Annex J – LEXICON/GLOSSARY

Term	DEFINITION or COMMENT	REFERENCE
Abstract (Adjective)	4.a) Withdrawn or separated from matter, from material embodiment, from practice, or from particular examples. Opposed to concrete.	OED
Abstraction (Noun)	Denotes the essential characteristics of an object that distinguish it from all other kinds of objects and thus provide crisply defined conceptual boundaries, relative to the perspective of the user.	M&S Glossary, DMSO Survey of Semi-Automated Forces
Abstraction (Noun/Verb)	1) The process of selecting the essential aspects of simuland to be represented in a model or simulation while ignoring those aspects that are not relevant to the purpose of the model or simulation. 2) The set of elements produced by this process. 3) The act or process of separating the inherent qualities or properties of something from the actual physical object or concept to which they belong. 4) A product of this process, as a general idea or word representing a physical concept.	Houghton Mifflin Co., Webster's II, New College Dictionary
Abstraction (Noun)	An intuitive technique transforming the essential features of a real system into a different form.	Jake Borah Tutorial
Abstraction (Noun)	Denotes the essential characteristics of an object that distinguish it from all other kinds of objects and thus provide crisply defined conceptual boundaries, relative to the perspective of the user.	OED
Abstraction (Verb)	Generalization of a concept, idea, or symbol versus specialization.	
Abstraction (Verb)	Process of generalization by reducing the information content of a concept 3264 or an observable phenomenon typically in order to retain only information 3265 which is relevant for a particular purpose.	M&S Glossary
Abstraction (Verb)	The act of process of separating in thought, of considering a thing independently of its associations; or a substance independently of its attributes; or an attribute or quality independently of the substance to which it belongs.	OED
Abstractness	Degree of abstraction.	
Abstractness	Relates to the degree to which the conceptual model abstracts or symbolizes the referent.	Text
Accessibility	The ease of approaching, entering, obtaining, or using.	DoD "Data Quality Assurance Procedures", DoD 8320. 1-M-3

Term	DEFINITION or COMMENT	REFERENCE
Accreditation	Official acceptance or certification that a model, the data for a simulation or a simulation is suitable for a specific purpose or application.	Report from the Fidelity Implementation Study Group
Accuracy	Correctly know in quantity.	
Accuracy	The degree to which a parameter or variable or set of parameters or variables within a model or simulation conform exactly to reality or to some chosen standard or referent. See resolution, fidelity, and precision.	Report from the Fidelity Implementation Study Group
Actions	1) The process or conditions of acting or doing (in the widest sense), the exertion of energy or influence; working, agency, operation. a. Of persons. (Distinguished from *passion,* from *thought* or *contemplation*, from *speaking* or *writing*.) b. Of things. (Distinguished from *inaction, repose.*) *quantity of action*, in *Physics:* The momentum of a body multiplied into the time. 3) a. A thing done, a deed, not always distinguished from **ACT**, but usually viewed as occupying some time in doing, and in *pl.* referred to habitual or ordinary deeds, the sum of which constitutes *conduct.*	Houghton Mifflin Co., Webster's II, New College Dictionary
Actions	Elementary components of behaviour of an entity, object or system.	
Activity	A task that consumes time and resources and whose performance is necessary for a system to move from event to the next.	"IEEE Standard Glossary of Modeling and Simulation Technology", IEEE Std 610. 3-1989, nd
Activity Model	A model of the processes that make up a functional activity showing inputs, outputs, controls, and mechanisms through which the processes of the functional activity are or will be conducted.	DoD, "Data Administration Procedures", DoD 8320.1-M
Actor	The subject (perpetrator, agent) of action.	Text
Adaptability	The quality of being adaptable; capacity of being adapted or of adapting oneself; potential fitness for one or another intended purpose. (See Tailorability)	
Aggregation	The ability to group items, whether entities or processes, while preserving the effects of item behavior and interaction while grouped. A relationship between objects in the data model where one object contains other objects. (See Disaggregation).	DoD M&S Master Plan, DoD 5000-59-P, SEDRIS Glossary
Aggregation (Noun) Also Aggregate	A whole composed of many particulars; a mass formed by the union of distinct particles; a gathering, assemblage, collection.	OED

Term	DEFINITION or COMMENT	REFERENCE
Aggregation (Verb)	The action or process of collecting particles into a mass, or particulars into a whole; or of adding one particle to an amount; collection, assemblage, union.	OED
Analytical Frame	In this context – one or another way of looking at the world. Alternatives of such frames include for instance: ontology, systems engineering, software engineering, and knowledge management; together with a wide variety of tools and techniques for pursuing explication of each frame, such as model driven architecture, Knowledge Acquisition / Knowledge Engineering (KA/KE) assets, systems engineering tools, etc.	Text
Architecture	The structure of components in a program or system, their interrelationships, and the principles and guidelines governing their design and evolution over time.	DoD, M&S Master Plan, DoD 5000-59-P
Artefact	All or part of a work-product generated by the Task Group or by M&S conceptual model practitioners in generating, and documenting a simulation conceptual model.	
Artefact	A) *n*. Anything made by human art and workmanship; an artificial product. In Archaol applied to the rude products or original work mans hip as distinguished from natural remains. B) In technical and medical use, a product or effect that is not present in the natural state (of an organisms, etc.) but occurs during or as a result of investigation or is brought about by some extraneous agency.	OED
Attribute	In object oriented analysis, (and simulation representation) the set of characteristics of some class inherited by its specializations and instances – which together with its behaviours and relationships, completely describes the state of an object of system of object entities.	
Attribute	1) A quality or character ascribed to any person or thing, one which is in common estimation or usage assigned to him; hence, *sometimes*, an epithet or appellation in which the quality is ascribed. 4) A quality or character considered to belong to or be inherent in a person or thing; a characteristic quality. c. in Logic, that which may be predicated of any thing; a quality, mode of existence, affection; strictly an essential and permanent quality.	OED
Attribute	1) A property or characteristic of one or more entities or objects (e.g., COLOR, WEIGHT, SEX). 2) A property inherent to an entity or associated with that entity for database purposes. 3) A quantifiable property of an object (e.g., the color of a building or the width of a road).	DoD, "Data Administration Procedures", DoD 8320.1-M, SEDRIS Glossary
Authoritative Data Source	A data source whose products have undergone producer data verification, validation, and certification activities.	The Fidelity ISG Glossary
Authoritative Representation	Models, algorithms, and data that have been developed or approved by a source which has accurate technical knowledge of the entity or phenomenon to be modeled and its effects.	The Fidelity ISG Glossary

Term	DEFINITION or COMMENT	REFERENCE
Behavior	The means an actor performs or uses to actuate events.	Text
Behavior	1) For a given object, how attribute value changes affect or are affected by the attribute value changes of the same or other objects. 2) The way in which a system responds to stimuli over time.	Report from the Fidelity Implementation Study Group
Best-Practice Standard	Guidance containing prescriptive instructions of such quality that is not exceeded elsewhere.	
Business Ecosystem	The environment including entities, processes, and active agents constituting a universe of operations for one or another set of business transactions or operations. (See Economic Ecosystem)	
CASE	Computer Aided Systems Engineering.	
Class	A description of a group of objects with similar properties, common behavior, common relationships, or common semantics.	The Fidelity ISG Glossary
Class Hierarchy	A specification of a class, sub-class, or "is-a-kind-of" relationship between object classes in a given domain.	The Fidelity ISG Glossary
COTS	A good that is available in the private sector market, normally at a price established by supply and demand and distributed under proprietary licensing.	
Commonality	Consistency between or among entities of processes facilitating the capability to communicate, influence one another, and generally cooperate to some intended constructive purpose.	
Completeness	Degree to which a work-product exhausts its requirements. All needs, constraints and policies are covered by one or more requirements, or all requirements are covered by the content of the consequent conceptual model product.	
Composability	Capacity or suitability to be subject to composition.	
Composition	Act of combining elements or components into an intended aggregate entity or system.	
Computational Model	A model consisting of well-defined procedures that can be executed on a computer (e.g., a model of the stock market, in the form of a set of equations and logic rules).	"IEEE Standard Glossary of M&S Terminology", IEEE Std 610.3-1989, nd.
Computer Science	Computer Science or Computing Science (abbreviated CS) is the study of the theoretical foundations of information and computation and of practical techniques for their implementation and application in computer systems.	http://en.wikipedia.org/wiki/Computer_science

Term	DEFINITION or COMMENT	REFERENCE
Computer Simulation	A dynamic representation of a model, often involving some combination of executing code, control/display interface hardware, and interfaces to real-world equipment.	The Fidelity ISG Glossary
Computer Software	A set of computer programs, procedures, and associated documentation concerned with the operation of a data processing system (e.g., compilers, library routines, manuals, and circuit diagrams); software.	The Fidelity ISG Glossary
Concept	Roughly equivalent to the "idea in the mind" resulting from a perception or the mental processing of perceptions and existing ideas.	David Hume
Concept	In normal language, concept may mean "something out there in the world" or alternatively and inconsistently, "an entity within one's head" Formally, a concept may be defined as: "A mental representation that can serve as the meaning of a linguistic expression."	Ray Jackendoff
Concept	Concepts are the Materials of reason and knowledge.	John Locke
Concept	"… concepts are [the] constituents of thought." "Conceptions explain epistemological facts (e.g., how we judge that something is a dog), while concepts explain meta-physical facts (e.g., what makes something a dog)." "… concepts *just are* perceptual detection mechanisms." "Concepts are prototypes, where prototypes are perceptually derived representations that can be recruited by working memory to represent a category." Therefore, "[i]f concepts are prototypes, thinking is a simulation process."	Jesse Prinz
Concept	An abstract idea or a mental symbol, typically associated with a corresponding representation in language or symbology that denotes all of the objects in a given category or class of entities, interactions, phenomena, or relationships between them.	Text
Conceptual (Model) Primitives	Atomic components from which conceptual model specifications are composed. (See Primitives)	Text
Conceptual Category	One of "… a small set of major ontological categories (or conceptual 'parts of speech') such as Thing, Event, State, Place, Path, Property and Amount."	Ray Jackendoff
Conceptual Constituent	The major units of conceptual structure, each of which belongs to a small set of conceptual categories.	Ray Jackendoff
Conceptual Model	Model that abstractly represents a referent.	
Conceptual Model	A simulation developer's method of translating modeling requirements into a detailed design framework-[use].	Dale Pace
Conceptual Model	1) A description of the content and internal representations that are the users' and developer's combined concept of the model including logic and algorithms and explicitly recognizing assumptions and limitations. 2) An implementation-independent description of the content and internal representations that represent the sponsor's, user's and developer's combined concept of the system or simulation under development including logic, architecture, algorithms, available data and explicitly recognising assumptions and limitations.	Report from the Fidelity Implementation Study Group

Term	DEFINITION or COMMENT	REFERENCE
Conceptual Model Characteristic	Attributes or qualia of a conceptual model, such as Quality, utility, formality, abstractness, etc.	
Conceptual Model Components	Parts comprising a conceptual model, such as conceptual primitive, model kind, view, formalism, notation, etc.	
Conceptual Model Design	See 'Design' and Section 6.2.8.	Text
Conceptual Model of (a) Simulation	The conceptual model of the Mission Space integrated with the conceptual model of Simulation Space.	Text
Conceptual Model of the Mission Space (CMMS)	First abstraction of the real world that serves as a frame of reference for simulation development by capturing the basic information about important entities involved in any mission and their key actions and interactions; simulation-neutral view of those entities, actions, and interactions occurring in the real world.	The Fidelity ISG Glossary
Conceptual Model Quality	The totality of features and characteristics of a conceptual model that bear on its ability to satisfy stated or implied needs.	
Conceptual Model Requirements	See 'Requirements' and Section 6.2.5.	Text
Conceptual Model Space	Domain to which conceptual model representation refers.	
Conceptual Schema	A descriptive representation of data and data requirements that supports the "logical" view or data administrator's view of the data requirement. This view is represented as a semantic model of the information that is stored about objects of interest to the functional area. This view is an integrated definition of the data that is unbiased toward any single application of data and is independent of how the data is physically stored or accessed.	DoD, "Data Administration Procedures", DoD 8320.1-M
Conceptual Scheme/Schema	A self-consistent style of abstraction and associated conceptual categories and primitives or constituents employed in personal or enterprise perception and descriptive communication.	W.V. Quine
Conceptualization	"… an abstract simplified view of the world." (See Concept)	Dragan Gasevic
Consistency	Degree to which components of a whole are congruent or are similarly conceived, configured, and expressed. Lack of incongruity or logical incompatibility among such components.	
Consumer	Role position designating person or organization that will put the conceptual model to use in order to implement an executable model to satisfy the sponsor's needs.	
Consumer (Analyst)	1) Understanding operational issues and mission context. 2) Producing relevant analysis products.	Text
Consumer (Model Implementer)	1) Understanding operational issues and mission context. 2) Implementation of simulation model.	

Term	DEFINITION or COMMENT	REFERENCE
Consumer (Model Implementer) (cont'd)	3) Verification of simulation model compliance with conceptual model.	
Consumer (Training System Developer)	1) Understanding operational issues and mission context. 2) Producing adequate training environment.	Text
Consumption	Process of using products in order to satisfy needs and desires (self-generated or imposed; real or imagined) so that the products are used up, transformed, or deteriorated in such a manner as not to be either reusable or recognizable in their original form. In economics, the final using up of goods and services. The term excludes the use of intermediate products in the production of other goods (e.g., the purchase of buildings, machinery, or software by an enterprise). Also, Consumption can be viewed as a basically subjective phenomenon, with individual or organizational utility, or satisfaction, having primary importance in the valuation of the product(s) consumed.	Metrics for M&S Investments
Consumption	The process of expending money by a/an organization/individual/ department/entity/project that does not result in an increase of assets.	Metrics for M&S Investments
Control	Defines what can occur within an activity. Constraint upon behaviour of relevant entity.	Text
Correctness	The property of an artefact (e.g., a conceptual model) to comply with formal rules and bodies of reference information for its representation and for the transformation of its representation into another one.	
Correctness	All needs, constraints and policies have been interpreted as the sponsor intended.	
Correctness	Degree to which the Conceptual Model implementation is free of error and of sufficient precision.	
Cost	"The amount or equivalent paid or charged for something" or the "loss or penalty incurred especially in gaining something" (http://www.merriam-webster.com/dictionary/cost). Normally, the value of a liquid asset or cash that must be paid for a good or service. (See Value)	
Cost Benefit	A method of reaching economic decisions by comparing the costs of doing something with its benefits. Especially useful when contributing factors are inherently monetary – can be complex when the decision being contemplated involves some cost or benefit for which there is no market price or which, because of an externality, is not fully reflected in the market price.	
Credibility	Quality of being credible, i.e., capable of being believed; believable.	OED
Criteria	The value of a variable or parameter against which some commensurable measured or observed value relevant to an object or process of interest can be compared for purposes of evaluation (singular, criterion).	

Term	DEFINITION or COMMENT	REFERENCE
Custodian	The person or organization that ensures that the repository is maintained and policies adhered to.	
Custodian	Provide services for effective reuse of available knowledge and Conceptual Model components.	
Customer	The buyer of a good or service, sometimes, but not necessarily the also the consumer – user.	
Customer	Buyer of some good or service. Sometimes, in prospectus, having bought in the past or considered likely to buy in the future. Customers normally have discretionary choice whether to buy a good or service, but normally do not effect price in public sector markets. Customers in government economic transactions normally negotiate with seller to control price, rate, quality, and risk. Influence of customers in private sector markets seldom persists beyond the sales event except insofar as warranty or goodwill considerations pertain.	Metrics for M&S Investments
Data	1) A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means. 2) Assumed, given, measured, or otherwise determined facts or propositions used to draw a conclusion or make a decision.	DoD, "Data Administration Procedures", DoD 8320.1-M, Houghton Mifflin Co., Webster's II, New College Dictionary, 1995
Data Architecture	The framework for organizing and defining the interrelationships of data in support of an organization's missions, functions, goals, objectives, and strategies. Data architectures provide the basis for the incremental, ordered design and development of databases based on successively more detailed levels of data modeling.	DoD, "Data Administration Procedures", DoD 8320.1-M
Data Dictionary	A specialized type of database containing Meta data that is managed by a data dictionary system; a repository of information describing the characteristics of data used to design, monitor, document, protect, and control data in information systems and databases.	The Fidelity ISG Glossary
Data Model	1) The user's logical view of the data in contrast to the physically stored data, or storage structure. 2) A description of the organization of data in a manner that reflects the information structure of an enterprise. 3) A description of the logical relationships between data elements where each major data element with important or explicit relationships is captured to show its logical relationship to other data elements.	DoD, "Data Administration Procedures", DoD 8320.1-M, SEDRIS Glossary
Data Repository	A specialized database containing information about data such as meaning, relationships to other data, origin, usage, and format, including the information resources needed by an organization.	

Term	DEFINITION or COMMENT	REFERENCE
Data Representation	1) A format used to describe some type of data. 2) A variety of forms used to describe a terrain surface, the features placed on the terrain, the dynamic objects with special 3-D model attributes and characteristics, the atmospheric and oceanographic features, and many other forms of data.	Report from the Fidelity Implementation Study Group, SEDRIS Glossary, 29 June 1998
Data Source	1) An organization or subject-matter expert who, because of either mission or expertise, serves as a data producer. 2) A publication that serves as an authoritative source of data used in a model or simulation.	Report from the Fidelity Implementation Study Group
Data Validation	The documented assessment of data by subject area experts and its comparison to known values.	DoD, "M&S Master Plan", DoD 5000-59-P
Data Verification	Data producer verification is the use of techniques and procedures to ensure that data meets constraints defined by data standards and business rules derived from process and data modeling. Data user verification is the use of techniques and procedures to ensure that data meets user specified constraints defined by data standards and business rules derived from process and data modeling, and that data are transformed and formatted properly.	DoD, "M&S Master Plan", DoD 5000-59-P
Deaggregation (Disaggregation)	The ability to separate grouped items, whether entities or processes, while preserving the effects of item behavior and interaction whether grouped or separated.	The Fidelity ISG Glossary
Design (noun)	1. a. A plan or scheme conceived in the mind and intended for subsequent execution; the preliminary conception of an idea that is to be carried into effect by action.	OED
Design (noun)	2. The purposeful or inventive arrangement of parts or details.	The free Dictionary, http://www.thefreedictionary.com/design
Design (noun)	The arrangement of elements or details in a product or work of art.	http://www.merriam-webster.com/dictionary/design?show=1&t=1303403590
Design (noun)	A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is built or made.	Wikipedia

Term	DEFINITION or COMMENT	REFERENCE
Design (n.)	The visual characteristics embodied in or applied to an article [in patent law].	http://www.uspto.gov/web/offices/pac/mpep/documents/1500_1502.htm
Detail	1.a. The dealing with matters item by item, detailed treatment; attention to particulars … i.e., to deal or treat with a thing in its individual particulars.	OED
Detail	Having to do with precision of identification or description.	
Developers	Agents responsible for development of conceptual models.	Text
Disaggregate	Activity that decomposes an aggregated entity into multiple entities representing its components.	Report from the Fidelity Implementation Study Group
Domain	3.a. *fig*. A sphere of thought or action; field province, scope of a department of knowledge, etc.	OED
Domain	The physical or abstract space in which the [relevant] entities and processes operate.	The Fidelity ISG Glossary
Domain Analysis	The process of identifying, acquiring and evaluating the information related to a problem domain to be used in specifying and constructing a model or simulation.	Report from the Fidelity Implementation Study Group
Domain of Knowledge	Knowledge related to a given domain.	
Domain Ontology	The ontology of a given domain.	
Economic Ecosystems	An economic community supported by a foundation of interacting organizations and individuals--the organisms of the business world. This economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organizations also include suppliers, lead producers, competitors, and other stakeholders. Over time, they co-evolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies. Those companies holding leadership roles may change over time, but the function of ecosystem leader is valued by the community because it enables members to move toward shared visions to align their investments and to find mutually supportive roles. (Source: Predators and Prey: A New Ecology of Competition, by James F. Moore, Harvard Business Review, May/June 1993).	

Term	DEFINITION or COMMENT	REFERENCE
Emulate	To represent a system by a model that accepts the same inputs and produces the same outputs as the system represented (e.g., to emulate an 8-bit computer with a 32-bit computer).	"IEEE Standard Glossary of M&S Terminology", IEEE Std 610-3-1989, nd
Encapsulation	The process of hiding the details of an object that do not contribute to its essential characteristics.	The Fidelity ISG Glossary
Enterprise	One or more organizations under common control. Generally refers to the broadest scope of organizations and operational process relevant to the subject discussion rather than to individual components thereof.	Text
Enterprise Concepts-of-Operations	The single, unified Concept of Operations (CONOPS) whereby the multiple organizations comprising an enterprise ensemble cooperate. Enterprise CONOPS often entail more formality, and systematic consensus-based collaboration, as well as more explicitly coordinated and documented modeling and simulation development and employment than is common in more parochial contextual environments.	
Enterprise Context	The operational or environmental context at which enterprise considerations agents, relationships, and transactions are relevant.	
Enterprise Model	An information model(s) that presents an integrated top-level representation of processes, information flows, and data.	DoD, "Data Administration Procedures", DoD 8320.1-M
Enterprise-Based	Operations, process, or work-products typically tailored-to or used-in or generated-from enterprise-style circumstances.	
Entity	A distinguishable person, place, thing, event or concept about which information is kept. Something that exists as a particular and discrete unit.	The Fidelity ISG Glossary
Entity/Entities	A thing. Usually an element or component part of the mission space or simulation space representation domain of a conceptual model of a simulation. Note that entity is distinguished throughout the document from 'object', whose specific connotations in object-oriented analysis, and object-based software development have been intentionally avoided.	
Entity Relationship Diagram (ERD)	A graphic representation of a data model.	The Fidelity ISG Glossary
Epistemology	The theory or science of the method or grounds of knowledge.	OED
Evaluator	Person or organization that validates the conceptual models, ensuring validity of Conceptual Model and compliance with requirements.	
Event	Occurrence of the change of value of one or another of the 'state variables' of the simulation representation information set.	

Term	DEFINITION or COMMENT	REFERENCE
Event (cont'd)	In 'discrete-event simulation' techniques, events occupy no duration but have as attributes the value of the simulation time at which the related represented state-change occurred.	
Event	An action composed of activities.	Text
Event	A change in an object attribute value, an interaction between objects, an instantiation of a new object, or a deletion of an existing object that is associated with a particular point on the federation time axis. An individual stimulus from one object to another at a particular point of time.	The Fidelity ISG Glossary
Executability	Ability of prescriptive guidance to be executed or accomplished. Alternatively, the ability of a computer program, algorithm or simulation to be made to operate according to program guidance and consistent with expectation.	
Expressiveness	Efficiency of communication of information in an expression. Information density combined with readability or correct interpretation.	
Extensibility	The ability of a data structure to accommodate additional values or iterations of data over time without impacting its initial design.	DoD, "Data Quality Assurance Procedures", DoD 8320.1-M-3, DoD, "Data Administration Procedures", DoD 8320.1-M
External Schema	A logical description of an enterprise that may differ from the conceptual schema upon which it is based in that some entities, attributes, or relationship may be omitted, renamed, or otherwise transformed.	DoD, "Data Administration Procedures", DoD 8320.1-M
Federation Object Model (FOM)	An identification of the essential classes of objects, object attributes, and object interactions that are supported by a High Level Architecture federation. In addition, optional classes of additional information may also be specified to achieve a more complete description of the federation structure and/or behavior.	The Fidelity ISG Glossary
Fidelity	Accuracy or correctness of representation – the degree to which the representation conforms in resemblance to the referent.	
Fidelity	1) The degree to which a model or simulation reproduces the state and behavior of a real-world object or the perception of a real-world object, feature, condition, or chosen standard in a measurable or perceivable manner; a measure of the realism of a model or simulation; faithfulness. Fidelity should generally be described with respect to the measures, standards or perceptions used in assessing or stating it. See accuracy, sensitivity, precision, resolution, repeatability, model/simulation validation.	Report from the Fidelity Implementation Study Group

Term	DEFINITION or COMMENT	REFERENCE
Fidelity (cont'd)	2) The methods, metrics, and descriptions of models or simulations used to compare those models or simulations to their real-world referents or to other simulations in such terms as accuracy, scope, resolution, level of detail, level of abstraction and repeatability. Fidelity can characterize the representations of a model, a simulation, the data used by a simulation (e.g., input, characteristic or parametric), or an exercise. Each of these fidelity types has different implications for the applications that employ these representations.	Report from the Fidelity Implementation Study Group
Formal Conceptual Model	A conceptual model with the following attributers or consequences of formality: - Unambiguous description of model structure separated from software implementation. - Useful once users and colleagues understand informal model and want more detail. - Used as an aid to detect omissions and inconsistencies and resolve ambiguities inherent in informal models.	Jake Borah Tutorial
Formal Language	In logic, a set of symbols together with a set of formation rules that designate certain sequences of symbols as well-formed formulas, and a set of rules of inference (transformation rules) that, given a certain sequence of well-formed formulas, permits the construction of another well-formed formula. The symbols chosen vary from language to language, but typically they contain both logical constants and non-logical vocabulary, e.g., in the language of the propositional calculus the logical constants are truth-functional connectives and the non-logical vocabulary consists solely of sentence letters, in the predicate calculus, variable, predicates and quantifiers are needed. The formation rules will naturally reflect the chosen vocabulary. The rules of inference are to be thought of as governing only the manipulation of symbols, independently of any interpretation they may have. Although formal languages do not require at any state the notion of an interpretation, they are nevertheless constructed with interpretations in mind, and rules of inference that do not preserve truth, although not formally unsatisfactory, are of no interest.	The Fidelity ISG Glossary
Formalism	The practice or the doctrine of strict adherence to prescribed or external forms.	
Formalism	Constraint of form over content.	
Formalisms	Examples are UML, CML, SysML, IDEF0, BOM, BOM++, Conceptual Graphs, Mind Maps, and BPMN.	Text
Formality	Amount of constraints imposed on the form.	
Formality	Compliance with formal or conventional rules.	Text
Formality	Formality is compliance with formal or conventional rules.	Text

Term	DEFINITION or COMMENT	REFERENCE
Generality	Applicability to a wide class of instances.	
Glyph	Responsible for holding the image of conceptual model, which can be used to visually represent a conceptual model in a tool palette or a web repository. From: 1. A structured mark or symbol. *rare*.	Text, OED
Implementation Dependencies	Constraints occurring at time of creation determined during the development of the conceptual model and manifest at the time of implementation or execution of the conceptual model, such as may result from peculiarities of domain ontologies, representational schema or any other new concept introduced by the process during the implementation of the conceptual model.	
Incentive	Incentive system: "A method of organizing production that uses a market-like mechanism inside the firm."	CFA Institute
Incentive	Any factor (financial or non-financial) that provides a motive for a particular course of action, or counts as a reason for preferring one choice to the alternatives.	Wikipedia
Informal Conceptual Model	A conceptual model with the following attributers or consequences of informality: - Written using natural language and contains assumptions made during its construction. - Plays fundamental role during the period of activity when the modeler conceives, programs, debugs, and test models. - Helps users and colleagues comprehend basic outline of the model from their perspective on how the real world operates.	Jake Borah Tutorial
Information	Details the capabilities of a Behaviour, Actor, Event, or Control.	Text
Inheritance	The object-oriented concept where a child class also has the features (attributes and methods) of its parent class; one of the types of relationships between objects in the data model.	SEDRIS Glossary
Instantiation	To represent an abstraction by a concrete instance.	The Fidelity ISG Glossary
Interactions	Transactions among entities wherein information exchange occurs or causal influence is manifest.	
Interoperability	The capability of two or more simulation components to operate together concurrently or in sequence guaranteed by the synchronized exchange of syntactic and semantically consistent data signals/ messages.	
Investment	The process of adding to stocks of real productive assets. This may mean acquiring fixed assets, such as buildings, plan, or equipment, or adding to stocks and work in progress.	
Investment	Incurring costs in the present – for the right to receive future benefits / with the expectation of achieving an increased benefit in the future.	

Term	DEFINITION or COMMENT	REFERENCE
Investment	The process of expending money by a/an organization/individual/ department/entity/project that result in an increase of assets.	
Investment	Costs that result in the acquisition of, or addition to, end items. Such costs benefit future periods and generally are of a long-term character. Costs budgeted in the procurement and Military Construction appropriations are considered investment costs. Costs budgeted in the Research, Development, Test and Evaluation appropriation can be considered investment costs or expenses, depending on the circumstances.	Glossary of Defense Acquisition Acronyms & Terms, Defense Acquisition University Press
Knowledge	1) The rules, environment, etc., that form the structure humans use to process and relate to information, or the information a computer system must have to behave in an apparently intelligent manner. 2) The sum or range of what has been perceived discovered or learned.	Houghton Mifflin Co., Webster's II, New College Dictionary, 1995
Legacy Simulation/ Simulator	Existing simulation asset whose initial costs are already incurred and which may be in use and therefore may have stakeholder commitments for continued investment and use.	
M&S Asset	An asset or assets used in the science, practice, development, or use of M&S.	
M&S Community (M&S Community-of-Practice)	The ensemble of practitioners comprising the population of individuals and organizations with significant interests and commitments to modeling and simulation disciplines, practices, assets and uses.	
M&S Conceptual Model	Conceptual Model intended for realizing a simulation capability.	Text
M&S Investment	The process of investing (as defined) in or for M&S (as defined) assets (as defined) by a/an organization/individual/department/entity/project.	
M&S Resources	A source of relevant supply – in the case of M&S, resources normally include: models, simulations, databases, scenarios, threat libraries, V&V histories, accreditation pedigrees, environmental representations, architectures, and interfaces; but they may also include: interfaces, simulation federations, games, plans and policies, personnel, facilities and equipment, information sources, behaviors, system information and documentation, organizational knowledge, procedural knowledge, operational knowledge, mappings and translations, conceptual models, transaction protocols, software components, execution outputs, and analysis results and reports.	
Machine Readability	Ability of information to be perceived by a machine or automaton and subsequently be operated upon by that device.	
Market	"The means through which buyers and sellers are brought together to aid in the transfer of goods and/or services."	CFA Institute

Term	DEFINITION or COMMENT	REFERENCE
Market	"Any place where the sellers of a particular good or service can meet with the buyers of that goods and service where there is a potential for a transaction to take place."	http://economics.about.com/cs/economicsglossary/g/market.htm
Market	"A market exists whenever potential sellers of a good or service are brought into contact with potential sellers and a means of exchange is available."	Graham Bannock
Market	In general, a market is defined as the group of individuals/organizations/ entities that has the need for, and can afford a product/service.	Marketing definition
Mathematical Model	1) Any system of assumptions, definitions and equations that represents particular physical phenomena. See model, simulation, conceptual model, software model. 2) A document describing the assumptions, definitions and equations that represent particular physical phenomena to be simulated for a specific application.	Report from the Fidelity Implementation Study Group
Measurement	The dimensional or quantitative assignment of that which is being assessed (e.g., five inches long). A set of operations having the object of determining a value of a measure.	Practical Software Measurement, McGarry et all, 2002
Meta Data	Data on a process, event, or system that is fundamentally abstract in nature. A set of "data about data" that characterizes the referent in a more theoretical manner than first order descriptors.	
Meta Data	Information describing the characteristics of data; data or information about meaning of the data; descriptive information about an organization's data, data activities, systems, and holdings.	DoD, "Data Administration Procedures", DoD 8320.1-M, SEDRIS Glossary 29 Jun 1998
Meta-Knowledge	Knowledge about knowledge; knowledge about the use and control of domain knowledge in an expert or knowledge-based system or knowledge about how the system operates or reasons; wisdom.	The Fidelity ISG Glossary
Meta-Model	"… a specification model for a class of systems under study, where each system under study in the class is itself a valid model expressed in a certain modeling language." "… a meta-model is a model of a modeling language."	Dragan Gasevic
Meta-Model	A model of a model. Meta-models are abstractions of the M&S being developed which use functional decomposition to show relationships, paths of data and algorithms, ordering, and interactions between model components and sub-components. Meta-models allow the software engineers who are developing the model to abstract details to a level that subject-matter experts can validate.	The Fidelity ISG Glossary

Term	DEFINITION or COMMENT	REFERENCE
Metric(s)	Describe a system of measurement that includes: the item or object being measured; units to be measured, also referred to as "standard units"; and the value of a unit as compared to other units of reference. (The Metrics of Science and Technology, Geisler, 2000).	The Metrics of Science and Technology, Geisler, 2000
Military Domain	Domain or range of interest of entities and phenomenology of interest to military organizations or personnel.	
Military Domain Experts	Individuals having expert or specialized knowledge of one or another military domain.	
Military M&S Conceptual Model	An M&S Conceptual Model within the military domain.	Text
Military Mission Space	Mission space relating to military entities or functions. (See Mission Space)	
Military Modeling	Modeling conducted in support of military organizations or functions or representing military behaviours.	
Military Scenario	Scenario of interest to Military operations or agents. (See Scenario)	
Mission Space	1) The [world] in which a particular mission is performed. 2) The environment of entities, actions, and interactions comprising the set of interrelated processes used by individuals and/or organizations to accomplish assigned tasks.	Report from the Fidelity Implementation Study Group, DoD, "M&S Master Plan", DoD 5000-59-P
Mission Space Model	A model based primarily upon knowledge of the real world. Such a model, if based entirely upon expert opinion of the real world, is a preliminary to creating a mathematical or software model. A mission space model of an object should describe what that object does, at some level of fidelity, in the environment in which the mission is executed. See model, mathematical model, software model, mission space.	Report from the Fidelity Implementation Study Group
Model	1) A physical, mathematical, or otherwise logical abstract representation of a system, entity, phenomenon, or process with its own assumptions, limitations and approximations. See simulation, conceptual model, software model, mathematical model. 2) A geometry or feature assembly built in a relative coordinate system with the intent to multiply instances of the assembly at one or more world coordinate positions. 3) A system that stands for or represents another typically more comprehensive system.	DoD, "M&S Master Plan", DoD 5000-59-P
Model (Noun)	A pattern of something to be made.	Jake Borah Tutorial
Model (Noun)	"… a simplified view of reality." "… A clear set of formal statements that describes something … for a specific purpose …"	Dragan Gasevic

Term	DEFINITION or COMMENT	REFERENCE
Model (Noun)	**I.** Representation of structure. b. *fig*. Something that accurately resembles something else; a person or thing that is the likeness or 'image' of another; *esp.* in ***little model***, a thing that represents on a small scale the structure or qualities of something greater. c. An archetypal image or pattern. e. A simplified or idealized description or conception of a particular system, situation, or process (often in mathematical terms: so ***mathematical model***) that is put forward as a basis for calculations, predictions, or further investigation.	OED
Model (Noun)	A simplified/abstracted representation of a part of reality or a potential reality.	Text
Model (Noun)	A physical, mathematical, or otherwise logical representation of a referent of interest	Text
Model (Verb)	1.a. *trans.* To present as in a model or outline; to portray or describe in detail. b. [after MODEL n. 2e.] To devise a (usu. mathematical) model of (a phenomenon, system, etc.).	OED
Model (Verb)	… to produce a representation of or simulation of [something].	Jake Borah Tutorial
Model Identification	Data structure that can accommodate information related to the identification of a conceptual model such as: Name, Type, Version, Modification Date, Security Classification, Release Restriction, Purpose, Application Domain, Description, and Use Limitation.	
Model Kinds	Types or alternative classes of models. Examples are dynamic, static, state machine, structural, behavioral, agent, object-based, process-based, Meta data, entity relation, activity, composition, generalization, collaboration, event trace and sequence.	Text
Modeling	… representation [*v.*] of a system for the purpose of studying the system.	Banks, Carson, and Nelson
Modeling	… cost effective use of something in place of something else for some purpose.	Ray Rothenburg
Modeling	Application of a standard, rigorous, structured methodology to create and validate a physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process.	The Fidelity ISG Glossary
Modeling and Simulation (M&S)	The use of models, including emulators, prototypes, simulators, and stimulators, either statically or over time, to develop data as a basis for making managerial or technical decisions. The terms "modeling" and "simulation" are often (though imprecisely) used interchangeably.	MSETT NAWC-TSD Glossary; DoD M&S Glossary, DoD 5000.59-M
Modeling and Simulation (M&S)	The use of models, including emulators, prototypes, simulators, and stimulators, either statically or over time, to develop data as a basis for making managerial or technical decisions. The terms "modeling" and "simulation" are often used interchangeably.	The Fidelity ISG Glossary

Term	DEFINITION or COMMENT	REFERENCE
Need	3.a. Necessity arising from the facts or circumstance of the case; 10.A A condition marked by the lack or want of some necessary thing, or requiring some extraneous aid or addition.	OED
Need	A 'want' or 'need' is related to the state of expectation or intention of one or another of the stakeholders. Individually or collectively, stakeholders may have anticipatory preferences for that which is produced as the conceptual model proper based on their intended use for it in context of their role within the enterprise. Wants and needs in this view are desiderata.	Text
Notation	A system of characters, symbols, or abbreviated expressions used in an art or science or in mathematics or logic to express technical facts or quantities.	
Notation	Set of names, symbols, or other semiotic devices together with syntactic rules for associated the elements of the notation into meaningful statements.	
Notational Schema	Schema (see below) manifest as notational symbology.	
Object	A fundamental element of a conceptual representation for a federate that reflects the "real world" at levels of abstraction and resolution appropriate for federate interoperability. For any given value of time the state of an object is defined as the enumeration of all its attribute values.	The Fidelity ISG Glossary
Object Model	A specification of the objects intrinsic to a given system, including a description of the object characteristics, or attributes, and a description of the static and dynamic relationships that exist between objects.	The Fidelity ISG Glossary
Ontology	Ontologies are formalized vocabularies of terms, often covering a specific domain and shared by a community of users. They specify the definitions of terms by describing their relationships with other terms in the ontology.	Lee Lacey
Ontology	'An' ontology is a specification of a conceptualization. Practically, "A representation vocabulary often specialized to some domain". "... the body of knowledge describing the domain using the representation vocabulary" "... an explicit representation of a shared understanding of the important concepts in some domain of interest".	OED; Dragan Gasevic
Ontology	Combination of objects and processes of interest.	Text
Ontology	An explicit formal conceptualisation of a shared understanding of the domain of interest including the vocabulary of terms, semantics as well as their pragmatics.	Text
Ontology	In short, 'ontology' asks the rhetorical question: What is there? In the present context, more specific formulations might be: What do we care about, or alternatively, what is it necessary to represent in a model or simulation in order for the resulting product to serve its intended use? Given this knowledge, the next question that must be addressed is: How can one select, and document the contents of such a representation?	Text

Term	DEFINITION or COMMENT	REFERENCE
Ontology (Formal)	Ontologies may be classified depending upon both their formality and complexity as a continuum as belong to the following major categories: Highly Informal, Semi Formal, and Rigorously Formal. Formal ontologies are considered to be: "… the systematic formal, axiomatic development of the logic of all forms and modes of being. It studies the formal properties and classification of the entities of the world (physical objects, events, etc.), and of the categories that model the world (concepts, property, etc.)"	Asunción Gómez Pérez
Pattern(s)	1) a. The original proposed imitation; the archetype; that which is to be copied; an exemplar' (J.); an example or model deserving imitation; an example or model of a particular excellence. 2) a. Anything fashioned, shaped, or designed to serve as a model from which something is to be made; a model, design, plan, or outline. [therefore a kind of a model]. 6) An example, an instance; *esp.* a typical, model, or representative instance, a signal example. c. *fig.* An arrangement or order of things or activity in abstract senses; order or form discernible in things, actions, ideas, situations, etc.	OED
Policy	A deliberate plan of action to guide decisions and achieve rational outcomes.	Wikipedia
Precision	1) The quality or state of being clearly depicted, definite, measured or calculated. 2) A quality associated with the spread of data obtained in repetitions of an experiment as measured by variance; the lower the variance, the higher the precision. 3) A measure of how meticulously or rigorously computational processes are described or performed by a model or simulation. See resolution, sensitivity.	Report from the Fidelity Implementation Study Group
Predicate	1) *Logic.* That which is predicated or said of the subject in a proposition. 2) *Gram* c. A quality, an attribute.	OED
Primitives	Elemental components from which higher-order composites may be composed. Commonly applied to conceptual model constructs. Examples are entity, object, signal, time, event, attribute, message, state.	Text
Process	1) Something that affects entities (e.g., attrition, communications, and movement). Processes have a level of detail by which they are described. 2) A system of operations in producing something. 3) A series of actions, changes, or functions that achieve an end or result.	Houghton Mifflin Co., Webster's II, New College Dictionary, 1995
Process Consistency, Commonality and Tailorability	Processes comprising the conceptual model best-practice must be appropriate for execution in a NATO-diverse constituency. Best-practice process elements must be sufficiently consistent that participation in conceptual modeling can be extended across any sub-set of the NATO M&S community.	

Term	DEFINITION or COMMENT	REFERENCE
Process Consistency, Commonality and Tailorability (cont'd)	Practice commonality must have a similar domain in order that suitable common ground exist from which NATO M&S constituents may fully appreciate both how conceptual models were achieved and what their contents are once produced. Conceptual modeling processes and products must, nevertheless, be sufficiently tailorable so that they can be socialized by any particular sub-set of the enterprise to which they will particularly pertain – and they must be sufficiently tailorable as to admit the specific referent subject matter, conceptual constructs, and representational schemas as may be elected by one or another sub-set of the stakeholder community.	
Process Guidance	Prescriptive guidance specifying the effort or activity necessary and sufficient to create a desired work-product resulting from a developmental activity.	
Process Model	A model of the processes performed by a system (e.g., a model that represents the software development process as a sequence of phases). See structural model.	The Fidelity ISG Glossary
Producer	This is a person or organization that will endeavour to satisfy the sponsor's need.	Text
Producer (Knowledge Engineer)	1) Understanding of operational issues and mission context. 2) Translation of operational issues and mission context into a conceptual model. 3) Unambiguous communication with SMEs and implementers.	Text
Producer (M&S PM)	1) Effective use of allocated resources (e.g., ensuring reuse when appropriate). 2) Unambiguous communication with customer.	Text
Producer (M&S SME) **Military SME**	1) Understanding of operational issues and mission context. 2) Translation of operational issues and mission context into a conceptual model. 3) Unambiguous communication with SMEs and implementers.	
Producer (M&S SME)	1) Understanding of operational issues and mission context. 2) Provide technical and military know-how at appropriate level of detail.	Text
Product Consistency	Conceptual model product consistency must be sufficient that the library of conceptual models deployed and used within the NATO M&S enterprise are at least evidently interpretable among stakeholders, and preferably interoperable (to within similarity of mission space referents) across the enterprise.. While complete interoperability and exhaustive re-usability are not likely to occur even under the most auspicious circumstances, and while it is certain that no degree of product 'best-practice' results could guarantee such consistency, any element of the prescribed practice that can be established with a view to improving product consistency should be adopted.	
Product Guidance	Prescriptive guidance specifying the nature of the subject work-product resulting from a developmental activity.	

Term	DEFINITION or COMMENT	REFERENCE
Product Quality	Conceptual model product quality across the enterprise is relevant from two complimentary perspectives. On the one hand consistent quality in fact resulting from the subject guidance is directly correlated to the value of the return on investment in conceptual modeling itself. On the other hand, sufficient and auditably documented product quality across conceptual models will influence greatly both the likelihood of use of the conceptual modeling best-practice guidance and the re-use sharing, and recovery of utility of the pursuant models themselves.	
Project Manager	Role title relating to responsible agent leading a project or program of activity.	
Properties	Attributes, characteristics of a thing or process.	
Purpose(s)	1) a. That which one sets before oneself as a thing to be done or attained; the object which one has in view. 2) a. Without *a* or *pl*. The action or fact of intending or meaning to do something; intention, resolution, determination. 3) The object for which anything is done or made, or for which it exists; the result or effect intended or sought; end, aim.	OED
Quality	A totality of features and characteristics of a conceptual model that bear on its ability to satisfy stated or implied needs. It measures how "good" a conceptual model might be for various purposes.	Text
Quality	Measures how "good" a conceptual model might be for various purposes.	Text
Real-Time	In modelling and simulation, simulated time advances at the same rate as actual time (e.g., running the simulation for one second results in the model advancing time by one second). See fast time, slow time.	The Fidelity ISG Glossary
Real-World	The set of real or hypothetical causes and effects that simulation technology attempts to replicate. See real battlefield. The real world defines one standard against which fidelity is measured that includes both imagined reality and material reality in order to accommodate assessment of simulation fidelity when future concepts and systems are involved. See fidelity, imagined reality, material reality, perceived truth.	Report from the Fidelity Implementation Study Group
Reference	A pointer to additional sources of information such as locations in XML documents and references to ontologies (both domain and middle level) which are used by the conceptual model.	
Referent	That part of the mission-space being represented in the simulation – also denoted the 'simuland'.	
Referent	a. That to which something has reference; *spec.* that which is referred to by a word or expression. Also in *Comb. (appositively),* as referent-object.	OED
Referent	A set of fictive or existing systems, entities, phenomena, or processes subjected to modeling and simulation which a user may want to consider in the context of their own objects or interests.	Text

Term	DEFINITION or COMMENT	REFERENCE
Referent	1) A codified body of knowledge about a thing being simulated. 2) Something referenced or singled out for attention, a designated object, real or imaginary or any class of such objects.	Report from the Fidelity Implementation Study Group, Houghton Mifflin Co., Webster's II, New College Dictionary, 1995
Relation	3) a. That feature or attribute of things which is involved in considering them in comparison or contrast with each other; the particular way in which one thin is thought of in connection with another; any connection, correspondence, or association, which can be conceived as naturally existing between things.	OED
Relationship	The state of being related; a condition or character based upon this.	
Repository	A place where data or specimens are stored and maintained for future retrieval.	Wikipedia
Representation	2) a. *n* An image, likeness, or reproduction in some manner *of* a thing. d. The fact of expressing or denoting by means of a figure or symbol; symbolic action or exhibition. 6) a. *v* The action of presenting to the mind or imagination; an image thus presented; a clearly-conceived idea or concept.	OED
Representation	1) Something that stands in place of or is chosen to substitute for something else, e.g., representation of constituencies in government, linguistic representation of an event. 2) Something that describes as an embodiment of a specified quality. 3) The homomorphism of a group of abstract symbols into a group of more familiar objects. 4) A model or simulation.	Houghton Mifflin Co., Webster's II, New College Dictionary, 1995, Report from the Fidelity Implementation Study Group
Representational Polymorphism	Multiple representations of the same data to serve the needs of different users.	SEDRIS Glossary
Requirement	3) That which is required or needed; a want, need. b. that which is called for or demanded; a condition which must be complied with.	OED
Requirement	A 'requirement' is related to the necessary and sufficient attributes of the conceptual model as determined appropriate for the enterprise at large. Requirements both prescribe and proscribe the characteristics of the conceptual model which, if present, guarantee the model to be adequate for its several intended uses.	Text

Term	DEFINITION or COMMENT	REFERENCE
Requirement (cont'd)	As such, requirements must be monolithic within the enterprise and must manifest the potentially disparate stakeholders' wants and needs in positive-definite, observable form.	Text
Resolution	1) The degree of detail used to represent aspects of the real world or a specified standard or referent by a model or simulation. 2) Separation or reduction of something into its constituent parts; granularity.	Houghton Mifflin Co., Webster's II, New College Dictionary, 1995
Reusability	Able to be used again; suitable for second or further usage.	
Reuse	For an asset to be used again subsequent to its initial intended use.	
Risk	Possibility that actual outcomes will vary from what is expected.	
Risk	A measure of the inability to achieve program objectives within defined cost and schedule constraints. It has two components: the probability of failing to achieve a particular outcome, and the consequences of failing to achieve that outcome.	Glossary of Defense Acquisition Acronyms & Terms, Defense Acquisition University Press
Risk	"The chance of things not turning out as expected. Risk taking lies at the heart of capitalism and is responsible for a large part of the growth of an economy. In general, economists assume that people are willing to be exposed to increased risks only if, on average, they can expect to earn higher returns than if they had less exposure to risk."	http://www.economist.com/research/economics
Role	The named designation of a relationship that may be assigned-to or assumed-by an individual or organization with respect to some function or organizational entity. Role is intended to imply requisite authority and concomitant responsibility to execute the associated functions or to act successfully in relation to the designated organizational entity.	Webster..."a part or character assumed by anyone."
Role (Functional) Authority	Those functions (including decisions) that the individual person or organization assigned to a role class or instance may perform. … what the role holder may do.	
Role (Functional) Responsibility	Those functions that must be performed by the person or organization assigned to any particular role class or instance. Performance of functional responsibilities is a necessary condition of satisfactory role-position execution. … what the role holder must do.	
Scale	A specified, graduated reference used to measure the value of an item to a decision-maker or user.	
Scenario	2) A sketch, outline, or description of an imagined situation or sequence of events; esp. (a) a synopsis of the development of a hypothetical future world war, and hence an outline of any possible sequence of future events; (b) an outline of an intended course of action; (c) a scientific model or description intended to account for observable facts.	

Term	DEFINITION or COMMENT	REFERENCE
Scenario (cont'd)	Hence, in weakened series (not easily distinguishable from sense 1a *transf.* and *fig.*): a circumstance, situation, scene, sequence of events, etc.	OED
Schema	1) a. *Philos.* In Kant: Any one of certain forms or rules of the 'productive' imagination' through which the understanding is able to apply its ' categories' to the manifold of sense-perception in the process of realizing knowledge or experience... (e.g., A rule that organizes perceptions into a unitary whole.) b. *Neurol.* and *Psychol.* An automatic, unconscious coding or organization of incoming physiological or psychological stimuli, giving rise to a particular response or effect.	OED
Scope	The range, breadth, or degree of extension of the universe of discourse.	
Semantic(s)	2) a. Relating to signification or meaning.	OED
Semantics	The components of a rule or lexical entry that define the meaning of a morpheme, word, phrase, or sentence.	Steven Pinker
Semantics	1) The implied meaning of data to define what entities mean with respect to their roles in a system. 2) The study of relationships between signs and symbols and what they represent to their interpreters.	SEDRIS Glossary, 29 Jun 1998, Houghton Mifflin Co., Webster's II, New College Dictionary, 1995
Simplification	Analytical technique in which unimportant details are removed in order to define simpler relationships.	Jake Borah Tutorial
Simuland	The system being simulated by a simulation. See referent, model, and simulation.	The Fidelity ISG Glossary
Simulation	The imitative representation of the functioning of one system or process by means of the functioning of another".	
Simulation	The implementation of a model over time.	Text
Simulation	1) A method, software framework or system for implementing one or more models in the proper order to determine how key properties of the original may change over time. See model, representation. 2) An unobtrusive scientific method of inquiry involving experiments with a model rather than with the portion of reality this model represents.	Report from the Fidelity Implementation Study Group
Simulation Conceptual Model	Conceptual model of or for a simulation.	
Simulation Engineering	Sub-discipline of engineering where models and simulations are the systems of interest.	
Simulation Executable Model	The model as it is actually implemented and exercised in the simulation.	

Term	DEFINITION or COMMENT	REFERENCE
Simulation Process	The imitative representation of the actions of platform(s), munition(s), and life form(s) by computer program(s) in accordance with a mathematical model and the generation of associated battlefield entities that may be fully automated or partially automated.	The Fidelity ISG Glossary
Simulation Space	The simulation artefact wherein simulation mission space representation is manifest.	
Sponsor	Person or organization that sees a need for modeling and simulation in the solving of a problem such as specifying an operation requirement or analyzing a capability.	Text
Sponsor Responsibility	Responsibilities of a sponsor role agent include: 1) Analysis of combat outcome, system performance, system alternative trade-offs, etc. 2) Cost-effective training. 3) Credibility of analysis results. 4) Making sure the Conceptual Model represents necessary and sufficient relevant information about operational issues and mission context of interest (correct scope). 5) Decision-making based on analysis products (introducing a new tactic, procuring a new system, etc.). 6) Cost of modeling and simulation.	
Stakeholder Community	Conceptual modeling will be conducted and its value recovered in a community or practice commensurate with the scope and diversity of the enterprise participants. Concepts invoked to develop, understand, share, and reuse conceptual model artifacts with confidence, and with reasonable expectation of accruing the benefits of shared investment require that all stakeholder roles be carefully defined and be appreciated as pertaining across the enterprise scope.	
Stakeholder(s)	People or organizational persons likely to be affected by a process or product.	
Standard	1) An accepted measure of comparison for quantitative or qualitative value; a criterion. 2) Proposition of a norm or general pattern to be followed when constructing, operating or testing a (technical) device. A standard contains a set of reference criteria for functional, structural, performance or quality aspects of a device or for any combination of these.	Houghton Mifflin Co., Webster's II, New College Dictionary, 1995
Standard(s)	10) a. (Originally *fig* from 9.) An authoritative or recognized exemplar of correctness, perfection, or some definite degree of any quality. b. A rule, principle, or means of judgement or estimation; a criterion, measure. 12) a. A definite degree of any quality, viewed as a prescribed object of endeavour or as the measure of what is adequate for some purpose.	OED
Stimulation	The use of simulations to provide an external stimulus to a system or sub-system (e.g., using a simulation representing the radar return from a target to drive (stimulate) the radar of a missile system within a hardware/ software-in-the-loop simulation).	The Fidelity ISG Glossary

Term	DEFINITION or COMMENT	REFERENCE
Subject-Matter Expert	Individual particularly well-informed or adept in one or another subject matter domain.	
Syntactic Expression	Facilitates enforcement of syntactic precision upon statements whose semantic-information content is left to the modeller agent.	Text
Syntax	The component of grammar that arranges words into phrases and sentences.	Steven Pinker
System of Interest	Set of fictive or existing systems, entities, phenomena, or processes subjected to modeling and simulation representation and which a user of the system wants to consider in the context of their own needs, objectives or interests.	
Tailorable	Attribute of an entity or process whereby it admits to being changed specifically in order to make it more suitably relevant or purposefully fit for some particular intended purpose or use.	
Task	A task is a description of a military activity, including the activity performer and the activity object(s). It may be decomposed into sub-tasks (recursively decomposable) or steps (atomic).	
Traceability	Every requirement statement can be referred to a corresponding need, constraint or policy statement.	
Traceability	The quality of being traceable; to follow the course, development, or history of. Also with the course, etc., as object. fit.	
Traceability	Left to conceptual model stakeholder practitioner with respect to selection, modification and interpretation of notational schemas.	Text
Unambiguity	The requirement is given a form that avoids misinterpretation.	
Universe of Stakeholders	All of the participants with an abiding interest (types or individuals) relevant to a specific use case or instance of investment management.	
Use Cases	A description of a system's behavior as it responds to a request that originates from outside of that system. The use case technique is used in software and systems engineering to capture the functional requirements of a system. Use cases describe the interaction between a primary Actor (the initiator of the interaction) and the system itself, represented as a sequence of simple steps. Actors are something or someone which exists outside the system under study, and that take part in a sequence of activities in a dialogue with the system to achieve some goal. They may be end users, other systems, or hardware devices. Each use case is a complete series of events, described from the point of view of the Actor. In this case the system is the simulation conceptual model.	http://en.wikipedia.org/wiki/Use_case
User	Role specification denoting individual or organization who will employ the subject (conceptual model) work-product for any of a variety of purposes within scope of the M&S enterprise.	
User-Needs	See User and Needs.	
Users' View	See User and View.	

Term	DEFINITION or COMMENT	REFERENCE
Utility	The "utility" of something is one factor that is taken into consideration when determining things of "value."	
Utility	Economist-speak for a good thing; a measure of satisfaction. Underlying most economic theory is the assumption that people do things because doing so gives them utility. Individuals strive to achieve as much utility as possible. However, the more they have the less difference an additional unit of utility will make – there is diminishing marginal utility. Utility is not the same as utilitarianism, a political philosophy based on achieving the greatest happiness of the greatest number.	
Utility	The (relative) importance of items in a class to an agent.	Choices: An Introduction to Decision Theory, Resnik, 1987
Utility	The state or quality of being useful militarily or operationally. Designed for or possessing a number of useful or practical purposes rather than a single, specialized one.	Glossary of Defense Acquisition Acronyms & Terms, Defense Acquisition University Press
Utility	Utility is the property of the relative satisfaction gained by the use of a system expressed in terms of a value and cost. It measures the kinds of purposes for which the conceptual model might provide value.	Text
Utility	Assesses the effectiveness and efficiency of the conceptual model in solving the problem statement.	Text
Utility Function	A representation of a consumer's preferences that maps potential and actual items and outcomes and the value preferences of a consumer or decision-maker.	
Utility Scales	A specified, graduated reference used to measure the value of an item or process to a decision-maker or user.	
V&V Agents	Role title for those responsible for managing verification and validation within an M&S enterprise environment.	
V&V Data Elements	The V&V process can produce an enormous amount of data. These data are collected under a label called V&V Data Elements and placed in the product "conceptual model Meta data". In the table below a list of data items is presented together with the Process Activities where that data is produced.	
Validation	The process of determining the degree to which a model or simulation is an accurate representation of the real world, or some other meaningful referent, from the perspective of the intended uses of the model or simulation.	The Fidelity ISG Glossary

Term	DEFINITION or COMMENT	REFERENCE
Validation	The purpose of the Validation Process is to provide objective evidence that the services provided by a system entity when in use comply with stakeholders' requirements.	
Validation of Conceptual Model	Process of validation applied to subject conceptual model. See validation and conceptual model.	
Validity	The property of a simulation model to have, within a specific experimental frame, a behavior which is indistinguishable under a set of validation criteria from the behavior of the System of Interest.	
Validity	Assesses the level of agreement of the conceptual model behavioral representation with that of the simuland.	Text
Validity	1) The quality of being inferred, deduced or calculated correctly enough to suit a specific application. 2) The quality of maintained data that is found on an adequate system of classification (e.g., data model) and is rigorous enough to compel acceptance for a specific use. 3) The logical truth of a derivation or statement, based on a given set of propositions.	Report from the Fidelity Implementation Study Group
Value	I.1.a. That amount of some commodity, medium of exchange, etc., which is considered to be an equivalent for something else. (See Cost)	OED
Verification	The purpose of the Verification Process is to confirm that the specified design requirements are fulfilled by the system entity.	
Verification	The process of determining that a model or simulation implementation accurately represents the developer's conceptual description and specification. Verification also evaluates the extent to which the model or simulation has been developed using sound and established software engineering techniques.	DoD, "M&S Master Plan", DoD 5000-59-P
View	Instance of a model kind with selected information.	
Views	Examples are class diagram, activity diagrams, swim lanes, state diagram, operational view, etc.	
Want	2) a. Deficiency, shortage or lack (of something, desirable or necessary, esp a quality or attribute). 5) a A condition marked by the lack of some necessary thing, or requiring some extraneous aid or addition; need; also, an instance of this, and so freq. *pl* (passing into the quasi- *concr*, sense' requirement'.	OED
Want	A 'want' or 'need' is related to the state of expectation or intention of one or another of the stakeholders. Individually or collectively, stakeholders may have anticipatory preferences for that which is produced as the conceptual model proper based on their intended use for it in context of their role within the enterprise. Wants and needs in this view are desiderata.	Text