by (needed by) C1 and O2 is output (input) by P1 and O1 and O2 are related such that they are the same Outcome or one is in the extended aggregation of the other or one is the extended specialization of the other or any chain of relationships connecting the two where the chain consists exclusively of being aggregated by or being a specialization of the predecessor Outcome.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractProcess **[]** **Target Class:** AbstractOperatingModel **[]**

Association Name: input **Association Type:** Association **Stereotype:** «class»
Source Class: AbstractProcess **[**0..*] **Target Class:** Outcome **[**0..*]
Definition: The *input* association represents that the *AbstractProcess inputs* (requires or can use) the *Outcome*.
Usage: The *input* association in the process perspective corresponds to the *needs* association in the capability perspective. While it is possible that the same *Outcome* is *input* to a process and *needed* by a capability, it will usually be the case that a process *inputs* an *Outcome* that is related by generalization or aggregation (or another relation between *Outcomes*) to an Outcome *needed* by a capability. The process and capability in this case are semantically related by the relationship between their *Outcomes*.
For example, a CustomerInformationManagement *Capability* may *need* CustomerInformation_change_pending *Outcome.* A process that updates the CustomerAddress (a component of CustomerInformation) may *input* CustomerAddress_change_pending *Outcome*, that is related to the other *Outcome* by aggregation.

Association Name: output **Association Type:** Association **Stereotype:** «class»
Source Class: AbstractProcess **[**0..*] **Target Class:** Outcome **[**0..*]
Definition: The *output* association represents that the *AbstractProcess outputs* the *Outcome*.
Usage: The *output* association in the process perspective corresponds to the *produces* association in the capability perspective. While it is possible that the same *Outcome* is *output* from a process and *produced* by a capability, it will usually be the case that a process *outputs* an *Outcome* that is related by generalization or aggregation (or another relation between *Outcomes*) to an Outcome *produced* by a capability. The process and capability in this case are semantically related by the relationship between their *Outcomes*.
For example, a CustomerInformationManagement *Capability* may *produce* CustomerInformation_is_current and CustomerInformation_is_correct *Outcomes.* A process that updates the CustomerAddress (a component of CustomerInformation) may *produce* CustomerAddress_is_current and CustomerAddress_is_correct *Outcomes*, that are related to the other *Outcomes* by aggregation.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractProcess **[]** **Target Class:** AbstractAction **[]**

Association Name: implements_1 **Association Type:** Association **Stereotype:** «class»
Source Class: AbstractProcess **[**0..*] **Target Class:** VSVSS **[**0..*]
Definition: The *implements* association asserts that a *Process* or *Activity* implements a *ValueStream* and implies that *Outcomes* of the *Process* are valued as *ValueItems* incorporated into the *ValueProposition* delivered by the *ValueStream*.

Usage: It is not permitted for a *Process* or *Activity* to implement both a *ValueStream* and one or more *ValueStreamStages* of that *ValueStream*. A *Process* implementing a *ValueStream* may have aggregated *Processes* that implement *ValueStreamStages* of the *ValueStream*.

Association Name: aggregates **Association Type:** Association **Stereotype:**
Source Class: Process **[**0..*] **Target Class:** AbstractProcess **[**0..*]
A Process aggregates other Processes and Activities.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Activity **[]** **Target Class:** AbstractProcess **[]**

Association Name: informs_1 **Association Type:** Association **Stereotype:** «class»
Source Class: InformationItem **[**0..*] **Target Class:** AbstractProcess **[**0..*]
Definition: The *informs* association represents the influence of information (represented by *InformationItem*) on a *Process* or *Activity.*
Usage: Information, such as weather, production targets, and results of a business analysis project will change how a business behaves and how a *Process* or *Activity* performs.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Process **[]** **Target Class:** AbstractProcess **[]**

Association Name: ofProcess **Association Type:** Association **Stereotype:**
Source Class: Role **[**0..*] **Target Class:** AbstractProcess **[**0..1]
Definition: The *ofProcess* leg of the *Role* association links a *PerformerRole* or *ResourceRole* to a *Process* or *Activity*.

7.3.5.3 *Class Name: Activity* *Class Type: Class* *Stereotype:*

Base Classes: AbstractProcess
Definition: *Activities* represent atomic (non-decomposable) activities.

7.3.5.3.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Activity **[]** **Target Class:** AbstractProcess **[]**

7.3.5.4 *Class Name: Process* *Class Type: Class* *Stereotype:*

Base Classes: AbstractProcess
Definition: *Process* represents an aggregation of *Activities* and other *Processes*.
Usage: A *Process* aggregated into another *Process* means that the aggregated *Process* may be executed as a part of executing the aggregator *Process*. The abstract syntax does not specify a starting or ending *Process/Activity*; consequently starting and ending *Activities/Processes* aggregated by another *Process* must be determined by analysis of the *Outcome* connections.

7.3.5.4.1 Attributes, Methods and Connectors:

Association Name: aggregates **Association Type:** Association **Stereotype:**
Source Class: Process **[**0..*] **Target Class:** AbstractProcess **[**0..*]
A Process aggregates other Processes and Activities.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Process **[]** **Target Class:** AbstractProcess **[]**

7.3.5.5 *Class Name: VSVSS* *Class Type: Class* *Stereotype:*

Base Classes:
Usage: This abstract class provides a union type for *ValueStream* and *ValueStreamStage*, allowing instances of the *implements_1* association to link to instances of any concrete subclass of either of these classes.

7.3.5.5.1 Attributes, Methods and Connectors:

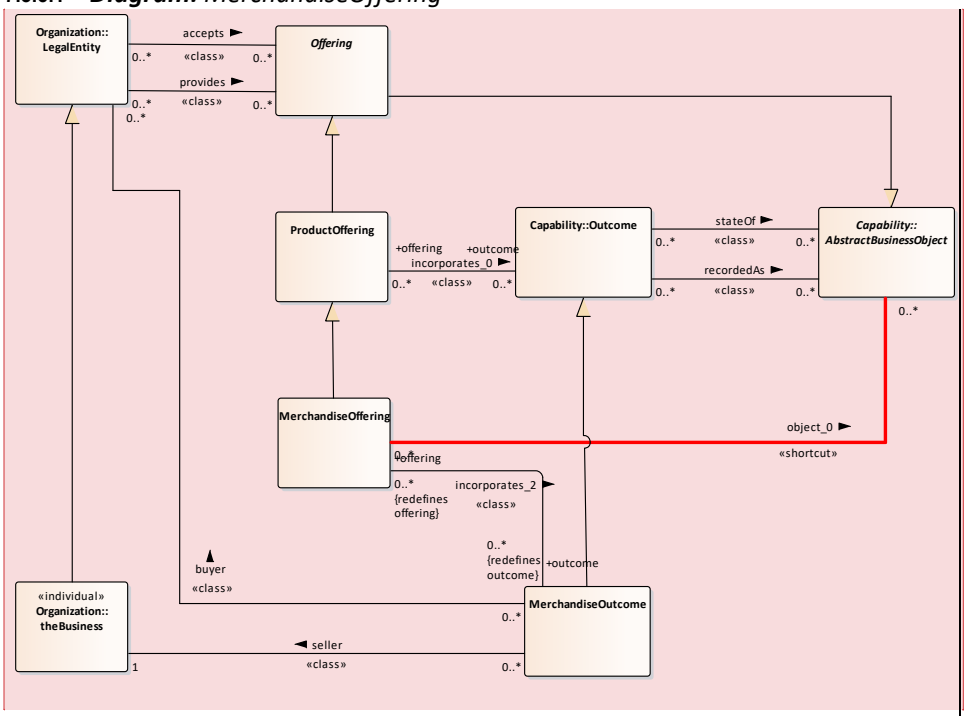
Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStream **[]** **Target Class:** VSVSS **[]**

Association Name: implements_1 **Association Type:** Association **Stereotype:** «class»
Source Class: AbstractProcess **[**0..*] **Target Class:** VSVSS **[**0..*]
Definition: The *implements* association asserts that a *Process* or *Activity* implements a *ValueStream* and implies that *Outcomes* of the *Process* are valued as *ValueItems* incorporated into the *ValueProposition* delivered by the *ValueStream*.
Usage: It is not permitted for a *Process* or *Activity* to implement both a *ValueStream* and one or more *ValueStreamStages* of that *ValueStream*. A *Process* implementing a *ValueStream* may have aggregated *Processes* that implement *ValueStreamStages* of the *ValueStream*.

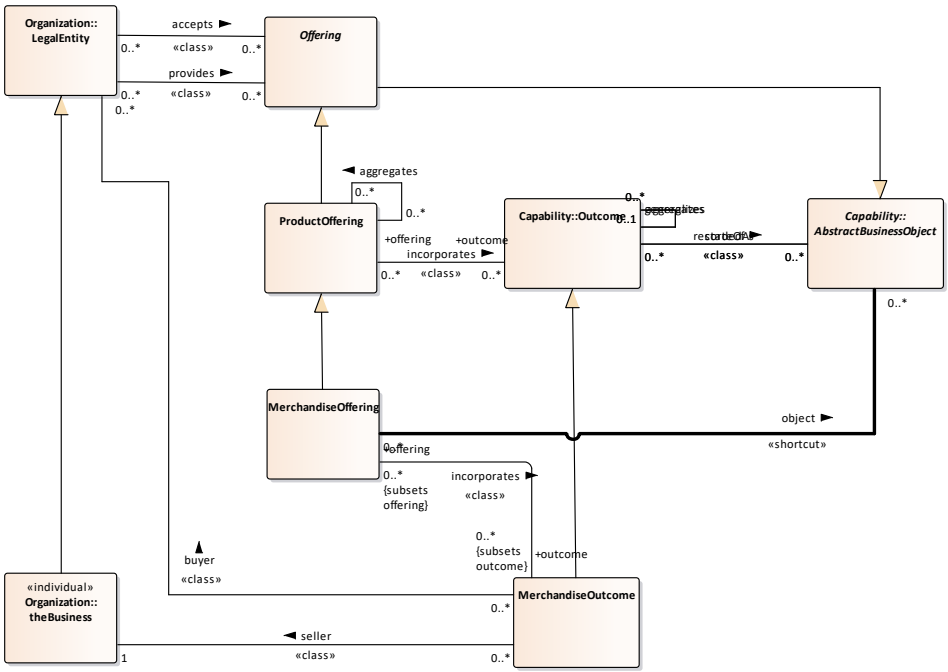
Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStreamStage **[]** **Target Class:** VSVSS **[]**

7.3.6 **Package:** Product

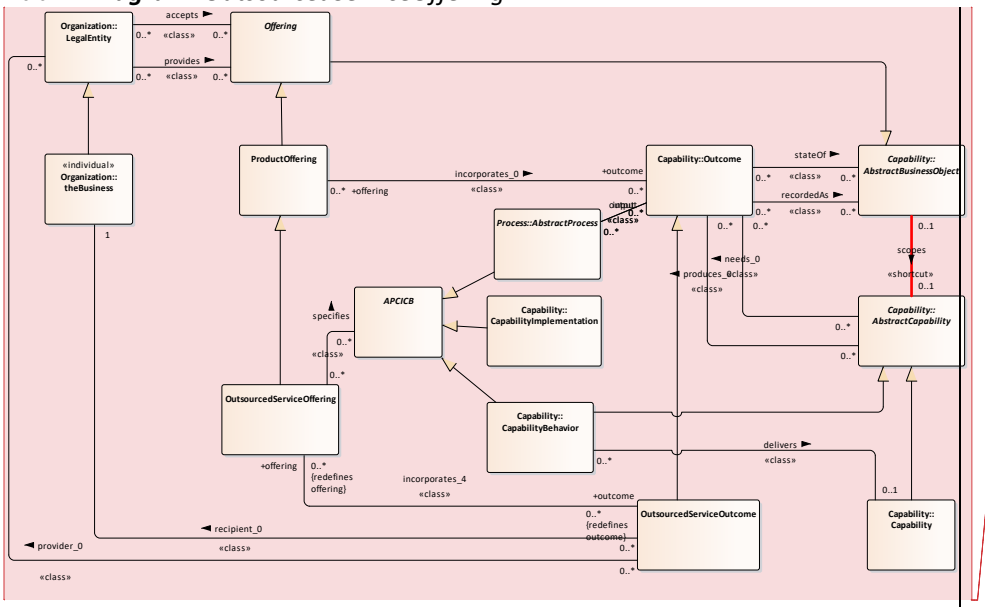
7.3.6.1 ***Diagram:*** *MerchandiseOffering*

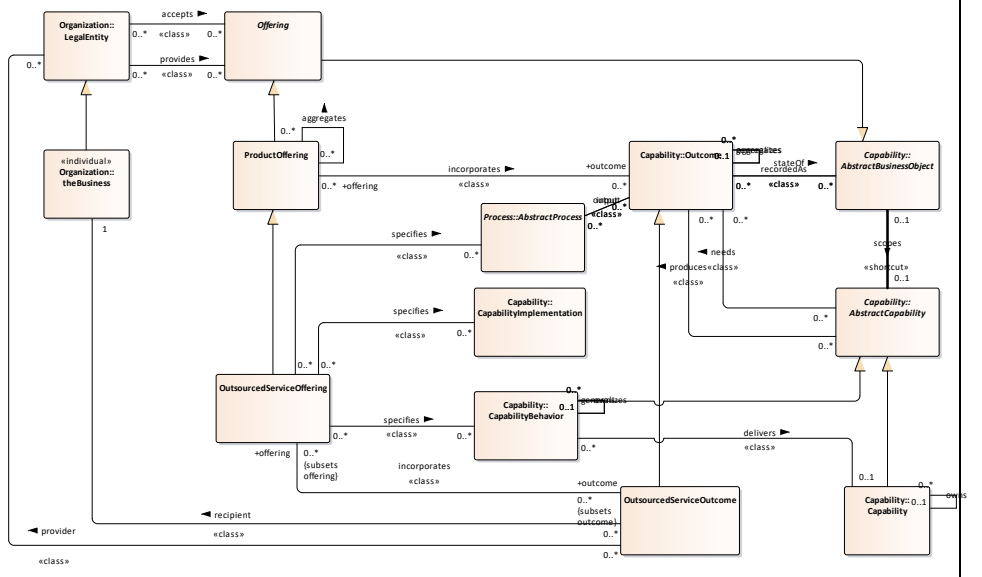


Commented [JR34]: Issue BACM-83 resolved by BACM-9


Organization::
LegalEntity
accepts
«class»
Offering
provides
«class»
aggregates
ProductOffering
+offering
incorporates
+outcome
«class»
Capability::Outcome
«class»
Capability::
AbstractBusinessObject
object
«shortcut»
MerchandiseOffering
{subsets
offering}
incorporates
«class»
{subsets
outcome}
+outcome
buyer
«class»
«individual»
Organization::
theBusiness
seller
«class»
MerchandiseOutcome

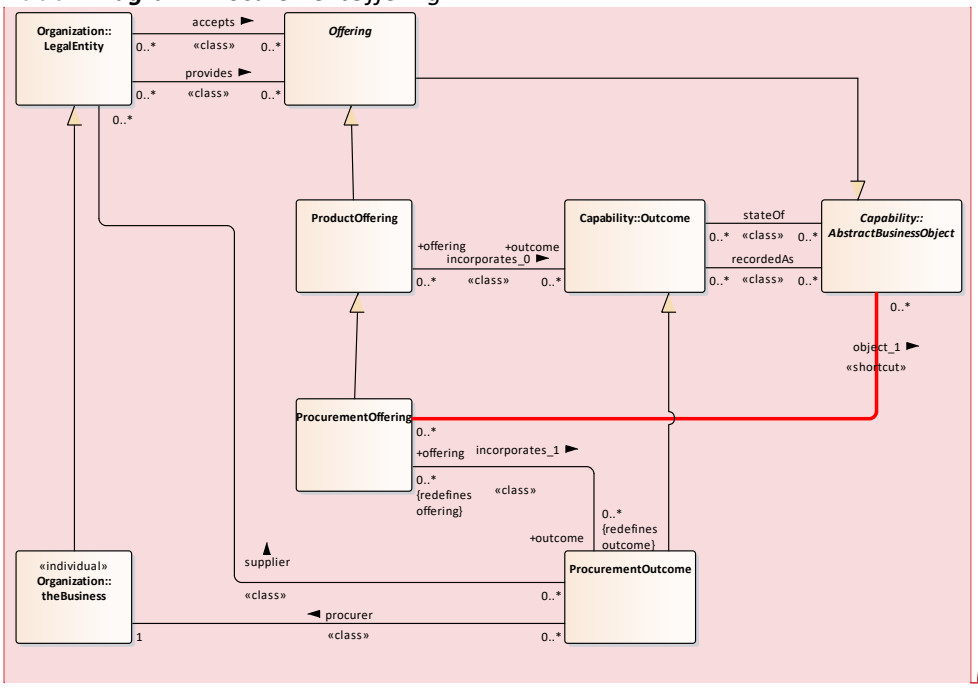
7.3.6.2 ***Diagram:*** *OutsourcedServiceOffering*





Commented [JR35]: Issue BACM-83 resolved by BACM-9
Issue BACM-100 resolved by BACM-101 - introduces abstract APCICB class

7.3.6.3 ***Diagram:*** *ProcurementOffering*



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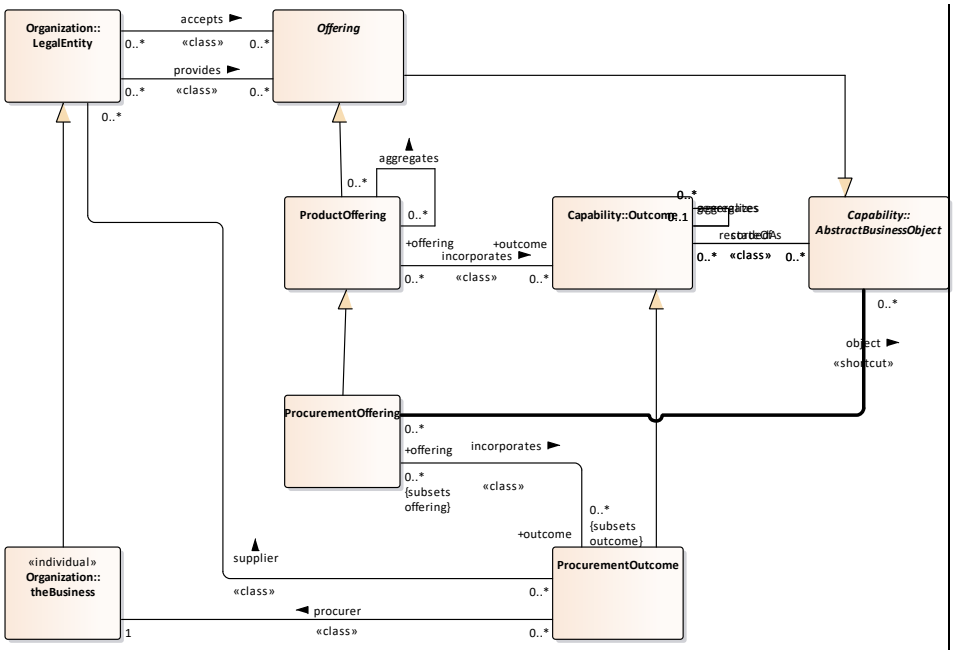
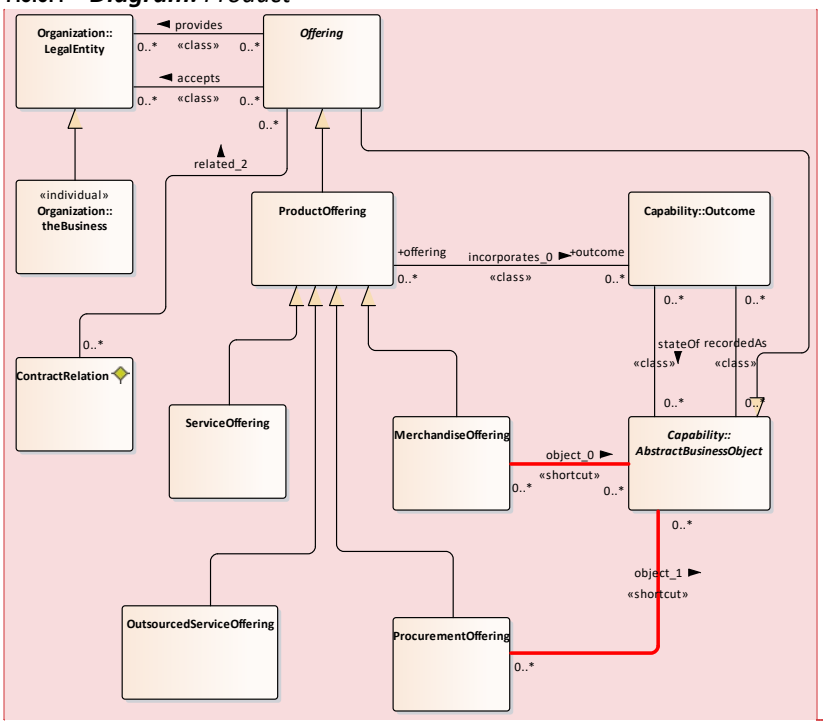
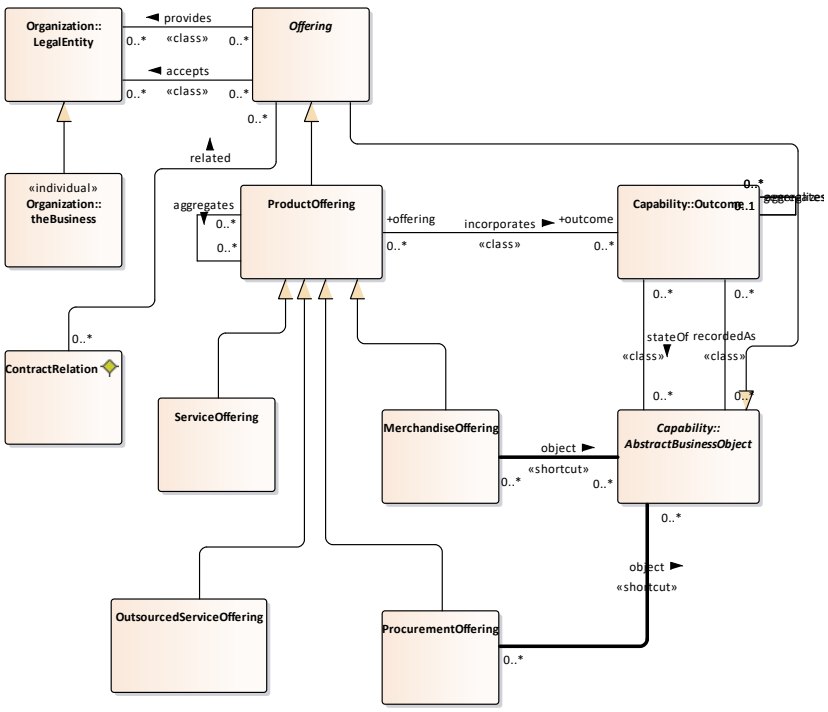

Organization::
LegalEntity
accepts
0..*
«class»
0..*
Offering
provides
0..*
«class»
0..*
0..*
aggregates
0..*
ProductOffering
0..*
+offering
+outcome
incorporates
0..*
«class»
0..*
Capability::Outcome
0..*
0..1
0..*
«class»
0..*
Capability::
AbstractBusinessObject
0..*
object
«shortcut»
ProcurementOffering
0..*
+offering
incorporates
0..*
{subsets
offering}
«class»
0..*
{subsets
outcome}
+outcome
«individual»
Organization::
theBusiness
supplier
«class»
0..*
ProcurementOutcome
procurer
1
«class»
0..*

7.3.6.4 ***Diagram:*** *Product*



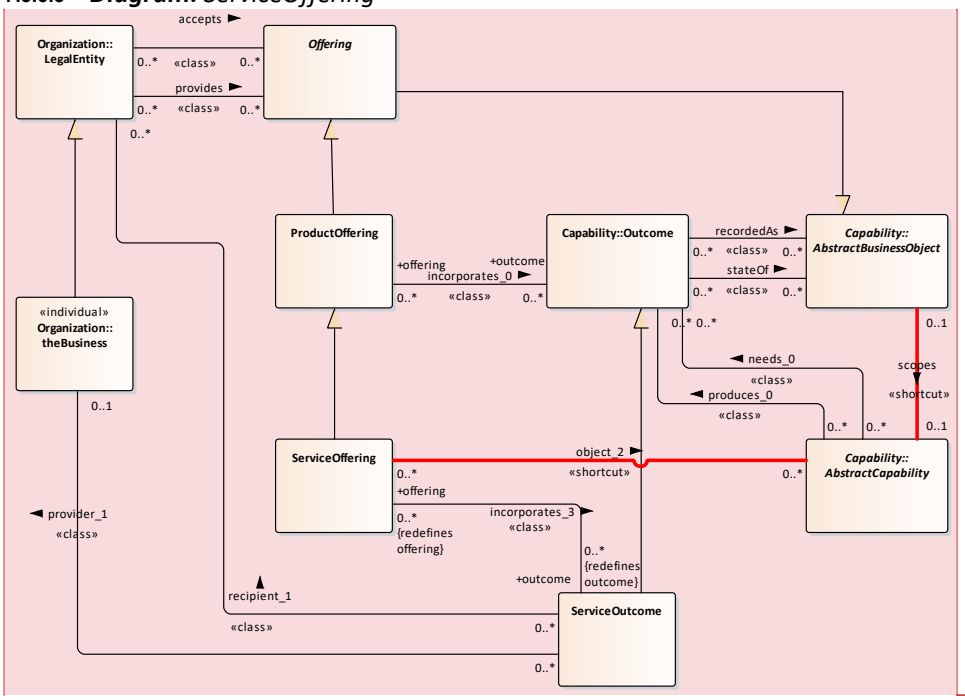
Commented [JR37]: Issue BACM-83 resolved by BACM-9



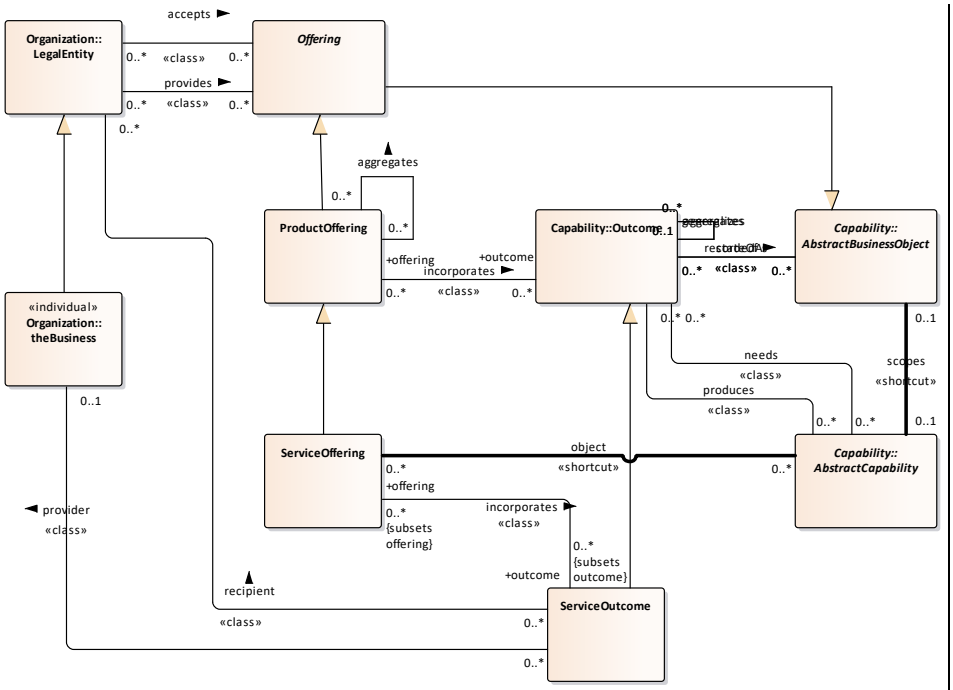
The metamodel uses a single syntax to express three different patterns:

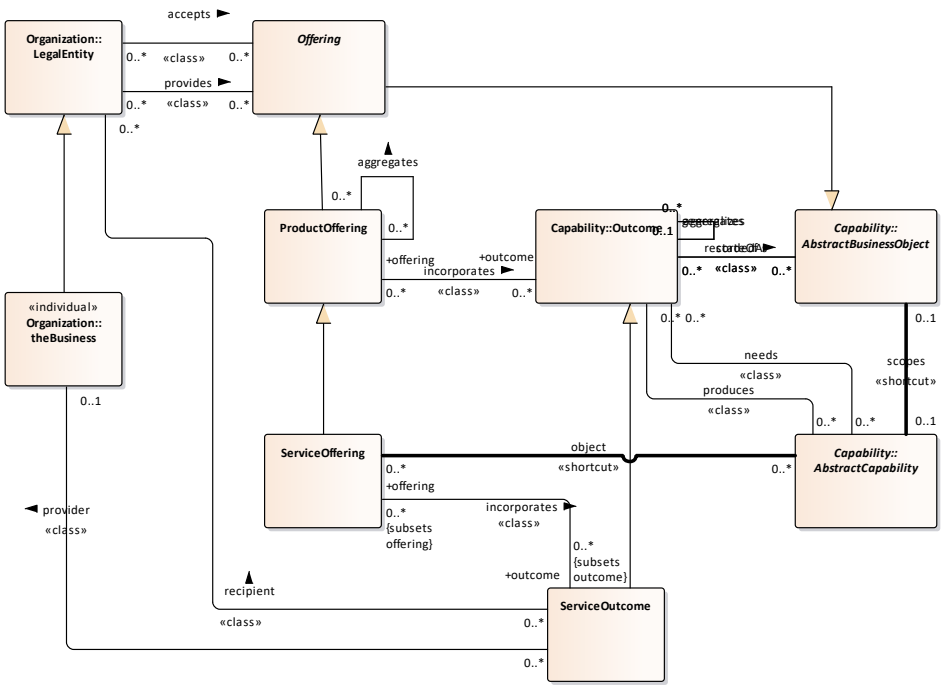
1. GoodOffering - Possession of an AbstractBusinessObject is changed and the customer experiences Outcomes associated with the AbstractCapabilities possessed by the AbstractBusinessObject in a post-change-of-possession JourneyStage. The Outcome incorporated in the GoodOffering represents the pledged state of the AbstractBusinessObject that is the object of the ProductOffering (e.g. that the AbstractBusinessObject is complete and functional).
2. ServiceOffering - The customer experiences the Outcome of a ServiceOffering provided by the business through some of its AbstractCapabilities. This experience is associated with both the activities at the Touchpoint (i.e. while the Service is being rendered) and at a JourneyStage subsequent to the completion of the Service. These situations would be modeled by two different Outcomes and not by a single Outcome that is experienced at both a Touchpoint and a JourneyStage. In the Service case, the Outcome incorporated in the ProductOffering is produced by the AbstractCapability that is the object of the Service.
3. OutsourcingOffering - the Customer is solicited to provide Outcomes to the business. The OutsourcingOffering may specify processes (CapabilityBehaviors) and resources (CapabilityImplementations) that the Customer is asked to follow and use respectively.

7.3.6.5 *Diagram: ServiceOffering*



Commented [JR38]: Issue BACM-83 resolved by BACM-9
Issue BACM-118 resolved by BACM-119
Modified diagram to separate "recordedAs" and "stateOf" associations between Outcome and AbstractBusinessObject


Organization::
LegalEntity
accepts
provides
«class»
Offering
aggregates
ProductOffering
+offering
incorporates
+outcome
Capability::Outcome
Capability::
AbstractBusinessObject
«individual»
Organization::
theBusiness
needs
scopes
«shortcut»
produces
ServiceOffering
object
Capability::
AbstractCapability
provider
recipient
{subsets
offering}
{subsets
outcome}
ServiceOutcome
0..*
0..1



7.3.6.6 *Class Name:* APCICB *Class Type:* Class ***Stereotype:***

Base Classes:

Usage: This abstract element defines a union type for *AbstractProcess*, *CapabilityImplementation* and *CapabilityProvider,* allowing the *specifies* association to connect any instances of any concrete subclasses of these classes.

7.3.6.6.1 Attributes, Methods and Connectors:

Association Name: specifies **Association Type:** Association **Stereotype:** «class»
Source Class: OutsourcedServiceOffering **[**0..*] **Target Class:** APCICB **[**0..*]
Definition: The specifies association represents a relationship between an OutsourcingOffering and a CapabilityBehavior or Process or *CapabilityImplementation*, in which the *Customer* would be required or advised to perform the *CapabilityBehavior* or *Process* and/or provide *Performers* and *Resources* as specified by the *CapabilityImplementation* as an implementation of the *CapabilityBehavior* or *Process*..
Usage: This association is effectively combined with the two other *specifies* relation whose source is *OutsourcingOffering* so that the range of the combined associations is the union of *AbstractProcess*, *CapabilityBehavior* and *CapabilityImplementation*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityBehavior **[]** **Target Class:** APCICB **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityImplementation **[]** **Target Class:** APCICB **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractProcess **[]** **Target Class:** APCICB **[]**

7.3.6.7 *Class Name: ContractRelation Class Type: Class Stereotype: «association»*

Base Classes: AbstractOperatingModel
Definition: *ContractRelation* represents any kind of relationship between Offerings.
Usage: *ContractRelation* should be instanced as a relationship between *Offferings* whose arity is determined by the architect. Each leg of such an instance effectively inherits from the relation association.

7.3.6.7.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ContractRelation **[]** **Target Class:** AbstractOperatingModel **[]**

Association Name: related_2 **Association Type:** Association **Stereotype:**
Source Class: ContractRelation **[**0..*] **Target Class:** Offering **[**0..*]
Definition: The relation association reresents a leg of a potentially n-ary relationship that may exist among multiple *Offerings*.

7.3.6.8 *Class Name: MerchandiseOffering Class Type: Class Stereotype:*

Base Classes: ProductOffering
Definition: A *MerchandiseOffering* irepresents an offering to sell or lease a good to a customer who may use the good to produce *Outcomes*.
Usage: The *MerchandiseOffering* is characterized by some *BusinessObjects* or *InformationItems* that would be transferred to the *Customer* for use by the *Customer*. The *BusinessObjects* and/or *InformationItems* are *objects* of the *MerchandiseOffering*.

7.3.6.8.1 Attributes, Methods and Connectors:

Association Name: incorporates_2 **Association Type:** Association **Stereotype:** «class»
Source Class: MerchandiseOffering **[**0..*] **Target Class:** MerchandiseOutcome **[**0..*]
Definition: This *incorporates* association refines the *incorporates* association between the generalizing meta-classes *ProductOffering* and *Outcome*. It asserts that a *MerchandiseOffering* incorporates a *MerchandiseOutcome*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: MerchandiseOffering **[]** **Target Class:** ProductOffering **[]**

Association Name: object_0 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: MerchandiseOffering **[**0..*] **Target Class:** AbstractBusinessObject **[**0..*]
Definition: The *object* association represents a shortcut relationship between a *MerchandiseOffering* and a *BusinessObject* or *InformationItem* offered for sale or lease to the *Customer*.

Usage: This shortcut implies that there is an unspecified *MerchandiseOutcome* of the *AbstractBusinessObject* that would describe the terms of ownership/use incorporated in the *MerchandiseOffering*.
Constraint: Let MOf1 be a MerchandiseOffering and BO1 be a BusinessObject associated by o1 an "object" association. Then MOf1 should incorporate MerchandiseOutcomes {MOj} that represent either the change of ownership of BO1 or the establishment of a limited right to use BO1.

7.3.6.9 *Class Name: MerchandiseOutcome Class Type: Class Stereotype:*

Base Classes: Outcome
Definition: *MerchandiseOutcome* represents the transfer of ownership and/or use between the business that is selling the merchandise via the *MerchandiseOffering* and the *LegalEntity* who receives the possession and/or use of the merchandise. The *LegalEntity* may also be a *Customer.*

7.3.6.9.1 Attributes, Methods and Connectors:

Association Name: seller **Association Type:** Association **Stereotype:** «class»
Source Class: MerchandiseOutcome **[**0..*] **Target Class:** theBusiness **[**1]
Definition: The *seller* association asserts that *theBusiness* is the seller of the *MerchandiseOutcome* incorporated in the *MerchandiseOffering*.
Usage: This association does not imply that the *LegalEntity* providing the *MerchandiseOffering* is the same as the seller of the *MerchandiseOutcome*.

Association Name: Association Type: Generalization **Stereotype:**
Source Class: MerchandiseOutcome **[]** **Target Class:** Outcome **[]**

Association Name: buyer **Association Type:** Association **Stereotype:** «class»
Source Class: MerchandiseOutcome **[**0..*] **Target Class:** LegalEntity **[**0..*]
Definition: The *buyer* association is related to the *accepts* association and asserts that a *LegalEntity* (typically also a *Customer*) is the targeted buyer of the *MerchandiseOutcome*.
Usage: The buyer of the *MerchandiseOutcome* is not necessarily the *LegalEntity* that accepts the *MerchandiseOffering* in the case when the acceptor is acting as an agent for the buyer.

Association Name: incorporates_2 **Association Type:** Association **Stereotype:** «class»
Source Class: MerchandiseOffering **[**0..*] **Target Class:** MerchandiseOutcome **[**0..*]
Definition: This *incorporates* association refines the *incorporates* association between the generalizing meta-classes *ProductOffering* and *Outcome*. It asserts that a *MerchandiseOffering* incorporates a *MerchandiseOutcome*.

7.3.6.10 *Class Name: Offering Class Type: Class Stereotype:*

Base Classes: AbstractBusinessObject
Definition: *Offering* represents the solicitation of business from a *Customer* by presenting *Outcomes* and *BusinessObjects* that the business is willing to provide in return for items of value received from the *Customer*.
Usage: *Offering* is abstract because the metamodel may eventually include subtypes other than *ProductOffering*.
Offering is *provided* by the business or a partner and the intended *consumer* is a type of *Customer*.
The business architecture does not include the concept of a sale directly. Sales are in the past of a business, and business architecture is focused on the possible futures of the business. Sales are useful as predictors of acceptance of future offering and as predictors of future liability for warranties.

7.3.6.10.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Offering [] **Target Class:** AbstractBusinessObject []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ProductOffering [] **Target Class:** Offering []

Association Name: related_2 **Association Type:** Association **Stereotype:**
Source Class: ContractRelation [0..*] **Target Class:** Offering [0..*]
Definition: The relation association reresents a leg of a potentially n-ary relationship that may exist among multiple *Offerings*.

Association Name: provides **Association Type:** Association **Stereotype:** «class»
Source Class: LegalEntity [0..*] **Target Class:** Offering [0..*]
Definition: The provider relation represents a relationship between a LegalEntity and an Offering created by the LegalEntity that is intended to solicit the business of designated parties identified by the consumer relation.

Association Name: accepts **Association Type:** Association **Stereotype:** «class»
Source Class: LegalEntity [0..*] **Target Class:** Offering [0..*]
Definition: The acceptor relation represents a relationship between a party external to the business and an Offering intended to solicit business from the acceptor party represented by the Customer..
Usage: Note that offering dies not represent a sale; in a sale, each party gives something of value and receives something of value.

7.3.6.11 *Class Name: OutsourcedServiceOffering Class Type: Class Stereotype:*

Base Classes: ProductOffering
Definition: *OutsourcedServiceOffering* represents an offering made by the business that solicits a service to be performed by another business.

7.3.6.11.1 Attributes, Methods and Connectors:

Association Name: specifies **Association Type:** Association **Stereotype:** «class»
Source Class: OutsourcedServiceOffering [0..*] **Target Class:** APCICB [0..*]
Definition: The specifies association represents a relationship between an OutsourcingOffering and a CapabilityBehavior or Process or *CapabilityImplementation*, in which the *Customer* would be required or advised to perform the *CapabilityBehavior* or *Process* and/or provide *Performers* and *Resources* as specified by the *CapabilityImplementation* as an implementation of the *CapabilityBehavior* or *Process*..
Usage: This association is effectively combined with the two other *specifies* relation whose source is *OutsourcingOffering* so that the range of the combined associations is the union of *AbstractProcess*, *CapabilityBehavior* and *CapabilityImplementation*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: OutsourcedServiceOffering [] **Target Class:** ProductOffering []

Association Name: incorporates_4 **Association Type:** Association **Stereotype:** «class»
Source Class: OutsourcedServiceOffering [0..*] **Target Class:** OutsourcedServiceOutcome [0..*]
Definition: The *incorporates* association designates that an *OutsourcedServiceOffering* incorporates some *OutsourcedServiceOutcomes*.
Usage: The *incorporates* association refines the *incorporates* association between *ProductOffering* and *Outcome*.

7.3.6.12 *Class Name: OutsourcedServiceOutcome* *Class Type: Class* ***Stereotype:***

Base Classes: Outcome
Definition: *OutsourcedServiceOutcome* represents the expected *Outcome* of the performance of an outsourced service (i.e. a service performed for the business by another business).

7.3.6.12.1 Attributes, Methods and Connectors:

Association Name: provider_0 **Association Type:** Association **Stereotype:** «class»
Source Class: OutsourcedServiceOutcome [0..*] **Target Class:** LegalEntity [0..*]
Definition: The *provider* association asserts that a *LegalEntity* is the provider of the *OutsourcedServiceOutcome*.
Usage: The provider *LegalEntity* is not necessarily the same *LegalEntity* as the provider of the *OutsourcedServiceOffering*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: OutsourcedServiceOutcome [] **Target Class:** Outcome []

Association Name: recipient_0 **Association Type:** Association **Stereotype:** «class»
Source Class: OutsourcedServiceOutcome [0..*] **Target Class:** theBusiness [1]
Definition: The *recipient* association assserts that *theBusiness* is the intended recipient and beneficiary of the *OutsourcedServiceOutcome*.
Usage: The *recipient* is not necessarily the same *LegalEntity* that accepts the *OutsourcedServiceOffering*.

Association Name: incorporates_4 **Association Type:** Association **Stereotype:** «class»
Source Class: OutsourcedServiceOffering [0..*] **Target Class:** OutsourcedServiceOutcome [0..*]
Definition: The *incorporates* association designates that an *OutsourcedServiceOffering* incorporates some *OutsourcedServiceOutcomes*.
Usage: The *incorporates* association refines the *incorporates* association between *ProductOffering* and *Outcome*.

7.3.6.13 *Class Name: ProcurementOffering* *Class Type: Class* ***Stereotype:***

Base Classes: ProductOffering
Definition: *ProcurementOffering* is an offering by *theBusiness* to purchase or lease a *BusinessObject* and/or *InformationItem* from a *LegalEntity*.

7.3.6.13.1 Attributes, Methods and Connectors:

Association Name: object_1 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ProcurementOffering [0..*] **Target Class:** AbstractBusinessObject [0..*]
Definition: The *object* shortcut association asserts that the *ProcurementOffering* incorporates unspecified *Outcomes* describing the states of *AbstractBusinessObjects*.
Usage: This association allows the business architect to omit the *Outcome* in the procurement of some *AbstractBusinessObjects* for use by *theBusiness* when those *Outcomes* are obvious or irrelevant to the purposes of the analysis that is using the business architecture model.
Constraint: Let POf1 be a ProcurementOffering and BO1 be a BusinessObject associated by o1 an "object" association. Then POf1 should incorporate ProcurementOutcomes {POj} that represent either the change of ownership of BO1 or the establishment of a limited right to use BO1.

Association Name: incorporates_1 **Association Type:** Association **Stereotype:** «class»
Source Class: ProcurementOffering [0..*] **Target Class:** ProcurementOutcome [0..*]

Definition: The *incorporates* association refines the *incorporates* association between the generalizing meta-classes *ProductOffering* and *Outcome* and asserts that the *ProcurementOffering* incorporates the *ProcurementOutcomes*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ProcurementOffering [] **Target Class:** ProductOffering []

7.3.6.14 *Class Name: ProcurementOutcome* *Class Type: Class* *Stereotype:*

Base Classes: Outcome
Definition: *ProcurementOutcome* represents the expected Outcome of the procurement. E.g. that the *BusinessObject/InformationItem* received has the characteristics needed by the procuring business.
Usage: *ProcurementOutcome* specifies such details and is associated with a *ProcurementOfferint* that should not duplicate the details of the *ProcurementOutcome*.

7.3.6.14.1 Attributes, Methods and Connectors:

Association Name: supplier **Association Type:** Association **Stereotype:** «class»
Source Class: ProcurementOutcome [0..*] **Target Class:** LegalEntity [0..*]
Definition: The *supplier* association asserts that the *LegalEntity* is to be the supplier of the *ProcurementOutcome*.
Usage: The supplier *LegalEntity* is not necessarily the same as the provider *LegalEntity* for the *ProcurementOffering* incorporating the *ProcurementOutcome*.

Association Name: procurer **Association Type:** Association **Stereotype:** «class»
Source Class: ProcurementOutcome [0..*] **Target Class:** theBusiness [1]
Definition: The *procurer* association asserts that *theBusiness* is the procurer of the *ProcurementOutcome*
Usage: The procurer *LegalEntity* is not necessarily the acceptor *LegalEntity* of the *ProcurementOffering*

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ProcurementOutcome [] **Target Class:** Outcome []

Association Name: incorporates_1 **Association Type:** Association **Stereotype:** «class»
Source Class: ProcurementOffering [0..*] **Target Class:** ProcurementOutcome [0..*]
Definition: The *incorporates* association refines the *incorporates* association between the generalizing meta-classes *ProductOffering* and *Outcome* and asserts that the *ProcurementOffering* incorporates the *ProcurementOutcomes*.

7.3.6.15 *Class Name: ProductOffering* *Class Type: Class* *Stereotype:*

Base Classes: Offering
Definition: *ProductOffering* represents the terms and conditions associated with the acquisition of a product or service by a customer. It would typically include price, delivery terms, warranty and other aspects of these terms. The *ProductOffering* incorporates *Outcomes* such as change of possession for a product (*BusinessObject* or *InformationItem*) that is sold.
Usage: A *ProductOffering* (and its specializations *Good* and *Service*) are a type of *BusinessObject*. This allows a *Customer* to experience the *ProductOffering* at a *Touchpoint* and develop a reaction (such as the *ProductOffering* being a good deal). Such a reaction can be represented as a *CustomerSegment* associated with the *Customer* and the *JourneyStage* that includes the *Touchpoint*.

7.3.6.15.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ProductOffering [] **Target Class:** Offering []

Association Name: incorporates_0 **Association Type:** Association **Stereotype:** «class»
Source Class: ProductOffering [0..*] **Target Class:** Outcome [0..*]
Definition: The *incorporates* association represents that an *Outcome* is included in a *ProductOffering*.
Usage: It may be implied that the *BusinessObject* whose state is represented by the *Outcome* is also included in the *ProductOffering*. In the case of a service offering, the *Outcome* instance represents the intended result of performing the capability as a service for a customer (as opposed to performing the capability for the immediate benefit of the business).

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: OutsourcedServiceOffering [] **Target Class:** ProductOffering []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: MerchandiseOffering [] **Target Class:** ProductOffering []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ProcurementOffering [] **Target Class:** ProductOffering []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ServiceOffering [] **Target Class:** ProductOffering []

Association Name: of **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ValueProposition [0..*] **Target Class:** ProductOffering [0..*]
Definition: The *of* association links a *VslueProposition* to a *ProductOffering* and represents that is the *ValueProposition* is about the *ProductOffering*.
Constraint: Let VP1 be a ValueProposition and PO1 be a ProductOffering associated by o1, an "of" association. Then for some subset of ValueItems {VIj} aggregated by VP1 such that each VIj values an Outcome O1 that is incorporated in the ProductOffering PO1. Note that the ProductOfferings typically include Outcomes that are experienced by the Customer at a Touchpoint.

7.3.6.16 *Class Name:* ServiceOffering *Class Type:* Class *Stereotype:*

Base Classes: ProductOffering
Definition: *ServiceOffering* represents an offer to provide a service to a *Customer*. the busienss provides the *CapabilityImplementations* and *CapabilityBehaviors* needed to effect the *Outcome* promised to the *Customer* by the *ServiceOffering*.
Usage: A *ServiceOffering* is a specialization of a *ProductOffering* such that a *Capability* or *CapabilityBehavior* or *Process* or *Activity* is performed to produce an *Outcome* that is incorporated into the service. Unlike a sale or lease, where some incorporated *Outcomes* represent a change of ownership or poseeseeion/use of a business object, the incorporated *Outcomes* (such as a cleaned residence) are the primary *Outcomes* desired by the customer.
A business that offers a *ServiceOffering* must incorporate or arrange for the *Capabilities* and or *Processes* needed to produce the promised *Outcomes*.

7.3.6.16.1 Attributes, Methods and Connectors:

Association Name: incorporates_3 **Association Type:** Association **Stereotype:** «class»
Source Class: ServiceOffering [0..*] **Target Class:** ServiceOutcome [0..*]

Definition: The *incorporates* assocation refines the *incorporates* association between the generalizing meta-classes (*ProductOffering* and *Outcome*) and asserts that the *ServiceOffering* incorporates some *ServiceOutcomes*.

Association Name: object_2 **Association Type:** Association **Stereotype:** «shortcut»
Source Class: ServiceOffering **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: the *object* shortcut association designates an *AbstractCapability* possessed by *theBusiness* that is intended to produce the *ServiceOutcome incorporated* into the *ServiceOffering*.
Constraint: Let SOf1 be a ServiceOffering and C1 be a Capability that is associated by o1 an object association. Then there should exist a ServiceOutcome SO1 such that SO1 is incoporated in SOf1 and SO1 is produced by C1.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ServiceOffering **[]** **Target Class:** ProductOffering **[]**

7.3.6.17 *Class Name:* ServiceOutcome *Class Type:* Class *Stereotype:*

Base Classes: Outcome
Definition: *ServiceOutcome* represents the expected *Outcome* of the performance of a service for a *Customer*.

7.3.6.17.1 Attributes, Methods and Connectors:

Association Name: recipient_1 **Association Type:** Association **Stereotype:** «class»
Source Class: ServiceOutcome **[**0..*] **Target Class:** LegalEntity **[**0..*]
Definition: The *recipient* association asserts that the *LegalEntity* is the recipient of *ServiceOutcomes* incorporated into a *ServiceOffering*.
Usage: It is not necessarily the case that the recipient *LegalEntity* is the same as the accepting *LegalEntity* of the incorporating *ServiceOffering*.

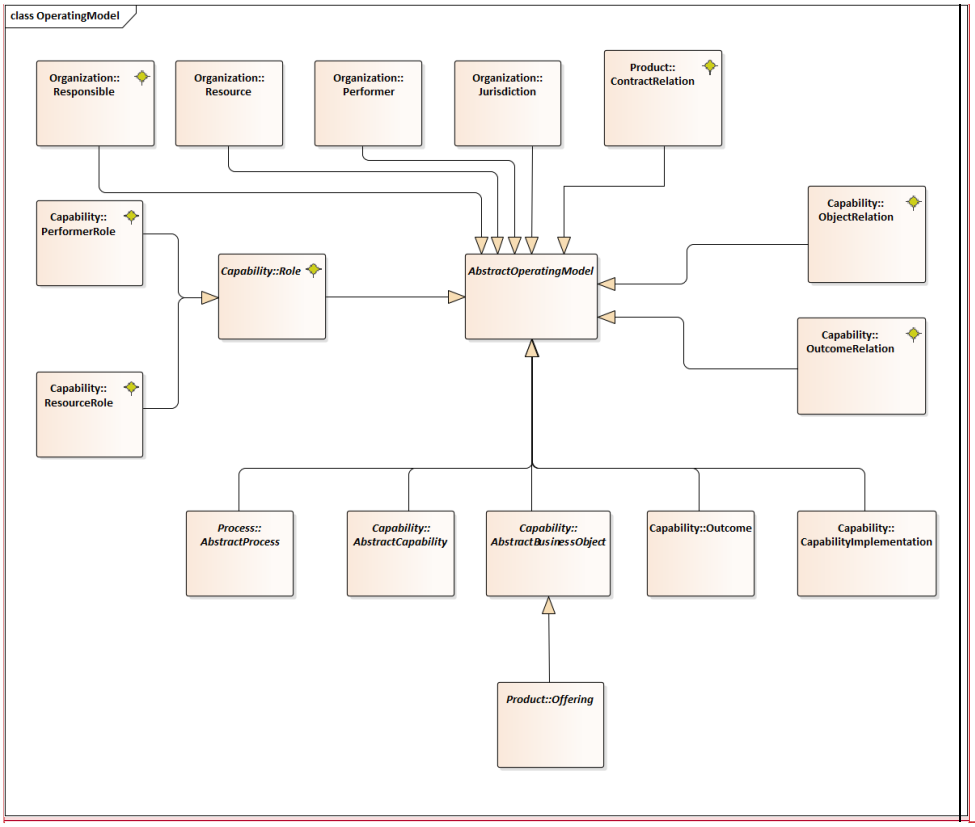
Association Name: provider_1 **Association Type:** Association **Stereotype:** «class»
Source Class: ServiceOutcome **[**0..*] **Target Class:** theBusiness **[**0..1]
Definition: The *provider* association asserts that *theBusiness* is the provider of the *ServiceOutcome* incorporated into a *ServiceOffering*.
Usage: The provider *LegalEntity* is not necessarily the same as the *LegalEntity* that provides the *ServiceOffering* that incorporates the *ServiceOutcome*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ServiceOutcome **[]** **Target Class:** Outcome **[]**

Association Name: incorporates_3 **Association Type:** Association **Stereotype:** «class»
Source Class: ServiceOffering **[**0..*] **Target Class:** ServiceOutcome **[**0..*]
Definition: The *incorporates* assocation refines the *incorporates* association between the generalizing meta-classes (*ProductOffering* and *Outcome*) and asserts that the *ServiceOffering* incorporates some *ServiceOutcomes*.

7.3.7 **Package:** Strategy

7.3.7.1 ***Diagram:*** *OperatingModel*



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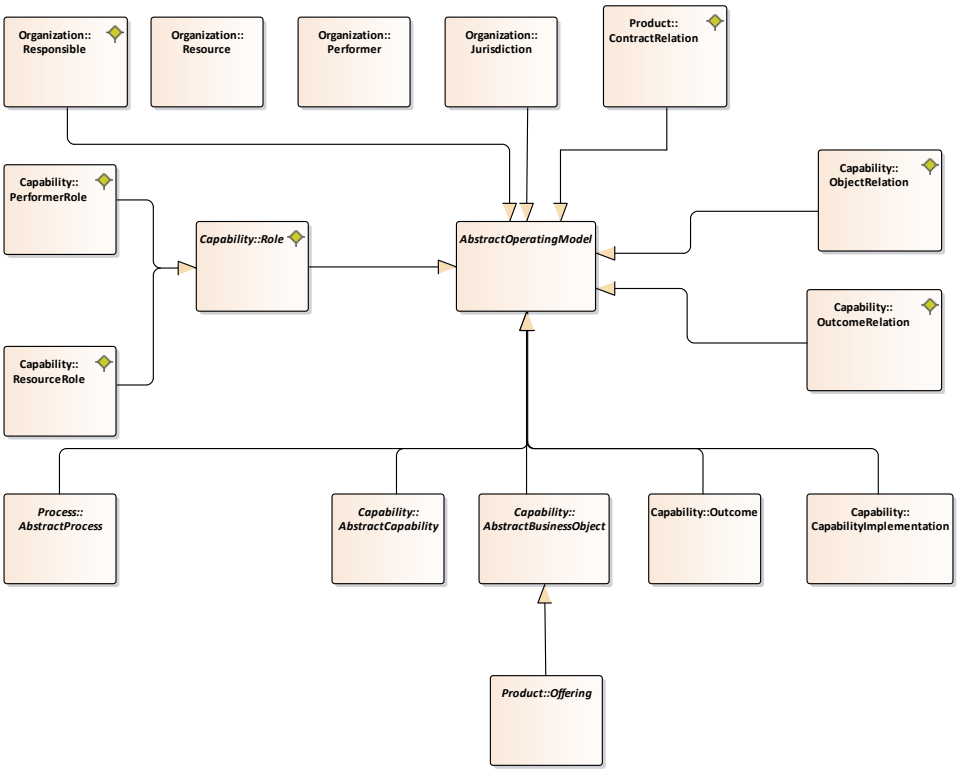
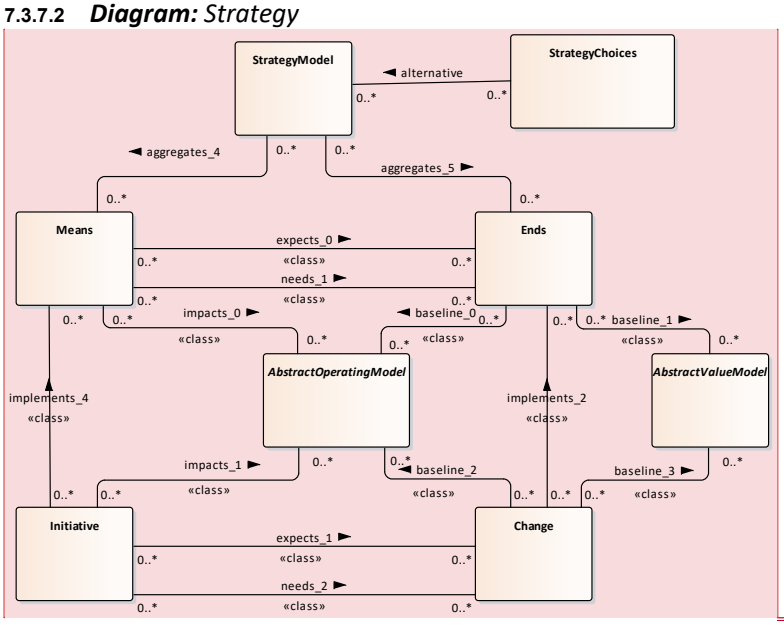
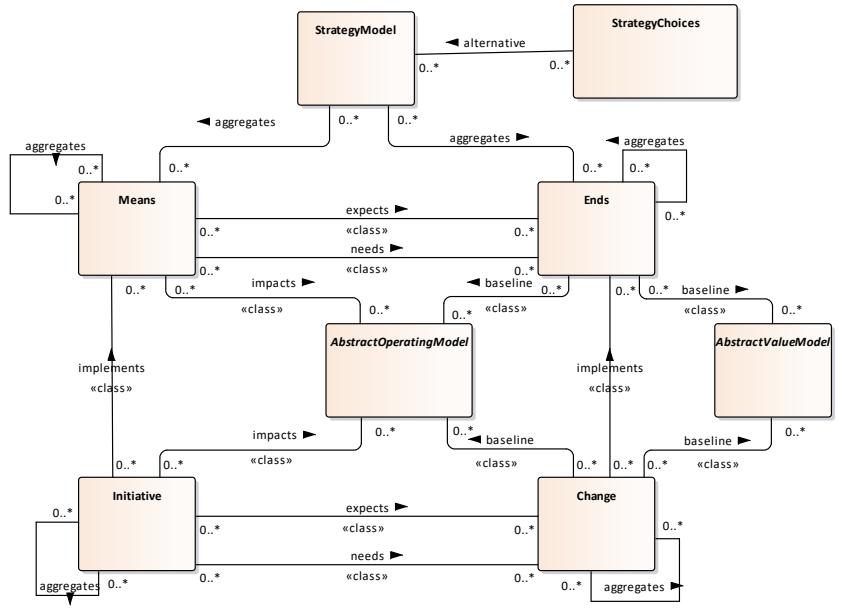


The OperatingModel diagram defines metaclasses for the business entities that are changeable by a strategy and are part of the business operating model, but not part of the business value model (see the Strategy::ValueModel diagram)

7.3.7.2 *Diagram: Strategy*





The Strategy diagram defines abstract syntax for modeling strategy driven change.

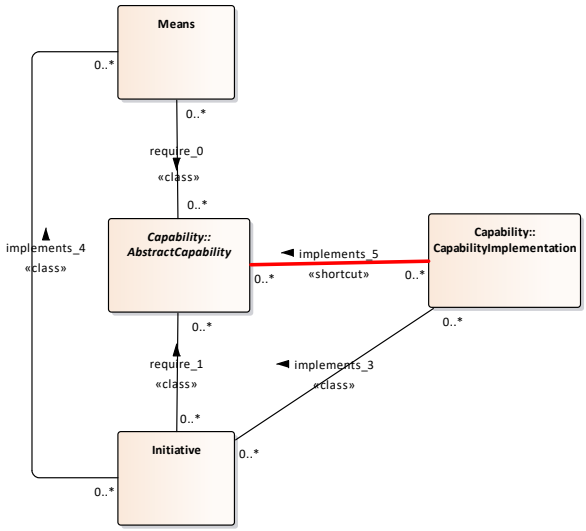
Commented [JR40]: Issue BACM-83 resolved by BACM-9

A strategy is represented by a *StrategyModel* that contains *Means* and *Ends*. A *StrategyModel* also contains the *Initiatives* and *Changes* that implement the *Means* and *Ends*.
Multiple *StrategyModels* are contained in *StrategyChoices*, allowing an analysis to evaluate *StrategyModels* and compare them with each other.
Ends represent desired changes to delivered value and/or business results. *Means* represent prospective ways to achieve the Ends.
Strategy is modeled at two levels:

1. High level strategy expressed as *Means* and *Ends*. *Ends* are statements primarily about value delivered to stakeholders (e.g. increased stock price, better customer satisfaction with a product). Means are high level statements about possible ways to achieve the *Ends* (e.g. reducing expenses, improving manufacturing quality).
2. Planned initiatives to implement a strategy, expressed as *Initiatives* and *Changes*. *Changes* represent specific objectives for *Outcomes*, *BusinessObjects*, *ProductOfferings*, *ValuePropositions*, *ValueCharacteristics* and *ValueItems*. *Initiatives* represent changes to be made to *Capabilities*, *CapabilityBehaviors*, *CapabilityImplementations*, *Roles*, *Processes*, *Activities*, *Flows* and assignments of *Performers* and *Resources* to achieve the *Changes*.

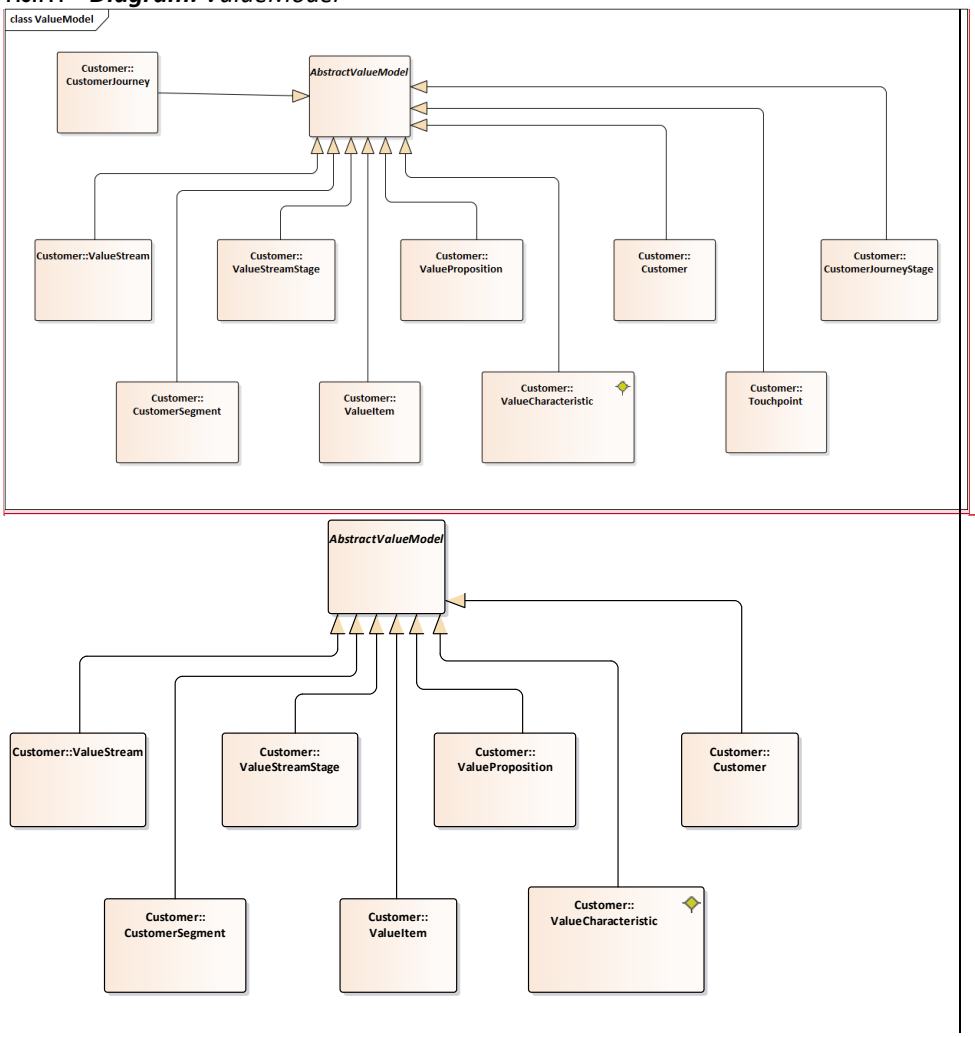
This abstract syntax does not distinguish the model elements changed by *Ends* from those changed by *Means*. For simplicity, it lumps these together as specializations of *AbstractOperatingModel* and *AbstractValueModel*. Implementors should follow the descriptions in items 1 and 2 above.
This abstract syntax also does not distinguish the model element changed by *Change* from those changed by *Initiative*.

7.3.7.3 ***Diagram:*** *StrategyNeeds*



The StrategyNeeds diagram displays the abstract syntax for representing that *Means* and *Initiatives* require *Capabilities*, *CapabilityBehaviors* and *CapabilityImplementations* for performance. This abstract syntax allows the business architect to establish abstract *Capability* requirements for performance of a *Means* and to establish both abstract and specific requirements for performance of an *Initiative*. The details of the *requires* and *implements* associations would be contained in strategy and initiative planning tools and their documents.

7.3.7.4 *Diagram: ValueModel*



Commented [JR41]: Issue BACM121 resolved by BACM-1

The ValueModel diagram defines the BACM meta-classes whose instances can be used to model aspects of the business which represent value or which represent characteristics of the customer.
The concrete specializations of *AbstractValueModel* can be changed by the *Ends* instance of a *StrategyModel* instance.

7.3.7.5 *Class Name: AbstractOperatingModel Class Type: Class* ***Stereotype:***

Base Classes:
Definition: *AbstractOperatingModel* is an abstract metaclass whose concrete specializations are the model elements of the operating model (see the AbstractOperatingModel diagram). This metaclass groups together the concrete metaclasses that may be *impacted* by a *Means* or *Initiative* or *baselined* by *Ends* or *Changes*

Usage: *Means* and *Initiatives* describe behaviors that will impact parts of the operating model of the business to achieve the *Ends* and *Changes* associated with the *Means* and *Initiatives*. While the behaviors are described by the *Means* and *Initiatives*, the affected operating model components are represented by the *impacts* relationship to facilitate analysis of these impacts for feasibility, risk, cost and other measures.
Ends and *Change* describe the new state and behavior of the baselined parts of the operating model of the business. For example, an *End* may be the improvement of throughput and reduction of wait time for a *CapabilityImplementation*. The *Means* may be the addition of personnel and upgrading of an application. The *End* describes a new baseline for the *CapabilityImplementation* (relative to the existing baseline associated with the *CapabilityImplementation*). The *Means* describes the behaviors to be carried out with respect to the staffing and resourcing of the *CapabilityImplementation*.

7.3.7.5.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Role [] **Target Class:** AbstractOperatingModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractProcess [] **Target Class:** AbstractOperatingModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Responsible [] **Target Class:** AbstractOperatingModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractBusinessObject [] **Target Class:** AbstractOperatingModel []

Association Name: baseline_0 **Association Type:** Association **Stereotype:** «class»
Source Class: Ends [0..*] **Target Class:** AbstractOperatingModel [0..*]
Definition: The *baseline* association links one or more operating model elements representing business results to change objectives represented by the *Ends*.
Usage: An operating model *Outcome* (e.g. cost of executing an activity) is the baseline for an *End* (e,g, a 10% reduction in the cost of executing the activity).

Association Name: impacts_0 **Association Type:** Association **Stereotype:** «class»
Source Class: Means [0..*] **Target Class:** AbstractOperatingModel [0..*]
Definition: The *impacts* association links a *Means* (description of changes to be made to business operations) to the operating model elements that will be impacted (changed).

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ObjectRelation [] **Target Class:** AbstractOperatingModel []

Association Name: baseline_2 **Association Type:** Association **Stereotype:** «class»
Source Class: Change [0..*] **Target Class:** AbstractOperatingModel [0..*]
Definition: The *baseline* association links one or more operating model elements representing business results to change objectives represented by the *Changes*.
Usage: An operating model *Outcome* (e.g. cost of executing an activity) is the baseline for a *Change* (e,g, a 5% reduction in the cost of executing the activity as a result of purchasing a new robot).

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: AbstractCapability [] **Target Class:** AbstractOperatingModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CapabilityImplementation [] **Target Class:** AbstractOperatingModel []

Association Name: impacts_1 **Association Type:** Association **Stereotype:** «class»
Source Class: Initiative [0..*] **Target Class:** AbstractOperatingModel [0..*]
Definition: The *impacts* association links *Initiatives* (planned changes to operating model elements) to the operating model elements impacted (changed) by the *Initiatives*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: OutcomeRelation [] **Target Class:** AbstractOperatingModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Outcome [] **Target Class:** AbstractOperatingModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ContractRelation [] **Target Class:** AbstractOperatingModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Jurisdiction [] **Target Class:** AbstractOperatingModel []

7.3.7.6 ***Class Name:*** *AbstractValueModel* ***Class Type:*** *Class* ***Stereotype:***

Base Classes:
Definition: The *AbstractValueModel* represents the value-related concepts that the *Means* and *Initiative* behaviors seek to achieve by changes made to the *AbstractOperatingModel*.
Usage: *AbstractValueModel* model elements represent perceptions of value as seen by a *Customer* or imagined by *theBusiness* to be seen by the *Customer*. As such, they cannot be directly changed by the business, so *Means* and *Initiatives* do not directly *impact* them. For example, the *ValueProposition* and *ValueCharacteristic* of an *Offering* may be improved by lowering its price, but this result is not guaranteed as the price action may be viewed as a signal of inflated worth or diminished quality. The architect may express a conviction that this result will occur in the *expects* association that links the price *Means* to the new *Ends* baseline for the *ValueProposition* and *ValueCharacteristic*.

7.3.7.6.1 Attributes, Methods and Connectors:

Association Name: baseline_1 **Association Type:** Association **Stereotype:** «class»
Source Class: Ends [0..*] **Target Class:** AbstractValueModel [0..*]
Definition: The *baseline* association links a value model element (e.g. a *ValueProposition* where the price of a product is equal to the competitive average price) to an *End* (e.g. an *End* that reduces the price of a product to 5% below the competitive average).

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueCharacteristic [] **Target Class:** AbstractValueModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueProposition [] **Target Class:** AbstractValueModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueItem [] **Target Class:** AbstractValueModel []

Association Name: **Association Type:** Generalization **Stereotype:**

Source Class: Customer [] **Target Class:** AbstractValueModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: CustomerSegment [] **Target Class:** AbstractValueModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStream [] **Target Class:** AbstractValueModel []

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: ValueStreamStage [] **Target Class:** AbstractValueModel []

Association Name: baseline_3 **Association Type:** Association **Stereotype:** «class»
Source Class: Change [0..*] **Target Class:** AbstractValueModel [0..*]
Definition: The *baseline* association links a value model element (e.g. a *ValueProposition* where the price of a product is equal to the competitive average price) to a change (e.g. a change that reduces the price of a product by 5%).

7.3.7.7 *Class Name: Change Class Type: Class Stereotype:*

Base Classes: AbstractResult, BACMPlainEntity
Definition: *Change* represents desired states of business value and results as represented by the *baselined* elements of the *AbstractOperatingModel* and the *AbstractValueModel*. These states are expected to result from the changes described by the Initiatives.
Usage: *Changes* can be decomposed and share sub-*Changes*.

7.3.7.7.1 Attributes, Methods and Connectors:

Association Name: implements_2 **Association Type:** Association **Stereotype:** «class»
Source Class: Change [0..*] **Target Class:** Ends [0..*]
This "implements" meta-association links a desired end of a strategy to the specific changes that are expected to result in the achievement of the end.

Association Name: baseline_2 **Association Type:** Association **Stereotype:** «class»
Source Class: Change [0..*] **Target Class:** AbstractOperatingModel [0..*]
Definition: The *baseline* association links one or more operating model elements representing business results to change objectives represented by the *Changes*.
Usage: An operating model *Outcome* (e.g. cost of executing an activity) is the baseline for a *Change* (e,g, a 5% reduction in the cost of executing the activity as a result of purchasing a new robot).

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Change [] **Target Class:** BACMPlainEntity []

Association Name: baseline_3 **Association Type:** Association **Stereotype:** «class»
Source Class: Change [0..*] **Target Class:** AbstractValueModel [0..*]
Definition: The *baseline* association links a value model element (e.g. a *ValueProposition* where the price of a product is equal to the competitive average price) to a change (e.g. a change that reduces the price of a product by 5%).

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Change [] **Target Class:** AbstractResult []

Association Name: expects_1 **Association Type:** Association **Stereotype:** «class»
Source Class: Initiative [0..*] **Target Class:** Change [0..*]
Definition: The *expects* association links one or more Changes that are expected to result from the Means described changes.

Association Name: needs_2 **Association Type:** Association **Stereotype:** «class»
Source Class: Initiative [0..*] **Target Class:** Change [0..*]
Definition: The *needs* association represents that one or more *Changes* are needed to enable the performance of the Initiatives.
Usage: This association must be instanced as an association classifier so that the modeler can express:

- a rationale for the expectation;
- note the likely influences of environmental factors, including competitive responses and regulatory actions
- risks and risk avoidance activities

Expressing these concerns may require the modeler to define additional properties and association legs at the M1 model level.

7.3.7.8 *Class Name: Ends Class Type: Class Stereotype:*

Base Classes: AbstractResult, BACMPlainEntity
Definition: *Ends* represent changes to elements representing business values, such as *ValuePropositions*., *ValueItems* and *ValueCharacteristics*. *Ends* also represent changes to business results (i.e. *Outcomes*, *BusinessObjects*, *InformationItems* and *ProductOfferings*). These element types derive from *AbstractOperatingModel* and *AbstractValueModel*.
Usage: A *Ends* element will typically state the desired result (e.g. improved customer satisfaction) relative to the currently achieved (*baselined*) result (customer satisfaction represented as an *Outcome*).
Ends can be decomposed into subordinate *Ends*. Subordinate *Ends* may be shared by one or more aggregator *Ends*.

7.3.7.8.1 Attributes, Methods and Connectors:

Association Name: baseline_1 **Association Type:** Association **Stereotype:** «class»
Source Class: Ends [0..*] **Target Class:** AbstractValueModel [0..*]
Definition: The *baseline* association links a value model element (e.g. a *ValueProposition* where the price of a product is equal to the competitive average price) to an *End* (e.g. an *End* that reduces the price of a product to 5% below the competitive average).

Association Name: needs_1 **Association Type:** Association **Stereotype:** «class»
Source Class: Ends [0..*] **Target Class:** Means [0..*]
Definition: The *needs* association represents that one or more Ends are needed to enable the performance of the Means
Usage: This association must be instanced as an association classifier so that the modeler can express:

- a rationale for the expectation;
- note the likely influences of environmental factors, including competitive responses and regulatory actions
- risks and risk avoidance activities

Expressing these concerns may require the modeler to define additional properties and association legs at the M1 model level.

Association Name: baseline_0 **Association Type:** Association **Stereotype:** «class»
Source Class: Ends [0..*] **Target Class:** AbstractOperatingModel [0..*]
Definition: The *baseline* association links one or more operating model elements representing business results to change objectives represented by the *Ends*.
Usage: An operating model *Outcome* (e.g. cost of executing an activity) is the baseline for an *End* (e,g, a 10% reduction in the cost of executing the activity).

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Ends **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Ends **[]** **Target Class:** AbstractResult **[]**

Association Name: expects_0 **Association Type:** Association **Stereotype:** «class»
Source Class: Means **[**0..*] **Target Class:** Ends **[**0..*]
Definition: The *expects* association represents that one or more Ends are expected to result from the changes described in the Means.
Usage: This association must be instanced as an association classifier so that the modeler can express:

- a rationale for the expectation;
- note the likely influences of environmental factors, including competitive responses and regulatory actions
- risks and risk avoidance activities

Expressing these concerns may require the modeler to define additional properties and association legs at the M1 model level.

Association Name: implements_2 **Association Type:** Association **Stereotype:** «class»
Source Class: Change **[**0..*] **Target Class:** Ends **[**0..*]
This "implements" meta-association links a desired end of a strategy to the specific changes that are expected to result in the achievement of the end.

Association Name: aggregates_5 **Association Type:** Association **Stereotype:**
Source Class: StrategyModel **[**0..*] **Target Class:** Ends **[**0..*]
This "aggregates" association represents participation of End instances in a StrategyModel instance. This "aggregates" association and the "aggregates" association that summarizes End instancea to other End instances are not exclusive.

7.3.7.9 *Class Name:* Initiative *Class Type:* Class *Stereotype:*

Base Classes: AbstractAction, BACMPlainEntity
Definition: *Initiatives* represent plans to change business functions in order to achieve the business results described by *Changes*. *Initiatives* should be linked to the expected *Changes* with the expects association.
Usage: *Initiatives* may be decomposed and may share sub-*Initiatives*.

7.3.7.9.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Initiative **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: require_1 **Association Type:** Association **Stereotype:** «class»
Source Class: Initiative **[**0..*] **Target Class:** AbstractCapability **[**0..*]
Definition: The *require* association represents that a *Capability* and/or *CapabilityBehavior* is required for performance of the *Initiative*.
Usage: Definition of this association in an M1 level model allows the business architect to record and analyze such requirements.

Association Name: expects_1 **Association Type:** Association **Stereotype:** «class»
Source Class: Initiative **[**0..*] **Target Class:** Change **[**0..*]
Definition: The *expects* association links one or more Changes that are expected to result from the Means described changes.

Association Name: needs_2 **Association Type:** Association **Stereotype:** «class»
Source Class: Initiative [0..*] **Target Class:** Change [0..*]
Definition: The *needs* association represents that one or more *Changes* are needed to enable the performance of the Initiatives.
Usage: This association must be instanced as an association classifier so that the modeler can express:

- a rationale for the expectation;
- note the likely influences of environmental factors, including competitive responses and regulatory actions
- risks and risk avoidance activities

Expressing these concerns may require the modeler to define additional properties and association legs at the M1 model level.

Association Name: implements_4 **Association Type:** Association **Stereotype:** «class»
Source Class: Initiative [0..*] **Target Class:** Means [0..*]
Definition: The *implements* association represents the assertion that an *initiative* implements a *Means*.

Association Name: impacts_1 **Association Type:** Association **Stereotype:** «class»
Source Class: Initiative [0..*] **Target Class:** AbstractOperatingModel [0..*]
Definition: The *impacts* association links *Initiatives* (planned changes to operating model elements) to the operating model elements impacted (changed) by the *Initiatives*.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Initiative [] **Target Class:** AbstractAction []

Association Name: implements_3 **Association Type:** Association **Stereotype:** «class»
Source Class: CapabilityImplementation [0..*] **Target Class:** Initiative [0..*]
Definition: The *implements* association represents an assertion that one or more *CapabilityImplementations* are required to perform the *initiative*.
Usage: Definition of this association in an M1 level model allows the business arcitect to record that specific *CapabilityImplementations* are needed to perform the Initiative.

7.3.7.10 *Class Name:* Means *Class Type:* Class *Stereotype:*

Base Classes: AbstractAction, BACMPlainEntity
Definition: *Means* represent possible behaviors that will change functional elements of the business (represented by *Capabilities*, *CapabilityBehaviors*, *CapabilityImplementations*, *Processes*, *Activities*, *Roles*, *Performers* and *Resources*). These changes are expected to produce the changes represented by the *Ends*. Each *End* should be *expected* to result from the changes described by one or more *Means*.
Usage: *Means* can be decomposed and subordinate *Means* may be shared by aggregator *Means*.

7.3.7.10.1 Attributes, Methods and Connectors:

Association Name: expects_0 **Association Type:** Association **Stereotype:** «class»
Source Class: Means [0..*] **Target Class:** Ends [0..*]
Definition: The *expects* association represents that one or more Ends are expected to result from the changes described in the Means.
Usage: This association must be instanced as an association classifier so that the modeler can express:

- a rationale for the expectation;
- note the likely influences of environmental factors, including competitive responses and regulatory actions
- risks and risk avoidance activities

Expressing these concerns may require the modeler to define additional properties and association legs at the M1 model level.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Means [] **Target Class:** BACMPlainEntity []

Association Name: impacts_0 **Association Type:** Association **Stereotype:** «class»
Source Class: Means [0..*] **Target Class:** AbstractOperatingModel [0..*]
Definition: The *impacts* association links a *Means* (description of changes to be made to business operations) to the operating model elements that will be impacted (changed).

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: Means [] **Target Class:** AbstractAction []

Association Name: require_0 **Association Type:** Association **Stereotype:** «class»
Source Class: Means [0..*] **Target Class:** AbstractCapability [0..*]
Definition: The *require* association represents that a *Capability* and/or *CapabilityBehavior* is required for performance of the *Means*.
Usage: Definition of this association in an M1 level model allows the business architect to record and analyze such requirements.

Association Name: needs_1 **Association Type:** Association **Stereotype:** «class»
Source Class: Ends [0..*] **Target Class:** Means [0..*]
Definition: The *needs* association represents that one or more Ends are needed to enable the performance of the Means
Usage: This association must be instanced as an association classifier so that the modeler can express:

- a rationale for the expectation;
- note the likely influences of environmental factors, including competitive responses and regulatory actions
- risks and risk avoidance activities

Expressing these concerns may require the modeler to define additional properties and association legs at the M1 model level.

Association Name: implements_4 **Association Type:** Association **Stereotype:** «class»
Source Class: Initiative [0..*] **Target Class:** Means [0..*]
Definition: The *implements* association represents the assertion that an *initiative* implements a *Means*.

Association Name: aggregates_4 **Association Type:** Association **Stereotype:**
Source Class: StrategyModel [0..*] **Target Class:** Means [0..*]
The "aggregates" meta-association represents the inclusion of Means instances into a StrategyModel instance.

7.3.7.11 *Class Name: StrategyChoices Class Type: Class Stereotype:*

Base Classes: BACMPlainEntity
Definition: The *StrategyChoices* represents a suite of strategies that can be evaluated for selection. Each *StrategyModel* in a *StrategyChoices* element shall be considered as alternatives. Alternative *StrategyModels* may share *Means*, *Ends*, *Initiatives* and *Changes*.
Usage: There may be at most a single instance of *StrategyChoices* in a BACM model.

7.3.7.11.1 Attributes, Methods and Connectors:

Association Name: alternative **Association Type:** Association **Stereotype:**
Source Class: StrategyChoices [0..*] **Target Class:** StrategyModel [0..*]

The *alternatives* association connects two or more *StrategyModels* to a *StrategyChoices*. Each *StrategyModel* alternative contained in a *StratecyChoices* should be taken as alternative strategies for evaluation and comparison.

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: StrategyChoices **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: strategy_choices **Association Type:** Association **Stereotype:**
Source Class: BACM_Model **[**1] **Target Class:** StrategyChoices **[**0..*]
Definition: *strategy_choices* links a set of *StrategyChoices* to a *BACMModel*.
Usage: To facilitate reuse of the BACM model in different strategy situations, multiple *StrategyChoices* may be associated with a *BACMModel*.

7.3.7.12 *Class Name: StrategyModel Class Type: Class* ***Stereotype:***

Base Classes: BACMPlainEntity
Definition: *StrategyModel* is a collection of *Means* and *Ends* and the *Initiatives* and *Changes* implementing the *Means* and *Ends*. It represents a single, coherent and complete strategy.
Usage: *StrategyModels* each represent a particular strategy choice. *StrategyModels* may share sub-*StrategyModels*. The set of *StrategyModels* as prepared by the architect and strategist is represented by the *StrategyChoices* model element and the *alternative* associations linking it to each *StrategyModel*

7.3.7.12.1 Attributes, Methods and Connectors:

Association Name: **Association Type:** Generalization **Stereotype:**
Source Class: StrategyModel **[]** **Target Class:** BACMPlainEntity **[]**

Association Name: aggregates_5 **Association Type:** Association **Stereotype:**
Source Class: StrategyModel **[**0..*] **Target Class:** Ends **[**0..*]
This "aggregates" association represents participation of End instances in a StrategyModel instance. This "aggregates" association and the "aggregates" association that summarizes End instancea to other End instances are not exclusive.

Association Name: aggregates_4 **Association Type:** Association **Stereotype:**
Source Class: StrategyModel **[**0..*] **Target Class:** Means **[**0..*]
The "aggregates" meta-association represents the inclusion of Means instances into a StrategyModel instance.

Association Name: alternative **Association Type:** Association **Stereotype:**
Source Class: StrategyChoices **[**0..*] **Target Class:** StrategyModel **[**0..*]
The *alternatives* association connects two or more *StrategyModels* to a *StrategyChoices*. Each *StrategyModel* alternative contained in a *StratecyChoices* should be taken as alternative strategies for evaluation and comparison.

8 Shortcuts and Touchpoints (normative)

8.1 Shortcuts

8.1.1 Definition

UML allows properties such as attributes and owned ends to be defined as virtual; associations may also be marked as virtual. This means that the value of the property or the links of the association are to be computed according to some specification rather than being represented explicitly. However, the computation may simply consist of retrieving the stored value or retrieving an explicit link. This mechanism can be used, along with a constraint language such as OCL, to insure that a high level association is grounded in a chain of lower level associations and classes.

The mechanism is represented in the metamodel abstract syntax by applying a "<<shortcut>>" stereotype to a UML association. The stereotype is accompanied by documentation that describes the constraint that should be applied to insure that details involving the same endpoint classes are consistent with the intent of the <<shortcut>> association. Since the architect is not required to provide details when asserting a <<shortcut>> association, these constraints are not invariants, but should be evaluated on demand by the architect to check the model for consistency and completeness.

The normative XMI expresses these constraints in OCL. A conforming implementation may use OCL or may use an equivalent mechanism. The MOF XMI expresses shortcut constraints as OpaqueConstraints whose language is OCL 2.0. The OCL expresses the semantic of the "hasDetail" Boolean function defined in the BACMShortcut abstract class. Execution of this function should evaluate this function and present the value to the modeler. Note that the classes and associations being created by the modeler are considered as instances of the BACM metaclasses in this specification for the purposes of evaluating the OCL. The constraint should also be expressed in string form as a value of the "constr" property to allow for editing by the modeler. An alternative implementation, treating the <<shortcut>> association as a derived association whose semantics are defined by the OCL constraint is also valid, provided that the constraint is treated as existential and advisory and not invariant.

Commented [JR42]: Issue BACM-85 resolved by BACM-1

8.1.2 Compliance

An implementor may but is not required to implement a mechanism to evaluate the consistency of a shortcut constraint with respect to a model as described in this section. However, an implementor must represent, make visible and preserve across model saves, import and export, any shortcuts specified in this metamodel or defined by business architecture modelerss. A conforming implementation may advise a business architecture modeler that a model contains shortcuts that will not be validated by the implementation. For example, a conforming implementation may implement a meta-model shortcut as a class-association or an n-ary class-association and preserve the specification of the shortcut semantics as a tagged text value or a similar scheme.

8.2 Touchpoints

Touchpoints are intended to link a BACM model to one or more other models. A touchpoint shall be able to access elements of another model and specify the potentially complex relationship that may exist between multiple BACM model elements and multiple elements or sections in the external model, document or dataset. Touchpoints are specified as external relationships. As a default, an IRI may be used to identify or dereference a resource and a natural language description may be given as the external reference specification that describes the mapping between the BACM elements and information or model elements in the external model.

A BACM model does not represent everything that is interesting about a business. It does not adequately represent strategic planning, resource management, business processes, IT architecture or market campaigns for example. It should be able to link to models of such domains and extract information from those models. In addition, the BACM model should serve as a guide to details about the business that are represented in other models. This guide function reduces the need for the analyst to search through unorganized business models looking for information relevant to the current analysis project.

Annex A:

(normative)

A.1 Glossary

Term	Meaning
AbstractAction	*AbstractAction* is used to classify entities that should be disjoint from *Capability*, *AbstractResult* and *AbstractThing*. It is not used for any other purpose in the metamodel.
AbstractResult	*AbstractResult* is used to classify entities that should be disjoint from *Capability*, *AbstractAction* and *AbstractThing*. It is not used for any other purpose in the metamodel.
AbstractThing	*AbstractThing* is used to classify entities that should be disjoint from *Capability*, *AbstractResult* and *AbstractAction* . It is not used for any other purpose in the metamodel.
Annotation	**Definition:** *Annotation* provides the modeler an ability to associate tag/value pairs to any *BACMElement* in a BACM model.
BACM_Model	**Definition:** The *BACMModel* represents the root element of a BACM model (i.e. the element from which a tool or person can navigate to every other element in the model)
BACMBinDirRelation	**Definition:** *BACMBinDirRelation* is an abstract class that generalizes the classes resulting from the transformation of model associations stereotyped as <<class> or <<shortcut>>. It specializes *BACMRelation* to represent binary directed relations and redefines the association between *BACMRelation* and *BACMEntity* to designate the start (*from_bacm_entity*) and end (*to_bacm_entity*) of the relation direction
BACMElement	**Definition:** The *BACMElement* represents the class of all elements in a BACM model. It provides elements with a name and description and allows elements to be annotated.
BACMEntity	**Definition:** *BACMEntity* is an abstract class that is characterized by participating in relationships defined by *BACMRelation* and *BACMBinDirRelation*. *BACMEntity* is also a generalization of all classes intended to represent concepts of the modeled business. See the normative XMI file for details.
BACMPlainEntity	**Definition:** *BACMPlainEntity* is an abstract class disjoint from *BACMRelation* that classifies all BACM classes representing concepts of the modeled business that are not specializations of *BACMRelation*.
BACMRelation	**Definition:** *BACMRelation* is an abstract class that models n-ary relations with features and the ability to participate in other specializations and instances of this class as *bacm_entity* ends.
BACMShortcut	**Definition:** *BACMShortcut* is an abstract class inherited by the transformation of all metamodel classes stereotyped as <<shortcut> and all generated classes that result from the transformation of model classes stereotyped as <<shortcut>>. It declares a string (*constr*) that defines the shortcut constraint and a boolean valued function (*hasDetail*) that evaluates the constraint string and determines whether it is true or false.
BusinessElement	**Definition:** *BusinessElement* represents a concept or entity that existing or is planned to exist in the business.
ExternalData	**Definition**: *ExternalData* is a class that wraps an IRI. An *ExternalRelationship* instance may be associated with multiple *ExternalData* instances.
ExternalRelationship	**Definition:** *ExternalRealtionship* represents a relationship between a *BusinessElement* in a provider tool or repository to *ExternalData* in another tool or Repository. The external data may be a *BusinessElement* (or a linked collection of *BusinessElements*) or some other element (or

	linked collection of elements) from a model that is not a BACM model. The IRI must identify a resource to which the specification String can be applied to identify the element (or linked set of elements) in that resource. The language attribute of the *ExternalRelationship* identifies the language of the specification String. Note that *BusinessElement* classifies all BACM classes and associations that are intended to represent business concepts (as opposed to model concepts or analysis concepts).
IRI	**Definition:** Specializes PrimitiveTypes#String to match the regular expression defining a legal IRI.
AbstractBusinessObject	**Definition:** *AbstractBusinessObject* represents *BusinessObjects* or *InformationItems*.
AbstractCapability	**Definition:** *AbstractCapability* is not intended to represent a business concept. It is a metamodeling device to provide relationships to *Capability* and *CapabilityBehavior* that would otherwise be duplicated.
BusinessObject	**Definition:** *BusinessObject* represents a tangible thing that is of significance to a business.
Capability	**Definition:** *Capability* represents generalization over variations in behavior and variations in structure applied to the behavior where the same general *Outcome* is produced by the behavior.. A *Capability* represents the ability a business has to produce an *Outcome* without specifying how that *Outcome* is produced.
CapabilityBehavior	**Definition:** *CapabilityBehavior* represents a behavior description or specification, such as process diagrams, procedures manuals and other means of recording and publishing expected business practices.
CapabilityImplementation	**Definition:** The *CapabilityImplementation* represents a collection of *Resources* and *Performers* that may be used to implement a *Capability* or *CapabilityBehavior* (see the Roles diagram).
InformationItem	**Definition:** The *InformationItem* represents a kind of information.
ObjectRelation	**Definition:** *ObjectRelation* represents any relationship of any arity among *BusinessObjects* and *InformationItems*.
Outcome	**Definition:** An *Outcome* represents a fact or collection of facts about an experienced state of affairs pertaining to one or more *BusinessObjects* and/or *InformationItems*. *Outcomes* are produced/needed by Iand outputs/inputs of *AbstractProcesses*.
OutcomeRelation	**Definition:** *OutcomeRelation* represents any kind of semantic relationship between *Outcomes*.
PerformerRole	**Definition:** *PerformerRole* represents skills, knowledge and willingness to use these in the production of the *Outcomes* of a *Capability*.
ResourceRole	**Definition:** *ResourceRole* represents the set of roles that must be fulfilled by business entities that are passive participants in the *Capability*, *CapabilityBehavior*, *Process* or *Activity*. This includes tools, locations and materials that are used in the behavior but do not become incorporated into the *Outcome* of the behavior. Any materials or entities that are incorporated into a *BusinessObject* or *InformationItem* whose *Outcomes* are produced by the *Capability* or *CapabilityBehavior* should be represented as *BusinessObjects* or *InformationItems* associated with *Outcomes* needed by the *Capability* and not represented as *Resources* in this context.
Role	**Definition:** *Role* represents a specified way for an entity to participate in producing the *Outcome* of a *Capability* or a *Process*. However, only the concrete subclasses of *Role* may be used in a model.
Customer	**Definition:** *Customer* represents a customer type or a class of customers. *Customer* also represents partner businesses and other forms of contracted business relationships.

CustomerJourney	**Definition:** A *CustomerJourney* represents a sequence of stages through which a *Customer* may pass with respect to a *ProductOffering* and its *ValueProposition*. The *CustomerJourneyStages* of the *CustomerJourney* capture the notion that the customer experience is cumulative.
CustomerJourneyStage	**Definition:** The *CustomerJourneyStage* represents a significant stage in the *CustomerJourney*. An example of the stages of a customer journey would be: awareness, seeking a solution, weighting alternatives, acquiring the solution, using the solution, disposing the solution.
CustomerSegment	**Definition:** The *CustomerSegment* represents a characteristic of the *Customer* or a component of customer state of mind. *CustomerSegments* are owned by the Customer they describe.
JSTP	
Touchpoint	**Definition:** The *Touchpoint* represents an interaction between the business and the *Customer*.
ValueCharacteristic	**Definition:** *ValueCharacteristic* represents the fit between the *ValueProposition* of a *ProductOffering* targeted at a *Customer*.
ValueItem	**Definition:** A *ValueItem* represents the business belief that a *Customer* will value one or more *Outcomes* that are experienced by the *Customer*.
ValueProposition	**Definition:** The *ValueProposition* represents a collection of values the business believes it is offering to customers, partners and other stakeholders through a *ProductOffering*.
ValueStream	**Definition:** A *ValueStream* represnts a set of stages that accumulate value represented by the *ValueProposition*.
ValueStreamStage	**Definition:** *ValueStreamStages* represent significant points of value creation in a *ValueStream*.
Jurisdiction	**Definition:** The *Jurisdiction* represents a legal jurisdictions with powers to charter and/or regulate businesses.
LegalEntity	**Definition:** *LegalEntity* represents a human organization that is subject to the laws and regulations of a *Jurisdiction*..
OrgUnit	**Definition:** The OrgUnit meta-class represents the various types of human organizations and individuals capable of acting as performers.
Performer	**Definition:** The *Performer* represents entities that are capable of performing *PerformerRoles*. *Performer* has two specializations: *OrgUnit* and *System*, representing a human components of the business or a system.
Resource	**Definition:** *Resource* represents an entity that is required or needed by a *ResourceRole* but is not a *Performer* and does not become a part of a *BusinessObject* or *InformationItem* associated with any *Outcome* produced by the *Capability* or *CapabilityBehavior*.
Responsible	**Definition:** *Responsible* represents an unspecified kind of responsibility relationship between a source *OrgUnit* and a target *OrgUnit*. This relationship may also include a *BusinessElement* that defines the nature of the association.
System	**Definition:** The *System* represents the concept of a non-human performer, such as an IT system or a robot. Tools such as jigs and drills are not considered *Perfomers* for the purpose of business architecture. They should be modeled as *Resources*.
theBusiness	**Definition:** *theBusiness* represents the particular business that is the subject of the business architecture model.
AbstractProcess	**Definition:** *AbstractProcess* is not intended to represent a busines concept. It is a metamodeling technical device to share relationships with *Process* and *Activity* that would otherwise need to be duplicated.
Activity	**Definition:** *Activities* represent atomic (non-decomposable) activities.
Process	**Definition:** *Process* represents an aggregation of *Activities* and other *Processes*.
VSVSS	

APCICB	
ContractRelation	**Definition:** *ContractRelation* represents any kind of relationship between Offerings.
MerchandiseOffering	**Definition:** A *MerchandiseOffering* irepresents an offering to sell or lease a good to a customer who may use the good to produce *Outcomes*.
MerchandiseOutcome	**Definition:** *MerchandiseOutcome* represents the transfer of ownership and/or use between the business that is selling the merchandise via the *MerchandiseOffering* and the *LegalEntity* who receives the possession and/or use of the merchandise. The *LegalEntity* may also be a *Customer.*
Offering	**Definition:** *Offering* represents the solicitation of business from a *Customer* by presenting *Outcomes* and *BusinessObjects* that the business is willing to provide in return for items of value received from the *Customer*.
OutsourcedServiceOfferi ng	**Definition:** *OutsourcedServiceOffering* represents an offering made by the business that solicits a service to be performed by another business.
OutsourcedServiceOutco me	**Definition:** *OutsourcedServiceOutcome* represents the expected *Outcome* of the performance of an outsourced service (i.e. a service performed for the business by another business).
ProcurementOffering	**Definition:** *ProcurementOffering* is an offering by *theBusiness* to purchase or lease a *BusinessObject* and/or *InformationItem* from a *LegalEntity*.
ProcurementOutcome	**Definition:** *ProcurementOutcome* represents the expected Outcome of the procurement. E.g. that the *BusinessObject/InformationItem* received has the characteristics needed by the procuring business.
ProductOffering	**Definition:** *ProductOffering* represents the terms and conditions associated with the acquisition of a product or service by a customer. It would typically include price, delivery terms, warranty and other aspects of these terms. The *ProductOffering* incorporates *Outcomes* such as change of possession for a product (*BusinessObject* or *InformationItem*) that is sold.
ServiceOffering	**Definition:** *ServiceOffering* represents an offer to provide a service to a *Customer*. the busienss provides the *CapabilityImplementations* and *CapabilityBehaviors* needed to effect the *Outcome* promised to the *Customer* by the *ServiceOffering*.
ServiceOutcome	**Definition:** *ServiceOutcome* represents the expected *Outcome* of the performance of a service for a *Customer*.
MeasureLibrary	**Definition:** The *MeasureLibrary* represents a collection of measures (measurement types) that define measurements associated with BACM model elements.
Measurement	**Definition:** *Measurement* represents an actual measurement, which includes the time and other attributes of the measurement and the measure (measurement type).
Scope	**Definition:** The *Scope* class represents a collection of BACM *BusinessElements* that define the scope of a *Measurement*.
SmmModel	**Definition:** An *SmmModel* represents the collection of *MeasureLibraries* and other entities needed to implement a set of measures appropriate to a business architecture model based on the BACM specification.
AbstractOperatingModel	**Definition:** *AbstractOperatingModel* is an abstract metaclass whose concrete specializations are the model elements of the operating model (see the AbstractOperatingModel diagram). This metaclass groups together the concrete metaclasses that may be *impacted* by a *Means* or *Initiative* or *baselined* by *Ends* or *Changes*
AbstractValueModel	**Definition:** The *AbstractValueModel* represents the value-related concepts that the *Means* and *Initiative* behaviors seek to achieve by changes made to the *AbstractOperatingModel*.
Change	**Definition:** *Change* represents desired states of business value and results as represented by the *baselined* elements of the *AbstractOperatingModel* and the *AbstractValueModel*. These states are expected to result from the changes described by the Initiatives.

Ends	**Definition:** *Ends* represent changes to elements representing business values, such as *ValuePropositions*., *ValueItems* and *ValueCharacteristics*. *Ends* also represent changes to business results (i.e. *Outcomes*, *BusinessObjects*, *InformationItems* and *ProductOfferings*). These element types derive from *AbstractOperatingModel* and *AbstractValueModel*.
Initiative	**Definition:** *Initiatives* represent plans to change business functions in order to achieve the business results described by *Changes*. *Initiatives* should be linked to the expected *Changes* with the expects association.
Means	**Definition:** *Means* represent possible behaviors that will change functional elements of the business (represented by *Capabilities*, *CapabilityBehaviors*, *CapabilityImplementations*, *Processes*, *Activities*, *Roles*, *Performers* and *Resources*). These changes are expected to produce the changes represented by the *Ends*. Each *End* should be *expected* to result from the changes described by one or more *Means*.
StrategyChoices	**Definition:** The *StrategyChoices* represents a suite of strategies that can be evaluated for selection. Each *StrategyModel* in a *StrategyChoices* element shall be considered as alternatives. Alternative *StrategyModels* may share *Means*, *Ends*, *Initiatives* and *Changes*.
StrategyModel	**Definition:** *StrategyModel* is a collection of *Means* and *Ends* and the *Initiatives* and *Changes* implementing the *Means* and *Ends*. It represents a single, coherent and complete strategy.

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