

INCOSE Symposium Paper and Reviewer Categorization

		Application Sectors									
SE Enablers	a	<u>SE Theory</u> <ul style="list-style-type: none"> • SEE01 Systems Thinking • SEE02 Complexity Science • SEE03 Systems Dynamics • SEE04 Systems Science 									
	b	<u>SE Practice – Technical/Project</u> <ul style="list-style-type: none"> • SEE05 Requirements Elicitation and Management • SEE06 Architectural Design • SEE07 System Integration • SEE08 Verification / Validation • SEE09 Transition / Operation / Maintenance • SEE10 Project Planning / Assessment / Control • SEE11 Decision Analysis / Management • SEE12 Cause Analysis • SEE13 Risk / Opportunity Management • SEE14 Configuration / Information Management • SEE15 Measurement 									
			AS01 Transportation	AS02 Government, Defense & Security	AS03 Information & Communications	AS04 Energy	AS05 Consumer Products & Services	AS06 Biomedical, Health & Social Services	AS07 Enterprise & Environment	AS08 Infrastructure & Resource Management	AS09 Other Application Sectors

	C	<u>SE Practice - Specialty Engineering</u> <ul style="list-style-type: none"> • SEE16 Reliability / Availability/Maintainability • SEE17 Logistics / Supportability • SEE18 Environmental Compatibility • SEE19 Human Factors / Human System Interface • SEE20 Resource Management • SEE21 Safety / Security • SEE22 Life-cycle Costing / Economic Evaluation • SEE23 Acquisition / Supply 									
	D	<u>Cross-Cutting Systems Engineering</u> <ul style="list-style-type: none"> • SEE24 MBSE • SEE25 Systems of Systems (SOS) • SEE26 Modelling and Simulation • SEE27 Teaching and Training • SEE28 Processes • SEE29 Other SE Enabler 									

Brief Description of Rows and Columns

Rows (Enablers)

a SE Theory

The theoretical foundations of systems engineering including system concepts, systems thinking, complexity science, system dynamics, system science, agent-based modeling, etc. Shares emerging knowledge for improving the practice of systems engineering; and principles and guidelines for better analysis, execution of programs, uncertainty management (opportunity as well as risk), tool selection, development of systems engineering processes etc.

b SE Practice – Technical/Project Process per ISO 15288

All the practical implementations of systems engineering activities throughout the lifecycle of the systems, from user requirements elicitation to system retirement, including configuration management, reviewing, risk assessment, cause analysis, planning, evaluation and improvement, documentation processes.

c SE Practice – Specialty Engineering

Theories, processes, and procedures that focus on aspects of systems essential to achieving an effective product life cycle such as reliability, availability, maintainability, logistics and supportability constructability, environmental compatibility, human factors, resource management safety, security and life cycle costing and economic evaluation, acquisition and supply.

d Cross-Cutting Systems Engineering

The systems engineering activities that span cross multiple SE technical processes: Model-Based Systems Engineering (MBSE), Systems of Systems (SoS), Modelling and Simulation, Processes, Teaching and Training, and others SE enablers)

Columns (Application Sectors)

AS01 Transportation

An industry sector of manufacturing and utilizing vehicles, trains, ships, boats, aircraft, spacecraft and other systems mainly for commercial and public purposes, including its ground equipment and other enabling systems.

AS02 Government, Defense & Security

An industry sector of manufacturing and utilizing any systems for defense or security, including vehicles, ships, aircraft, spacecraft and satellite systems mainly for military and national security purpose, including its ground equipments and enabling systems.

AS03 Information & Communications

The application of systems engineering to acquisition, processing, management, storage, and retrieval of data, information, and knowledge. This includes data mining, knowledge management, intelligence assessment, and all types of communications and business data management.

AS04 Energy

An industry sector comprising all sources of energy such as oil, gas, nuclear, water, solar power and their utilization systems. This also includes the systems that address life-cycle issues, for example emissions, monitoring equipment, etc.

AS05 Consumer Products & Services

A wide range of industry sectors that implement business with individual customers who purchase products and services for personal use. Top level requirements are derived from the Voice of the Customers.

AS06 Biomedical, Health & Social Service

The application of systems engineering to issues of major concern to society in general, such as biomedical, healthcare, and other social services where systems engineering is used as a methodology for understanding the complexity of the issue and develop conceptual approaches and solutions.

AS07 Enterprise & Environment

The application of systems engineering to the understanding, development, or optimization of an enterprise; that is, to two or more people applying resources through actions to achieve mutual purpose. This includes intelligent enterprises, business systems, and systems of systems. Environmental impact and corporate social responsibility to the planet is part of this sector (e.g. sustainability and global warming), including enabling systems for recycling, reuse, etc.

AS08 Infrastructure & Resource Management

An industry sector that includes the construction industry and the utilities, e.g. roads, bridge, ports, airports, public buildings, etc. It also includes manufacturing technologies as the infrastructure underpinning of the manufacturing industry.

A09 Other Application Sectors

Industry sectors that are not listed in the above 8 sectors