Modeling and Simulation Body of Knowledge (MSBOK

Stakeholders and Possible Uses of the MSBoK

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In preparing, revising, and adopting a modeling and simulation body of knowledge index (MSBOK Index), one should consider that the index needs to satisfy the needs of all its stakeholders. Hence, the determination of the stakeholders of an MSBOK Index is of paramount importance for its present and future usefulness.

Basic Definitions:

- A *stakeholder of an entity* is any individual, institution, or another entity which can be interested or involved in it; or may be affected by it.
- A *stakeholder of a simulation project* is an individual or institution who requests, pays for, develops, maintains, or affected by it.
- A *stakeholder of an MSBOK Index* is an individual or institution which can be interested or involved in it; or may be affected by it; or the MS discipline or market. (The details are outlined in Table 1).

Two major aspects to be considered are pragmatic and epistemological.

MSBOK: Pragmatic Aspects

It is quite natural that different people may be interested to different aspects of MSBOK.

However, the MSBOK to be developed needs to be complete and consistent from every perspective. Otherwise, the full usefulness of the MSBOK may be compromised.

The members of professional associations, groups, and centers active in a variety of aspects of M&S are part of the MS stakeholders.

From a pragmatic aspect, a good MSBOK may highlight the salient features of M&S in all application areas. This knowledge can be used, for several categories of usages of MS:

(1) to prepare the workforce, by providing guidelines for curriculum development for undergraduate and graduate education as well as for professional development;

(2) as a basis for professional certifications;

(3) as a guideline for the current and future simulation professionals for career planning and self-assessment.

As outlined in Table 1, the MSBOK can be useful to different stakeholders of simulation.

Table 1. Possible Uses of MSBOK by Different Categories of Stakeholders

Stakeholders of MSBOK		**Possible uses**
Individuals	Researchers / Educators	Referencing Expansion and dissemination of knowledge Contribute to its specification
	Practitioners	Specific problem solving Identification and evaluation of techniques Contribute to its specification
	Experienced learners	Expansion of knowledge Verification of derived knowledge Accomplishment of corporate or certificate requirements
	Novice learners	Explore the discipline, Determine applicability
	Customers/Users of products/services	Source selection; Evaluation of products, services, techniques, vendors/providers
	People (to be) affected by simulation projects	Benefit from the results of simulation studies Be cognizant of potentially misleading simulation studies
	Industrialist	Exploring opportunities for the development of novel and desirable products and services Contribute to its specification
Institutions	Educational institutions	Curriculum / course development (including graduate / undergraduate degree programs, academic / professional development courses)
	Associations / Groups / Centers	Include in their activities pertinent areas of MS Contribute to its specification
	Agencies for Licensing or Certification (of individuals / organizations)	Establishment, promotion, and monitoring of professional standards for: individuals, commercial organizations, academic degree programs
	Standardization Organizations	Develop, disseminate, and promote standards in all relevant areas
	Funding Agencies	Explore the discipline Determine timeliness and applicability of proposals Evaluation of alternatives Steering the R&D activities
	Commercial institutions	Exploring opportunities, Satisfying needs, Resource allocation, Personal selection
Discipline and Market		A well-defined body of knowledge is needed: (1) to delimit the scope of the M&S discipline and (2) its relations with relevant disciplines Formation of market, niche markets, and workforce Economics of simulation

M&SBOK: Epistemological Aspects

Epistemological aspects of simulation have been subject to scrutiny quite recently, especially within the realm of social system simulation.

However, the topics covered under this umbrella include a broad basis from cognition to “What makes the quality of a simulation model?” (Frank and Troitzsch 2005; Becker, Niehaves and Klose 2005)